Final Report

**Feasibility Study on developing
harmonized e- immigration information systems
for the East African Community (EAC) Region**

**THE EAST AFRICAN COMMUNITY
SECRETARIAT**

Submitted by :

National IT Industry
Promotion Agency,
Korea

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Preface

The "Feasibility Study on developing harmonized e- immigration information systems for the East African Community (EAC) Region" has been conducted by NIPA consultants with the cooperation of East African Community (EAC). The NIPA and EAC have the ownership on the modification and revision on this report. For further information or additional modification, please contact EAC secretary or NIPA consultant members at following email address;

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List of Abbreviation

AA	Active Authentication
ADSL	Asymmetric Digital Subscriber Line
AfDB	African Development Bank
APCS	Automated Passenger Clearance System
APIS	Advanced Passenger Information System
BA	Basic Access Control
BI	Business Intelligence
BIS	Biometric Information System
BOP	Balance of payments
BPR	Business Process Reengineering
BPS	Bit Per Second
CAS	Card Administration System
CIA	Central Intelligence Agency
CS	Client Server
DAC	Development Assistance Committee
DB	DataBase
DBMS	DataBase Management System
DCS	Director of Citizen Services
DG	Director General
DMS	Director of Management and Support
DMZ	DeMilitarized Zone
DRC	Democratic Republic of the Congo
DRP	Disaster Recovery Plan
DVR	Director of Visitors and Residents
E/D	Embarkation Dembarkation
EAC	East African Community
EAC	Extended Access Control
EAI	Enterprise Application Integration
EDCF	Economic Development Cooperation Fund
EDPRS	Economic Development and Poverty Reduction Strategy
ETL	Extraction, Transformation, Loading
EU	European Union
F/S	Feasibility Study
FDI	Foreign direct investment
FF	Forged and Falsified
FTP	File Transfer Protocol

FY	Fiscal Year
GDP	Gross Domestic Product
GNI	Gross National Income
HA	High Availability
HDI	Human Development Index
HQ	Headquarters
HW	HardWare
IATA	International Air Transport Association
IBRD	International Bank for Reconstruction and Development
IC	Integrated Circuit
ICAO	International Civil Aviation Organization
ICT	Information Communication and Technology
ID	IDentification
IDA	International Development Association
IIS	Immigration Information System
ILO	International Labor Organization
IMF	International Monetary Fund
IOM	International Organization for Migration
ISO	International Organization for Standardization
ISP	Information Strategy Planning
IT	Information Technology
JKIA	Jomo Kenyatta International Airport
JNIA	Julius Nyerere International Airport
KEXIM	The Export-Import Bank of Korea
KISS	Korea Immigration Smart Service
KMRS	Kenya Machine Readable passport System
KMS	Key Management System
KOICA	KOrea International Cooperation Agency
KTF	Korea Trust Fund
LAN	Local Area Network
LAN	Local Network Area
LCD	Liquid Crystal Display
LDS	Logical Data Structure
LIG	Low Income Group
LNG	Liquefied Natural Gas
MDB	Multilateral Development Bank
MDB	Multidimensional DataBase
MP	Master Plan
MRP	Machine Readable Passport
NID	National IDentification

NIPA	National IT Promotion Agency of Korea
NITA	National Information Technology Authority
NMS	Network Management System
NRB	National Registration Bureau
NW	NetWork
OCR	Optical Character Recognition
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
OLAP	OnLine Analytical Processing
OSBP	One Stop Border Post
PA	Passive Authentication
PAFE	Police (Air) and des Frontiers et des Etrangèrs
PC	Personal Computer
PEST	Analysis Political, Economic, Social and Technical Analysis
PIRS	Personal Identification & Registration system
PIS	Passport Information System
PIS	Passport Issuing System
PISCES	Personal Identification Secure Comparison and Evaluation System
PKI	Public Key Infrastructure
PM	Project Manager
PMS	Permit Management System
PRS	Passenger Reconciliation System
Q&A	Question and Answer
R&R	Role and Responsibility
RAC	Real Application Clusters
SAN	Storage Area Network
SIS	Schengen Information System
SMS	Short Message Service Text
SOAP	Simple Object Access Protocol
SSA	Sub-Saharan Africa
SW	SoftWare
SWOT	Strength, Weakness, Opportunity, Threat
T/D	Travel Document
TCPIP	Transmission Control Protocol/Internet Protocol
TFT	Task Force Team
ToRs	Terms of reference
UK	United Kingdom
UN	United Nations
EDIFACT	Electronic Data Interchange For Administration, Commerce and Transport
UNCTAD	United Nations Conference on Trade and Development

UNDP	United Nations Development Program
UPS	Uninterruptible Power Supply
US	United State
USAID	United States Agency for International Development
USD	United State Dollar
UV	UltraViolet
VAN	Value Added Network
VAS	Visa Administration System
VSAT	Very-Small-Aperture Terminal
WAN	Wide Area Network
WAP	Wireless Application Protocol
WAS	Web Application Server
WB	World Bank
WBS	Work Breakdown Structure

Part 1. Project Overview

PART 1: Project Overview

1 Introduction

1.1 Project Profile

☐ Project Name: Feasibility Study on developing harmonized e- immigration information systems for the East African Community (EAC)

☐ Period: 2012.08.23 ~ 2012.10.19 (2 months)

☐ Consulting Agency: National IT industry Promotion Agency (NIPA), Korea

1.2 Project Background

The Treaty for the establishment of the East African Community (EAC) under Article 104 has provided the legal framework for cooperation and development of harmonized policies among the EAC Partner States. Immigration is a very important component of the EAC integration process and a very important pillar in the EAC's priorities.

Immigration is one of the key elements in the implementation of the EAC Common Market Protocol due to its facilitative role of the movement of people and the free movement of labour. The EAC partner-states have discussed the need for cooperation of the immigration sector through several workshops and have recommended that the harmonization of systems of Partner States need to conform to the Common Market Protocol.

Further, there is a need to adopt necessary accelerated border control information technology programs with the goal of creating a common security space. This call for a common visa policy, harmonization of polices to deter illegal migration and an automated Immigration Information System (IIS) to coordinate actions among the concerned departments of EAC partner states.

The Immigration Information Systems will manage data on illegal migrants, lost and false travel documents and wanted or missing persons and it will store digital images and biometric data and answer police requests more effectively.

EAC and NIPA discussed the cooperation and provision of technical support in the Immigration area. Based on the terms of reference prepared by the EAC Secretariat, and discussed with NIPA the FS project as a program of NIPA, was initiated.

Development of the systems requires a comprehensive study on the situational analysis of existing Immigration information systems in the five Partner States. National IT Industry Promotion Agency (NIPA) of Korea on behalf of EAC conducted a feasibility study on the development of Immigration Information Systems (IIS) within the EAC Region.

1.3 Agreement

The East African Community decided to cooperate with the National IT industry Promotion Agency of Korean government in the feasibility study for development of harmonized e-Immigration information systems for the EAC Region. The NIPA consulting team would carry out a comprehensive systems situation analysis study on the existing information systems through the site visiting & data collection and provide the design for a harmonized immigration information systems model including an implementation plan for the EAC region. The commencement meeting was held on 21st August 2012 and the feasibility study was undertaken from the 26th August to 11th September 2012.The first draft report was submitted as per work plan on 19th October 2012.

2 Understanding the Terms of Reference

2.1 Development of e-Immigration Information Systems

Development of e-Immigration Information Systems was identified as one of the five priority areas that will facilitate the Common market integration. Development of the systems would require a consultant to carry out a comprehensive systems situation analysis study on the existing information systems.

System analysis shall be based on the four strategic interventions which are mentioned in the meetings of the regional e-Immigration technical working group to meet the purpose of e-immigration strategy. Proposed strategic Interventions for e-Immigration information systems includes among others:

- Automated Immigration Information System (IIS) to coordinate actions among the concerned departments of EAC partner states. This will include data management on illegal migrants, lost and false travel documents and wanted or missing persons, storing digital images and biometric data and answering police requests more effectively
- Information Sharing - need to streamline and computerize data and information collection, processing, storage and sharing among stakeholders both at national and regional levels Systems
- Integration of existing systems such as customs, health, security, tourism, national identification, etc.
- Computerization of national level Immigration Registries

2.2 Objectives

The project has the global objectives of undertaking a feasibility study to develop harmonised e-immigration information systems for the East African Community Region. It is intended to achieve a number of specific objectives witch include:

- To review the existing Immigration Information Systems in the EAC region.
- To propose a solution for harmonizing and standardizing the existing Immigration information systems
- To provide a framework for operationalization of the Information systems

2.3 Tasks

The Consultants were expected to undertake the following tasks

· Carry out a situational analysis of existing Immigration information systems in the 5 Partner sates;

· Analyze and Review the existing Immigration information systems

· Identify key stakeholders and their respective roles in management of information systems

· Make recommendations for harmonization and implementation of the proposed Information systems

· Review and make recommendations of how existing systems such as customs, health, tourism, etc. could be integrated

· Propose technical solutions for the Information systems - hard and soft ware specifications as well as bandwidth requirements

· Propose a mechanism for effective coordination, management and maintenance of the Information systems

· Facilitate a regional stakeholders workshop

2.4 Project Scope

Scope of project covers analysis, to-be modeling and implementation plan of e-Immigration information system as follows;

Classification	Contents
Target Countries	· The assignment covers five Partner states; Uganda, Kenya, Tanzania, Rwanda and Burundi
Major Activities	· Conduct a comprehensive situational analysis of existing information systems in Immigration Departments, including the hardware, software · Review the existing systems, and make recommendations on the appropriate systems, with the aim of harmonizing the systems across the region · Establish the implementation plan for system development including task definition, budget, schedule and operational organization
Deliverables	· Inception Report · Draft report · Stakeholders Workshop Report · Final report

Table 1.   **Scope of Project**

2.5 Study Approach

The approach of undertaking the Feasibility Study of e-Immigration Information System for the EAC Region is in line with the agreed upon "Terms of reference (ToRs) for the development of immigration information systems".

1) **A participatory approach and consultative methodology to gather data from the Partner States**

A. **Consult the EAC Secretariat**

B. **Questionnaires to be used during study visits and consultative meetings to Partner States**

C. **Be guided by the:**

・ The Treaty for Establishment of the East African Community

・ EAC Development Strategy

・ EAC Regional e-Government Strategy

・ e-Immigration Stakeholders Workshop Report

・ Chiefs of Immigration/ Technical Working group Reports

・ Any other relevant information from international best practices

D. **Desk research on background information including existing e-immigration initiatives among EAC Partners States and Regional and international best practices**

E. **Present a draft report to a Regional Stakeholders validation Workshop**

F. **Present the Final draft Report to the EAC Secretariat**

2.6 Expected output

It is expected that this study will produce:

・ **Inception Report**

・ **Draft report**

・ **Stakeholders Workshop Report**

・ **Final report**

3 Study Methodology

3.1 Overview of F/S Methodology

The methodology of Feasibility Study of e-Immigration Information System for the EAC Region is a tailored methodology based on the "NIPA guideline for F/S Framework Implementation"

A. **Phase I: At the Preparation phase, the project plan including project scope, organization, schedule and research tools for feasibility study shall be developed before the official commencement meeting.**

B. **Phase II: At the Research & Analysis phase, the specific requirements and direction of e-Immigration information system shall be analyzed through the survey of the existing Immigration information systems and interview with immigration department of 5 partner states**

C. **Phase III: At the To-Be Modeling phase, the e-Immigration information system model for the EAC Region shall be proposed based on the result of site survey, and an implementation plan shall be developed as well.**

D. **Phase IV: At the Final Report phases, the Draft Report for e-Immigration F/S shall be reviewed and approved on the Stakeholders validation Workshop with EAC and 5 partner states.**
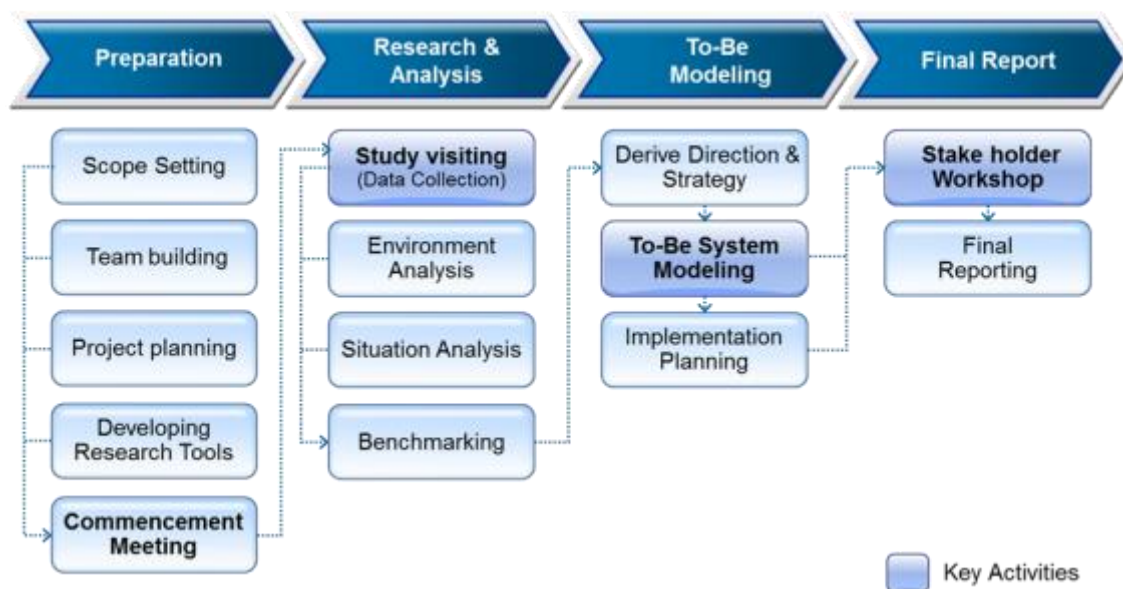
Figure 1. F/S Consulting Methodology

3.2 Study visit schedule

Project execution team carried out "Study visits" from 21st August ~ 11th September as indicated below:

Date		Activities	Location
1st Week	21st August	Commencement meeting	EAC HQ (Arusha, Tanzania)
	22nd - 24th August	Prepare Inception report	
	26th August	Arusha -> Kampala	
2nd Week	27th – 28th August	Interview Uganda Immigration department Visit Uganda Immigration Registries	Immigration of Uganda (Kampala, Uganda)
	29th August	Kampala -> Kigali	
	30th – 31st August	Interview Rwanda Immigration department Visit Rwanda Immigration Registries	Immigration of Rwanda (Kigali, Rwanda)
	1st September	Kigali -> Bujumbura	
3rd Week	3rd – 4thSeptember	Interview Burundi Immigration department Visit Burundi Immigration Registries	Immigration of Burundi (Bujumbura, Burundi)
	5th September	Bujumbura -> Nairobi	
	6th – 8th September	Interview with Kenya immigration Visit Kenya Immigration Registries	Immigration of Kenya (Nairobi, Kenya)
4th Week	9th September	Nairobi ->Dar es salaam	
	10th – 11thSeptember	Interview Tanzania Immigration department Visit Tanzania Immigration Registries	Immigration of Tanzania (Dar es Salaam, Tanzania)

Table 2.   **Site Visit Schedule**

4 Project Organization

4.1 Project Team

The project team shall consist of "Project Steering Committee", "NIPA consulting team" and "EAC expert team".
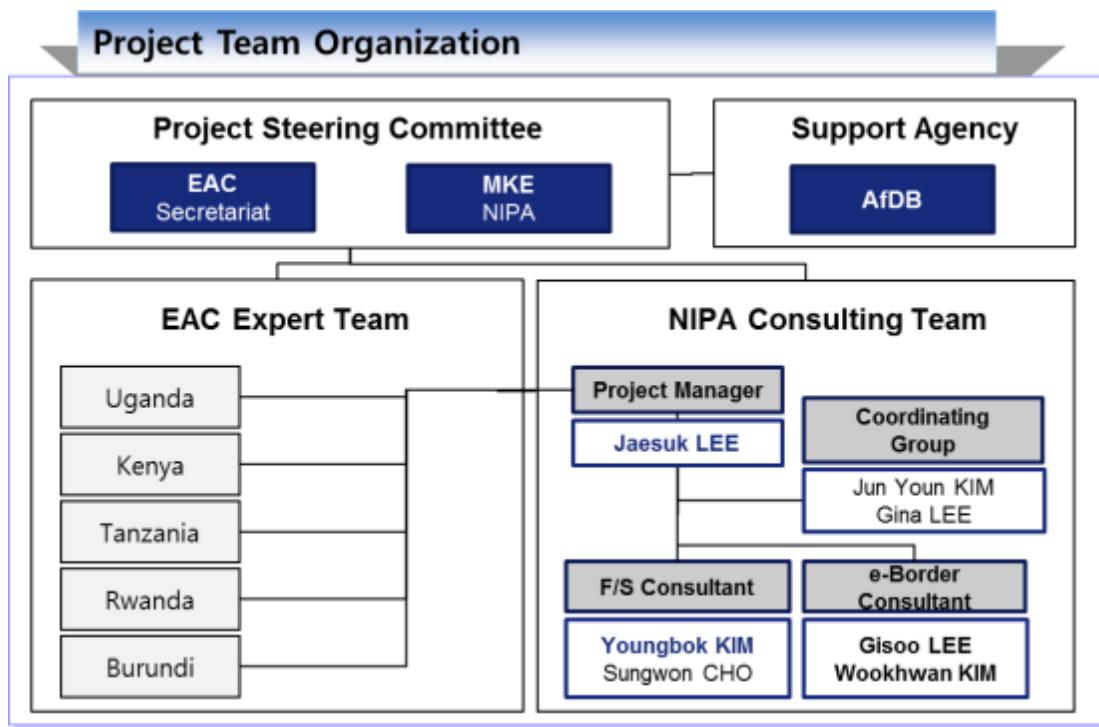
Figure 2.   Project Team Organization

4.2 Mile Stones

The following milestones are applicable to this appointment.

- Inception Report: 23rd August 2012
- Draft report: 19th October 2012
- Stakeholders Workshop Report: by 15th December 2012
- Final report: 30th January 2013

Part 2. Environment Analysis

PART 2: Environment Analysis

1 EAC Overview

1.1 Overview

The East African Community (EAC) is a regional inter-governmental organization established under Article 2 of the Treaty for the Establishment of the East African Community that entered into force in July 2000. Membership of the Community comprises the Republics of Burundi, Kenya, Rwanda, Uganda and the United Republic of Tanzania. *Pursuant to the provisions of paragraph 1 of Article 5, the Partner States undertake to establish among themselves, a Customs Union, a Common Market, subsequently a Monetary Union and ultimately a Political Federation in order to strengthen and regulate the industrial, commercial, infrastructural, cultural, social and political relations.*

1.1.1 The EAC Institutional Framework

In accordance with Article 9 of the EAC Treaty the EAC, the institutional framework of the Community consists of the Executive, the Legislative and the judicial arms. The Executive arm is composed of the Summit of the Heads of State (playing the broad Vision setting role), and the Council as the policy making organ, the Secretariat which is the executive organ of the Community and EAC Institutions. The Legislative and Judicial arms are made up of the East African Legislative Assembly and the East African Court of Justice respectively. The functions, mandates, and operational frameworks of these Organs and Institutions is set out in the Treaty, Protocols, and Rules of Procedures

1.1.2 Vision and Mission of EAC

The Vision of EAC is to attain a prosperous, competitive, secure and politically united East Africa. The Mission is to widen and deepen economic, political, social and cultural integration in order to improve the quality of life of the people of East Africa through increased competitiveness, value added production, enhanced trade and investment. The Brand of the East African Community is ''**One People, One Destiny''.**

1.1.3 Objectives of the Community

The broad objective of EAC as stipulated in Article 5 of the Treaty is to develop policies and programmes aimed at widening and deepening cooperation among the Partner States in political, social and cultural fields; research and technology, defence, security and legal and judicial affairs.

1.1.4 General information

Categories	Contents	
Community	East African Community (EAC)	
Partner states	5 states; the Republics of Kenya, the United Republic of Tanzania, Uganda, Republic of Rwanda and Republic of Burundi	
Re-Establishment	7th July, 2000 (*originally founded in 1967)	
Total Area (incl. water)	1.82 Million Km^2	Emblem
Total Population	133.1 Million(2010)	
Total GDP (current market price)	79.2 billion US Dollar (2010)	
Headquarter	Arusha of Tanzania	
Official language	English	

Table 3.   **Quick facts of EAC[1]**

1.1.5 Regional integration of East Africa

EAC has a population of 0.12 billion consumers and 80 billion dollars by GDP, and is the political and economic community consisting of 5 nations such as Kenya, Uganda, Tanzania, Burundi, Rwanda and has arranged a staged regional integration by pursuing the goal of creating a single market of consumption and investment under the initiative of customs union for the purpose of adopting a single currency as in EU (European Union) in the future and finally forming a political federation.

· **Stage 1 - Customs Union**: The EAC Customs Union that came into effect in Jan. 1, 2006 classifies nations into intraregional and extraterritorial countries and applies zero tariffs (0%) to the transaction between intraregional countries of customs union to aim at common market.

· **Stage 2 - Common Market**: EAC Common Market Protocol was launched for the entire fields, including goods, service, capital, and others, in July 2010, allowing all the goods and production factors to move freely to the regions except for some areas.

· **Stage 3 - Monetary Union**: With the goal of completion before 2013, it aims to remove transaction expense and exchange rate risk by a single system of currency to activate the trade between intraregional countries.

· **Stage 4 - Political Federation**: Based on the same historical experience and culture, it is seeking the integration into a single political system, putting its effort into exerting stronger influence of East African countries internationally, internally preventing a country divided into a tribe unit of nations, acquiring political stability, making the economy grow, and struggling against poverty.

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1 Source: EAC website, http://www.eac.int/

2   Country profiles

2.1   Geography of east Africa

Partner States of EAC are located in east region of Africa. This region stands in the rift between Africa plate and Indian plate. The region has the world's second largest freshwater, Lake Victoria, and the world's second deepest lake" Lake Tanganyika".

The climate is typical of equatorial regions. Its large territory has a variety of natural resources including wild life. The recent discovery of a big amount of petroleum and natural gas in Kenya and Tanzania provides opportunities for economic development.

Figure 3.   Geography of East Africa

2.2   Country profile of partner states

Categories	Burundi	Kenya	Rwanda	Tanzania	Uganda
National flag					
Area	27,830 Km2	580,367 km2	26,338 km2	947,300 km2	241,038 km2
Population	10,557,259	43,013,341	11,689,696	43,601,796	35,873,253
population density (Persons per 1 km2)	228	58	320	38	115

Table 4.   **Partner states' profile2**

2 Source: The CIA world factbook 2012, https://www.cia.gov/library/publications/the-world-factbook/index.html

3 Political environment analysis

Many of East African countries became independent in the early 1960s, and chose a democratic republic system. Their political systems are similar. The president and representatives are elected directly, and the cabinet members are appointed by the president. Elections are held every 5 years except Rwanda where they are held every 7 years.

Categories		Burundi	Kenya	Rwanda	Tanzania	Uganda
Capital		Bujumbura	Nairobi	Kigali	Dar es Salaam	Kampala
Government type		Republic	Republic	Republic; Multiparty	Republic	Republic
Independence		1 July 1962 (from Belgium-administered UN trusteeship)	12 Dec 1963 (from the UK)	1 Jul 1962 (from Belgium-administered UN trusteeship)	26 Apr 1964 (Tanganyika united with Zanzibar)	9 Oct 1962 (from the UK)
Legal System		mixed legal system of Belgian civil law and customary law	mixed legal system of English common law, Islamic law, and customary law	mixed legal system of German and Belgian civil laws, and customary law	English common law	mixed legal system of English common law and customary law
Executive Branch	Cabinet	appointed by president	appointed by the president and chaired by the prime minister	appointed by president	appointed by the president from among the legislators	appointed by the president from among the legislators
	Election	popular vote for a five-year term (eligible for a second term)	popular vote for a five-year term (eligible for a second term)	popular vote for a seven-year term (eligible for a second term)	popular vote for a five-year term (eligible for a second term)	popular vote for a five-year term
Legislative branch		Bicameral Parliament	Unicameral National Assembly	Bicameral Parliament consists of Senate	Unicameral National Assembly	Unicameral National Assembly

Table 5. **The structure of government[3]**

Based on stable political surroundings, each country has established mid- and long-term growth plan to push ahead for national development and economic growth.

· In 2008, Kenya adopted and is implementing a national mid- and long-term development plan, "Vision 2030",. That plan comprises 10 major tasks for constructing national infra and a mid-term growth engine.

· Tanzania established a long-term national development strategy, "Vision 2025" in 2005, to reform low-productivity of agricultural economy for modern and competitive industrial economy.

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[3] Source: The CIA world factbook 2012, https://www.cia.gov/library/publications/the-world-factbook/index.html

- Uganda prepared in 2010 a 5 year economic development plan from 2010 to 2015, 'National Development Plan'. The plan focuses on energy, railway, water resource infra, science, and technology development.

- Rwanda launched a report on 'Economic Development and Poverty Reduction Strategy(EDPRS)'in 2003, Then, Rwanda publicized in 2008 the next economic development plans, such as 'Vision 2020', ' District Development Plan 2008-2012' that are being used as the organized foundation of economic growth.

- Burundi set up the '5th Economic Reform Support Programme' together with African Development Bank in 2011. Major tasks were 'strengthening government efficiency in public resource management', 'civil sector development', and 'job creation'.

4 Economic environment analysis

4.1 Economic index

In spite of global economic depression, the EAC Partner States have stayed at 5% or higher of economic growth rate. Kenya is the most industrialized of the 5 Partner States, based on natural resource and abundant labor with comparatively large economic scale as well as high per capita GDP, followed by Tanzania, Uganda, Rwanda' and Burundi. All the Partner States are dominantly agricultural and grow mainly coffee and tea.

Index	Burundi	Kenya	Rwanda	Tanzania	Uganda
GDP(current USD)	1,611M	32,199M	5,628M	22,915M	17,011M
GDP per capita (current USD)	192	795	530	524	509
GDP growth (annual %)	3.9	5.6	7.5	7.0	5.2
GDP - Composition by sector (2011 est.)	Agriculture: 31% Industry: 21.4% Services: 47.7%	Agriculture: 19% Industry: 16.4% Services: 64.6%	Agriculture: 33% Industry: 13.9% Services: 53.1%	Agriculture: 27.8% Industry: 24.2% Services: 48%	Agriculture: 22% Industry: 25.4% Services: 52.6%
Total reserves (includes gold, current USD)	332M	4,321M	813M	3,904M	2,706M
Exports - commodities[4]	Coffee, tea, sugar, cotton	Tea, horticultural products, coffee	Coffee, tea, hides	Gold, coffee, cashew nuts	Coffee, fish and fish products
Current account balance (BoP, current USD)	- 300M	- 2,512M	- 421M	- 1,978M	- 1,739M

Table 6.   **Economic index (FY 2011) 5**

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4 Source: The CIA world factbook, CIA of USA, 2012, https://www.cia.gov/library/publications/the-world-factbook/index.html

4.2 Investment Opportunity

The improvement of investment surroundings in East Africa is better than the average of African continents (115th ranking by EAC average), and all 5 EAC economies reformed their business regulations in 2010/11. But it is reported there exists deviation among member countries. However, according to the survey the 'FDI Attraction Index Rank' is relatively low, excluding Tanzania and Uganda.

Tanzania had attracted totally 1.1 billion dollars of investment from July 2011 to June 2012, which is thought to the highest amount in East African countries. Also, about 47% of the total investment into East Africa for the past 3 years (July 2009 to June 2012) is in Tanzania. Investment into gas industry makes Tanzania a promising country to invest in.

· According to the World Bank 2012 Survey on 'Doing business', Rwanda ranked 45th, OECD level (40th by average). Just two steps for registration of new business with only 3 days by average and others (8 steps in African average, taking 37 days) are the illustration of remarkably improved investment environment.

· Burundi is one of the most positive countries in reforming its regulation to simplify control and procedures more and more.

Category	Burundi	Kenya	Rwanda	Tanzania	Uganda
Doing Business Rank	169	109	45	127	123
Starting a business(days)[6]	14	33	3	29	34
FDI, inflow (FY 2010, M USD)	2	335	106	1,095	792
FDI Attraction Index Rank (FY 2011)[7]	179	166	162	75	93

Table 7.   **Invest environment Index**

5 Social environment analysis

East Africa is one of the fast populated areas. The urbanization rate in Africa is the world highest, and East Africa is not an exception for this rate. The growth rate of cities in East Africa will be accelerated and is expected the highest in 2025. By 2030, the region will have 178 million of children and youth in a total population of 237 million with 31 per cent (73

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5 Source: World Development Indicators & Global Development Finance, Worldbank, 2011

6 Source: Doing Business in East Africa Community 2012, World bank, 2012

7 Source: World Investment Report 2012, UNCTAD, 2012

million) of them living in urban areas.[8] Continuing droughts and the conflict between neighbouring countries cause the continuous influx of refugees.

Index	Burundi	Kenya	Rwanda	Tanzania	Uganda
Population	10,557,259	43,013,341	11,689,696	46,912,768	33,640,833
Population growth	3.104%	2.444%	2.751%	1.96%	3.582%
Median age	17 years	18.8 years	18.8 years	18.7 years	15.1 years
Literacy	67.2%	87.4%	71.1%	69.4%	66.8%
Labor force	4.25M	18.39M	4.45M	24.06M	16.02M
Unemployment rate	NA%	40%(2008)	NA%	8.8%	NA%
Urban population	11%	22%	19%	26%	13%
rate of urbanization (Annual rate of change), (2010-15 est.)	4.9%	4.2%	4.4%	4.7%	4.8%
Net migration rate (per 1,000 person)	- 0.18	- 0.23	1	- 0.29	- 0.02

Table 8.   **Social index (FY 2012) [9]**

A growth rate of population in East Africa is 2.89%, higher than the African average, 2.301%, and expected to increase 30% from about 137,786,000 residents in 2010 to about 183,168,000 in 2020.[10]

And international official languages, such as English, French, and other languages, are used as the national official language. Their well-educated and international language speaking workforce will be a good investment driver for foreign investors.

Index	Burundi	Kenya	Rwanda	Tanzania	Uganda
HDI Rank	**185**	**143**	**166**	**152**	**161**
Human Development Index	**0.316**	**0.509**	**0.429**	**0.466**	**0.446**
Education Index Ranking	**170**	**122**	**158**	**144**	**142**
Expected years of schooling (years)	**10.5**	**11**	**11.1**	**9.1**	**10.8**

Table 9.   **Human Development Index (FY 2011) [11]**

The long droughts across the Horn of Africa resulted in food shortages and an influx of refugees running away from conflicts in the region, especially Somali and Congo. Illegal

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[8] Source: The State of East Africa Report 2012, Society for International Development, 2012

[9] Source: The CIA world factbook 2012, https://www.cia.gov/library/publications/the-world-factbook/index.html

[10] Source: world population prospects 2011, UNDESA, 2011, http://esa.un.org/wpp/unpp/panel_population.htm

[11] Source: Human Development Index, UNDP, 2011, http://hdr.undp.org/en/

immigrants bring in weapons, drugs, contraband goods, and other items into the partner States through porous borders.

6 Technical environment analysis

6.1 Information and Communication Technologies (ICT)

Information and communication technology (ICT) is increasingly becoming the EAC Common Market's priority area in pursuit of economic growth and development among partner states. ICT is critical towards socio-economic and political developments in the region. In addition, ICT is considered as a channel through which the EAC common market will improve global access of her people and competitiveness of goods and services from the region.

6.2 ICT index

The 'e-Government Survey' announced by UN in 2012 tells the indices of EAC five member countries as follows.

Country Name	Burundi	Kenya	Rwanda	Tanzania	Uganda	LDCs	Africa
e-Government Ranking	173	119	140	139	143	-	-
e-Government Index	0.2288	0.4212	0.3291	0.3311	0.3185	0.2420	0.2780
Online Service Component	0.1503	0.4314	0.3399	0.3529	0.2941	0.2143	0.2567
Telecommunication infrastructure Component	0.0173	0.1212	0.0614	0.0839	0.0732	0.0685	0.1094
Human Capital Component	0.5188	0.7109	0.5861	0.5564	0.5883	0.4575	0.5034

Table 10. **e-Government Development Index (FY 2012)** [12]

Kenya, followed by Tanzania, Rwanda, Uganda, and Burundi, gets higher points than Less Developed Countries(LDCs) and average of Africa, excluding Burundi. And Rwanda is regarded more developed than adjacent countries. But its relatively low points in telecommunication infrastructure component seem to make the total scores not good. Kenya is relatively well-equipped in online service component. This results in the good scores in the sophistication of service, including integration efforts of information service such as launching an open data web site and others. The scores of five countries in human

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[12] Source: e-Government Survey 2012, UN, 2012

capital component are judged more excellent than in other fields. And it is confirmed that they have well-skilled human resources.

Country Name	Burundi	Kenya	Rwanda	Tanzania	Uganda	LDCs	Africa
Online Service Component	0.1503	0.4314	0.3399	0.3529	0.2941	0.2143	0.2567
Stage I %	42%	100%	92%	92%	100%	60%	66%
Stage II %	5%	62%	48%	55%	33%	27%	31%
Stage III %	8%	17%	8%	2%	8%	5%	7%
Stage IV %	17%	28%	25%	28%	22%	17%	21%
Total %	13%	38%	30%	31%	26%	19%	22%

Table 11.   **Online Service Index (FY 2012)** [13]

'The online service index' is a measure of 'how much weight' the governments are putting on online. It is researched that the highest scored Kenya basically and faithfully transfers the information on government ministries through websites (Stage I) and the news and information on laws and policies can be saved partly, downloadable, and continue to be updated (Stage II).Few sites adopt an e-tax return system, e-application for passport, and other mutually information exchange system (Stage III). But, the research says that administrative offices and ministries endeavour to network between themselves (Stage IV).

Reversely, a few of governmental agencies in Burundi has provided information through website, and a small number of agencies save the information on laws and policies. Moreover, information collection is nearly only the website service provided for users and it's still difficult to grasp any status of networking between agencies and ministries.

Country Name	Burundi	Kenya	Rwanda	Tanzania	Uganda	LDCs	Africa
Telcomm. Infra. Index	0.0173	0.1212	0.0614	0.0839	0.0732	0.0685	0.1094
Estimated Internet users per 100 inhabs.	2.10	20.98	7.70	11.00	12.50	5.75	9.85
Main fixed phone lines per 100 inhabs.	0.39	1.14	0.37	0.39	0.98	2.13	3.93
Mobile subscribers per 100 inhabs.	13.72	61.63	33.40	46.80	38.38	40.04	56.45
Fixed Internet subscriptions per 100 inhabs.	0.06	0.08	1.43	1.09	0.09	0.60	1.26
Fixed broadband per 100 inhabs.	0.00	0.01	0.02	0.01	0.06	0.23	0.66

Table 12.   **Telecommunication infrastructure index (FY 2012)** [14]

East African countries, as in other African countries, also have much higher rate of mobile phone service than other devices (telephone, internet). Kenya has the most internet users,

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[13] Source: e-Government Survey 2012, UN, 2012

14 Source: e-Government Survey 2012, UN, 2012

but with low rate of internet fixed broadband service. Reversely, Rwanda has small number of internet users, but the broadband service rate is good for the number of internet users when compared with other countries.

Country Name	Burundi	Kenya	Rwanda	Tanzania	Uganda	LDCs	Africa
Human capital index	0.5188	0.7109	0.5861	0.5564	0.5883	0.4575	0.5034
Lieracy (%)	66.57	87.01	70.67	72.90	71.37	61.54	65.76
Enrollment (%)	59.42	66.73	67.59	56.59	66.80	54.73	57.32

Table 13.   **Human capital index (FY 2012)** [15]

Entirely, the penetration rate of cell phone is the highest, but the number of internet users is a little bit more than Africa's. It's very hard to use the internet, and the service rate of broadband is judged low.

East African countries have relatively excellent rate of intelligent people and entrance in comparison with the average of Africa and less developed countries. It is thought good human resources and plentiful labor market can be a strong driver of economic growth.

6.3   Infrastructure

Globally, the East African region is among the least developed regions in ICT environment due to inadequate ICT infrastructure and limitations on universal access as well as low ICT knowledge and skills. However, completion of undersea fiber-optic cables on the eastern coast East Africa in 2009 has improved internet connectivity. Further, the Partner States are stepping up their efforts develop national ICT infrastructure such as national and regional backbone, internet service among others. Plans are under way to establish cross-border terrestrial broadband networks, Scaling up "last-mile" broadband connectivity as well as developing and implementing supportive policies and regulations.

6.4   e-Government policy

Embracing e-government is an important means of accelerating the implementation of the Customs Union and Common Market. The EAC Regional e-government Framework" was adopted in 2006.

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15 Source: e-Government Survey 2012, UN, 2012

A. **Framework Vision**

Provision of quality and consistency of public service delivery, in order to satisfy citizens' expectations of new standards of service provision that allow greater regional integration and economic development"

The framework prioritized the implementation of key applications including among others; Customs and Immigration controls, e-Parliament, e-Health, e-Banking, e-Procurement, e-Commerce and e-Tourism. The development of e-Immigration systems is in line with one of the applications, "customs and Immigration controls". Implementation of the EAC Legal Framework for Cyber laws will support the proposed e-payment system of immigration fees.

In accordance with the regional e-Immigration framework, the Partner States developed their national e-government strategies. Uganda, with the support of NIPA of South Korean Government, developed 'Uganda e-Government Master Plan' in 2012, and Kenya developed an e-Service Plan with the support of Singapore, and Tanzania, recently set up an 'e-Government department' and is in the process of preparing an e-Government Master Plan.

E-Government and IT market solution are expected to expand more, at Local level, IT will be enhanced with the advance of the global companies, such as IBM, Google, and GE, into the EAC region.

7 Key findings

o The 5 partner states largely have a similar political system, a presidential system under democracy, but some difference exists between Rwanda and Burundi. The current political situations are getting more stable because serious conflicts have ended.

o Each country is trying to actualize economic growth by preparing a strategic plan for economic growth, based on stable political environment, in order to attract large scale investment.

o Even in global economic crisis, the economies are growing, based on affluent natural resources, with 5% or more of continuous growth rate for the past 3 years. In addition, the natural gas discovered in Tanzania, oil in Kenya and Uganda is a driver of foreigner investment. But, due to agriculture-centered industrial structure and resource-dependent economic systems, economic growth is hardly based on industrial development.

o In addition, dependence on foreign ODA is high, and investment attraction is low,

About 30% of hyperinflation recently occurred in Uganda caused trade deficit

o   East African countries have well-educated, young, a big labor market, and a developed labor-intensive industry. But low level of infrastructure interferes the growth.

o   Owing to the disputes and droughts in the neighborhoods, many refugees are inflowing into East African regions, and rapid urbanization is accelerating unemployment.

o   There is a high rate of mobile phone penetration but less internet access than other African countries due to ICT infrastructure high users, fee, etc. But arrival of optic-fiber cables has improved internet connection. Efforts continue to scale the last mile of connectivity. Each country has or is in the process of developing national e-government strategic plans of e-Government.

Part 3. Situation

Analysis

1 **Situation Analysis of EAC e-Immigration Plan**

2 **Situation Analysis of EAC Member Countries**

3 **Benchmarking**

4 **SWOT Analysis**

5 **Analysis Result & Implications**

PART 3: Situation Analysis

1 Situation Analysis of EAC e-Immigration Plan

1.1 EAC regional e-Immigration initiative

Under the EAC Treaty - Article 104, Partner States agreed to adopt measures for achieving free movement of Labour and services, ensure the right of establishment and residence of the citizens within the Community ease border crossing and maintain common standards of travel documents Community.

For activating EAC's major action targets, "Customs Union" and "Common Market", focus is put upon free movement of distribution between member countries. Especially, stable labor market by a seamless circulation of labor is judged important to attract external investment. Accordingly, more emphasis is laid on improvement of the management of immigration system and immigrants.

For this, the detailed tasks executed in 4th Plan for Development Strategy include "improving infrastructure for border control and establishing organizational framework", "constructing one-stop border post in 5 areas", "enhancing legal system for one-stop border post", "strengthening capability of immigration management for free movement of manpower, labor, and service", "building regional immigration data bank", "establishing the framework of issuing regional NID for free immigration", and other tasks. Those top priority tasks were selected in the "Regional e-Government Framework" established in the 3rd Plan for Development Strategy. And they were detailed in the 4th Plan for Development Strategy and the Regional e-Immigration Framework shall be set up till 2012.

The immigration specialists of EAC members are reviewing its introduction and directions through steady technical meeting to establish "Regional e-Immigration Framework". Specially, the e-immigration-related decision-makers of immigration offices agreed in Rwanda through August 2011Policy Maker Workshop for "reviewing the related legal system", "studying organizing a sub-committee and others", "including into each country's strategic plan", and "proposing an agenda for the summit". Specially, a policy for sharing immigration data will be established till 2012, an agreement shall be made till 2013 for "developing the Common e-Immigration System integrated with the existing system" in each country, and preparing "e-Immigration Master Plan" in each country right after the establishment of "Regional e-Immigration Framework" was decided.

1.2 EAC Regional e-Immigration Workshop

For launching EAC e-Immigration, many meetings and workshops were held after 2007, including e-Immigration workshops, two meetings of e-Immigration technical working

group, and a policy maker's workshop. The e- Government Regional Working Group was established, held two meetings, and developed a roadmap for the top priority tasks. And the Chief of Immigration Office approved the road map.

The first EAC Regional e-Immigration Workshop was held from December 3 to 4 in 2007, and concluded appropriateness of EAC regional e-Immigration, the priority tasks, and recommendations. The e-Immigration is one of the strategic priority tasks of the EAC Regional e-Government, and is to apply information technology to immigration service to actualize free movement, a goal of Common Market Protocol. What is focused to launch e-Immigration is drawn, including strategic framework, e-immigration system, capacity enhancement, technical working group, and funding. Presented are various plans for operating the five priority areas and the recommendation for action plans. This opportunity established e-Immigration technical working group, and two meetings detail action plans for e-Immigration.

The 1st meeting of the regional e-Immigration technical working group was held in April 28 to 30, 2010. Here, e-Immigration status of each country was shared, and the plan for establishing e-Immigration strategic framework was discussed. First of all, e-Immigration technical working group constituted by the EAC member countries shared each country's legal framework, e-Immigration status, challenges, and future plan. As the first priority of e-Immigration tasks, the methods and future plan for development of EAC regional e-Immigration strategic framework were discussed.

The 2nd meeting of the regional e-Immigration technical working group held from March 31 to April 1, 2011 discussed agendas for standardization of application forms, guidance for web portal, e-Immigration training, and resource mobilization. The technical working group presents a proposal for standardizing application forms of various immigration services. The application standard form for EAC passport, visa, and dependent's pass were defined and a review for its application was recommended. In addition, it provided framework and common content for each country's web-portal for e-Immigration application and presented a guideline for web portal development. And e-Immigration training issues and fields were defined, and the resource mobilization for e-Immigration program was discussed.

The 1st EAC policy makers workshop on e-Immigration held in August 24 to 26, 2011 is to give opportunity for immigration directors to discuss key challenges in implementing e-Immigration initiatives, to understand needs and benefits, and to provide recommendations for enhancement and funding issues. Policy makers gather together at this workshop and agreed that e-Immigration service performs the key role in making free movement of people much easier and acquiring national and regional security. In addition, it is emphasized that the immigration data collected by e-Immigration become a significant foundation for preparing a policy for economic growth. Policy makers achieve consensus,

at this workshop, on five priority areas, concept of e-Immigration service, and e-Immigration status of implementation of the e-Immigration discussed at technical working group. Namely, recommendations for execution of e-Immigration were made, and a conclusion was reached that e-Immigration master plan shall be established soon and common e-Immigration system and integrated applications should be developed till 2013.

1.3 Key findings

o The program is launched to implement EAC intraregional e-Immigration after discussion and review with members' technical working groups and policymakers for long time.

o The first Stakeholders e- regional e- Immigration Workshop held in 2007 identified 5 priority areas:

- Development of an EAC Regional e- Immigration Strategic Framework

- Development of e-Immigration Systems

- Capacity Building for e-Immigration

- Establishment of Regional e- immigration Technical Working Group

- Sourcing for Funding to implement priority Areas

o The first EAC Policy Makers Workshop on E-Immigration Identified Challenges in Implementing the Regional e-government Framework and E-immigration Initiative:

- Lack of e-immigration policy / institutional/ legal frameworks

- Electronic payment for services (visas, passports)

- Data Centre and Information security

- High costs of Immigration Information systems, internet access, computer illiteracy

- Non interactive, transactional websites

- Manual information management systems (Registries)

- Capacity - ICT Units, specialist, human skills & numbers (EAC, National level)

o Development of e- Immigration Information Systems was identified as one of the five priority areas that will facilitate the Common market integration. Strategic interventions for e-Immigration information Systems was identified with the consideration of e-Immigration status and recommendation of workshop:

- Automated Immigration Information System (IIS)

- Information Sharing & Integration of existing systems

- Computerization of national level Immigration Registries

2 Situation Analysis of EAC Partner States

2.1 Uganda Immigration

2.1.1 Organization and Business Situation of Immigration

The Directorate of Citizenship and Immigration Control is a public service institution under the Ministry of Internal Affairs and is responsible for managing migration functions of the country. The Directorate is composed of a Central Office, located in Kampala, the capital, and 12 regional offices. The Immigration Offices at 41 border posts perform the affairs of immigration clearance.

The functions of the Directorate include processing and verifying Uganda Citizenship, registering Uganda citizens and aliens and issuing them with National and Alien IDs respectively, managing Uganda's borders, issuing passports and temporary travel documents, collecting non tax revenue from saleable documents, issuing visas, passes, permits, and certificates of residence to enable foreign nationals to reside legally in Uganda, conducting inspections, investigations and prosecutions for immigration crimes and removing illegal immigrants from Uganda.

A. **Vision & Mission**

Uganda set up a mission of excellent immigration service, putting more emphasis on convenient immigration service for nationals rather than immigration security.

・Vision

" To be the model of excellence in immigration service delivery."

・Strategy

- Facilitation and regulation of legal and orderly movement of persons to and from Uganda

- Timely issuance of travel documents to bona fide applicants

- Identification of all citizens and aliens resident in Uganda

- enforcement of immigration laws in accordance with due process

B. **Related Law & Policy**

Basically, all the activities of the institution are governed by 'Act Cap 66' of the 'Uganda Citizenship and Immigration Control' which sets out the mandate of the institution. The Act is supported by several subsidiary legislation in form of statutory instruments which focus and seek to operationalize particular areas of the Act.

Classification	Related Law & Policy	Commencement	Substance
Immigration control	*Uganda Citizenship and Immigration Control Act Cap 66*	*1995*	Integrated Border Management, Interconnectivity of borders, regional offices, headquarters and missions abroad
	Uganda Citizenship and Immigration Control Regulations SI 16/2004	*2004*	Automation of registries Automation of work processes Public communication Registration of aliens' and issuance of alien IDs Management of inadmissible persons at ports of entry
	Uganda Citizenship and Immigration Control (designation of Entry and Exit Points) Regulations SI 67/2011	*2011*	The law will be amended to support biometric capture of data both at border stations and after entry into Uganda Plans are underway for an electronic visa management regime
Passport	*Cap 66 Passport Regulations SI 14/2004*	2004	Plans are underway for electronic passports and a biometrically supported passports issuing system. Automation of passport work processes and linking of Passport centers with regional offices and Uganda missions abroad Automation of passport registries
Alien Management	*Registration and Control of Aliens Regulations SI 15/2004*	2004	Registration of aliens and issuance of alien Identity cards Illegal immigrants tracking system
Citizenship	*Uganda Citizenship Regulations*		Online applications for Uganda citizenship Promotion of Data basing in citizenship processing

Table 14.   **Laws & regulations related in immigration**

C. **Organization of Immigration Directorate**

The Directorate is headed by a director, (he does not report to the minister)), with 3 Commissioners, 6 Assistant Commissioners, 19 Principle Immigration Officers, and 41 Senior Immigration Officers, and other Immigration Officers. In total there are 257 officers.

The Directorate consists of three departments and four programmes. The departments are namely Immigration Control, Citizenship and Passports Control and Inspection and Legal Services. Each department is a programme for purposes of resource allocation and the fourth programme is that of the Office of the Director which operates at quasi departmental status and is responsible for policy, monitoring, institutional coordination, resource allocation and overall supervision of Directorate activities. Some of the activities listed above are crosscutting across departments.

· Business Functions of Departments :

Type	Department	Description
Primary activities	Office of the Director	Responsible for policy, monitoring, coordination and overall supervision of the Directorate of Citizenship and Immigration Control. The Office of the Director is also responsible for ICT development of the institution, public relations/communication and statistics
	Department of Immigration Control	Responsible for border surveillance, controls and management, visa administration, passes and permits issuance, pre application inspections, alien registration and issuing alien ids, alien management, collection of non-tax revenue from saleable facilities such as visas, permits and passes. The department is responsible for maintaining data relating to foreign nationals in Uganda.
	Department of Citizenship and Passports Control	Responsible for citizenship verification and processing, travel document issuance, collection of non-tax revenue, and maintenance of data in relation to passports applicants and holders
	Department of inspection and legal services	Responsible for enforcement of immigration laws vide inspections, investigations, prosecutions and removal of illegal immigrants from Uganda. Also responsible for legal advisory services to the Directorate
Support activities	Accounts department	Responsible for institutional accounts
	Audit department	Responsible for auditing finances and service delivery processes
	Planning unit	Responsible for planning and budgeting
	Office superintendent	Stores management

Table 15. **Organization of Uganda Immigration**

D. **Situations Functions of Immigration Office**

Uganda operates total 41 Immigration Offices in harbour, roads, airports, islands, and lakes.

Figure 4. **List of border immigration offices**

E. Affairs of immigration

Immigration functions are classified into visa, passport, permit, alien, citizenship, and immigration management. About 34% of the entire affairs are systemized.
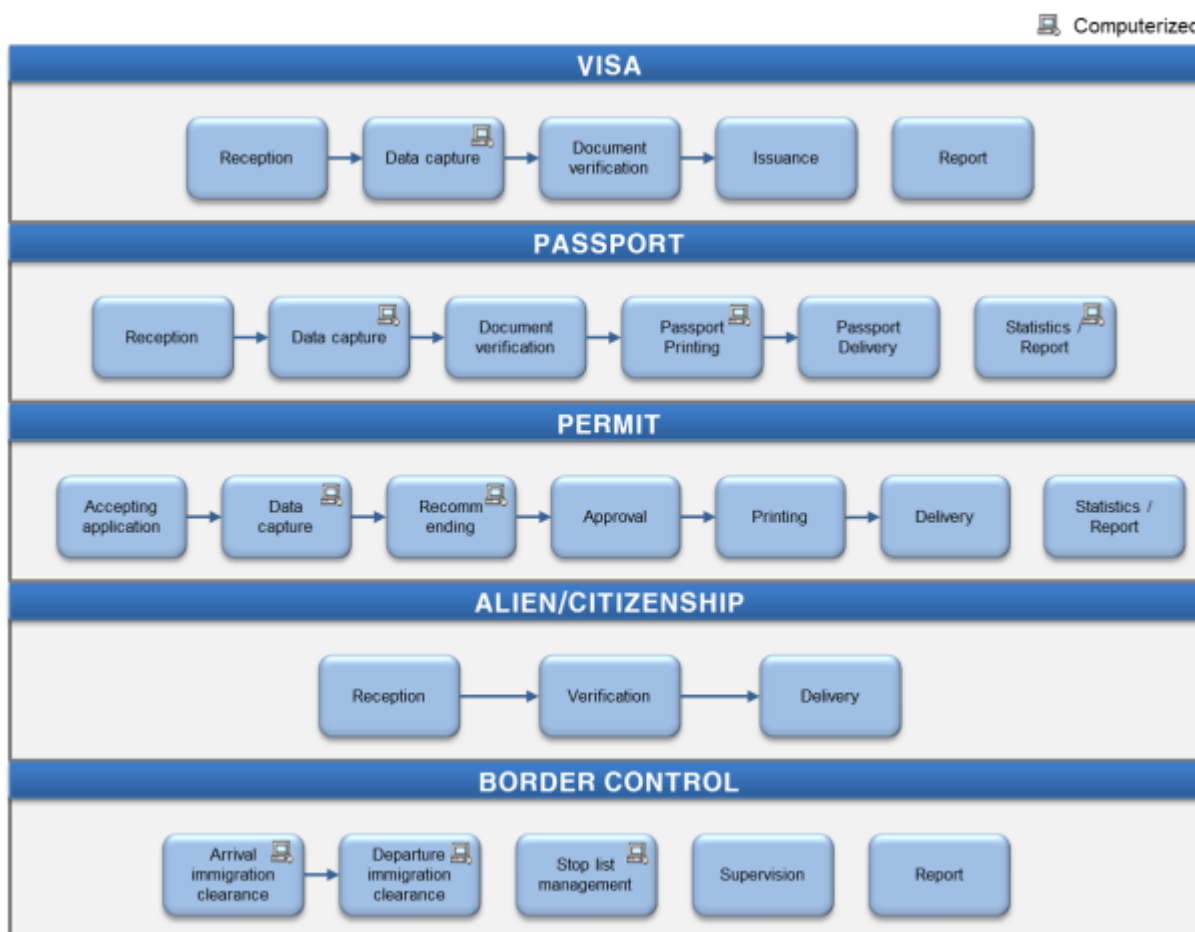
Figure 5.   Business Process of Uganda Immigration

・ **VISA MANAGEMENT**

Uganda has two types of visas, single entry and multiple entries. They are issued by overseas Embassies and Missions. Single entry visa can be issued upon arrival at the airport. Application forms are downloadable from the website of the Ministry and for visa issuance, an application form, photos, and attachments are submitted and a visa application is completed if visa fee is paid. It takes 1 to 10 working days to process the visa application at the Embassies or Missions and a visa sticker is pestered in the passport. The issued visa sticker and serial number are recorded and managed in a ledger book. However, challenges of repeated issuance, loss may be encountered.

・ **PASSPORT MANAGEMENT**

Both paper (travel document) and MRP passports are being used. The types of passports include ordinary, diplomatic, and official as well as EAC passport and refugee passport. It takes 10 to 21 days to get a passport, varying with the types of passports. The issuance shall comply with the ICAO 9303 Standard and special security feature applies to prevent illegal reproduction.

An applicant submits an application form, two photos, and a copy of birth certificate to the registry counter. Immigration Office enters passport application information into the system, and approval is made as soon as a receipt is issued, and, the application is numbered. An applicant shall pick up the passport by personal visit. All the processes from application to issuance proceed manually, and only the printing is executed by the system. Passport is issued in Kampala HQ, and E3 embassies in London, Washington, and South Africa.

A travel document serves the same purpose as a passport and may be issued to Uganda nationals visiting EAC Partner States. The travel document, can be issued at the entry point, however, it is easy to forge or falsify as it has no security features. In addition, a temporary travel document is issued at all the borders basically for border residents, who may have social obligations to fulfil across the border. The temporary travel document has no security features.
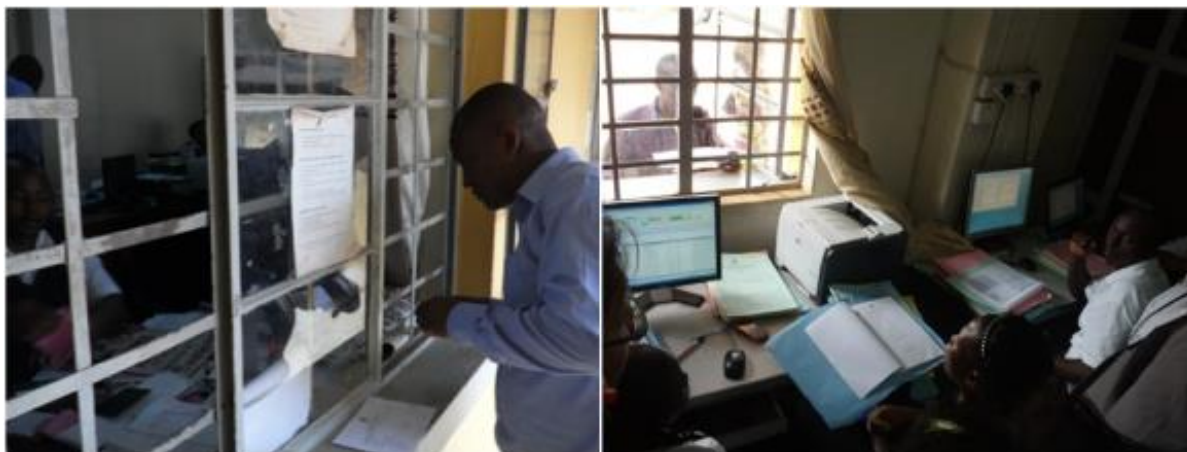
Figure 6.   Uganda Passport registry counter

・ **PERMIT/PASS MANAGEMENT**

Permit/Pass is related to issuing a work permit to a foreigner who desires to work in Uganda. The maximum 3 year work permit can be issued and extended.

An applicant submits an application and the related documents, and important application information, such as name, nationality, workplace, passport No., etc are enter into the system. And other evidentiary documents are indexed and archived in the storage. The

documents for immigration are filed individually after its receipt and all the attachments are bound in a single file and managed by separate file name. The data of received individual's document files are entered into the Immigration database at a separate room. The issuance process proceeds after registry procedures are completed and Issuance Office grants a work permit, a school permit for wife and children, and a certificate of resident, etc. A sticker is issued manually and the file numbers are recorded on the issuance sticker.

A stamp on the sticker authenticates the permit. There are challenges facing issuance of the permits. There are no NID cards, hence identification of individuals is difficult. Most of the immigration processes are manual and therefore retrieving documents from the archives, generating statistical and general information is quite cumbersome. There is a need therefore, for a networked system between the HQ and all borders that checks issuance information and confirms permit status at all entry points.

Figure 7. Uganda work permit sheet & attached document archiving

・ **ALIEN / CITIZENSHIP MANAGEMENT**

There are specialized sections for foreign nationals and citizenship. The work permit process is similar, but does not employ any information system. All applicants are manually registered into a ledger book. It takes one to three months from application to acquisition of citizenship. An applicant, if necessary, submits identification documents, such as a written reference of the previous nationality, an officer examines them to and adds his/her opinion, and forwards to an examination committee for the final approval.

Uganda is one of the counties that allow dual nationality, and the foreigner with dual nationality is entitled to a passport and gets the same legal treatment as the nationals.

・ **BORDER CONTROL**

Some borders in Uganda use a border management system, and most of borders manage the status of immigration manually, and report to Immigration Headquarter periodically.

Border management systems are PISCES and PIRS, which are operated at the Entebbe International Airport, and in ports such as Katuna, Malaba, Busia, Mutukula, and Kikagati.

The Entebbe International Airport located in Entebbe, Uganda is the largest entry and exit point in Uganda. The queue management at the entry lounge are divided into visa, East African residents & others, Ugandans, crew & transit, etc. Visa issuance and immigration are handled spontaneously. A set of immigration system (PISES), webcam, and fingerprint scanner performs the immigration process. An officer receives a passport and an immigration card at the entry checkpoint, and use MRP equipment to enter passport information into immigration system.

A first time visitor to Uganda is expected to provide its facial information and 10 fingerprints. If there's the system information on the previous immigration history, identification is checked by 4 fingers of right hand. E/D card shall be kept in a given period and then is transmitted to the Statistics Bureau for Immigration statistics. The departure requires 4 or 10 fingerprints for comparison with the fingerprint information collected upon entry. The departure control checks overstay, visa expiration, wrong passport, and other matters. But it's impossible to check the information that Headquarters and other immigration offices keep, so identification works only for the person that ever passed through the same border.
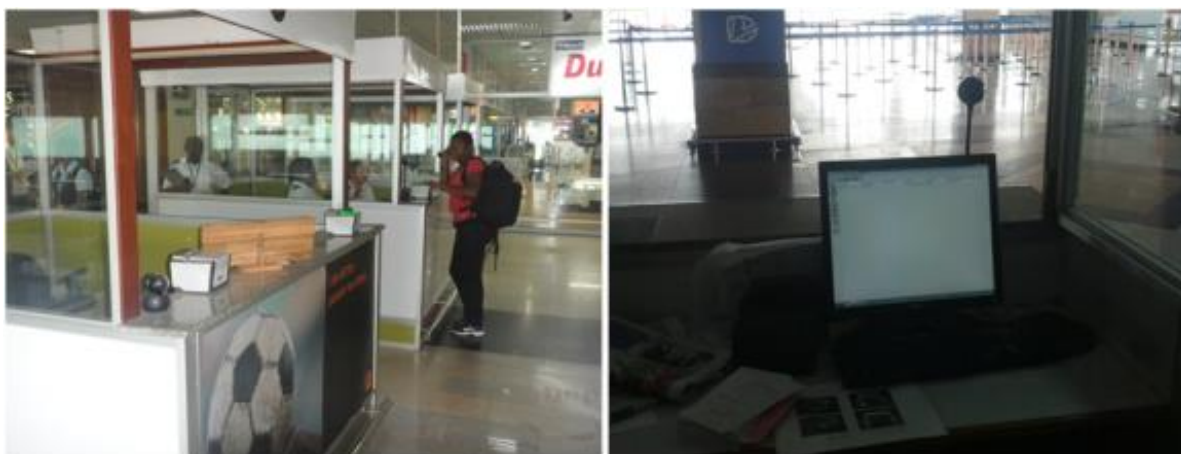
Figure 8.   Entebbe Immigration desk & PISCES system

A fax or paper type of information of a watch list is received from the military, police, and Interpol, and is integrated in the Central Security and input into the system. The immigration information is provided after the passport verified by MRP is compared with the watch list.

PIPS was built by the International Organization for Migration(IOM) at some border offices. But networking is not made among PISCES and border offices, and all information is stand-alone type and information sharing is not made. There's no wire telephone, and telecommunication depends on cell phone and wireless communication equipment, etc.

At the border posts, immigration offices, customs and security are working together, and involved in immigration affairs as well as issuance of travel and temporary documents. Most of borders don't have information system, and the immigration registry information is hand-written. Then, the information on E/D Card, immigration record book and statistics are being sent to Immigration HQ once a month.

Figure 9.   Port Bell Border Immigration office & Immigration Registry Book

2.1.2   System and Border Post Situation of Immigration

A.   **Immigration system**

System Name	Installed Year	Introduced Method	Descriptions
Immigration Database System	-	Development	· Data capturing/Data archiving · Generating the reception No. · Mapping the Number to data
PISCES (Personal Identification Secure Comparison and Evaluation System)	2005	Package (USA)	· Input entry/exit data from the passport · Data storage, watch list, reports and statistics
PIRS(Personal Identification & Registration system)	2010	Package (IOM)	· Input entry/exit data from the passport · Data storage, watch list, reports and statistics
PIS(Passport Information System	-	Package (De La Rue)	· Data capturing/Data archiving · Passport Manufacturing/Printing · Statistics
National Immigration Website	2012	Development (New Wave Technologies)	· Providing the process information of visa, passport, work permit and immigration · Reception of Application on website · Providing the Q&A, a contact address, organization information

Table 16.   **List of Immigration information system**

The information systems in Uganda are PISCES and PIRS for immigration management, PIS for passport issuance, and PMS for permit administration. The payment management system developed by Uganda Revenue Authority is used for checking the status of fee payment.

Immigration Directorate website is under development, but the websites of ministry and the England mission to Uganda Mission in the United Kingdom provides information types of services offered, issuance procedure requirements, fee, and downloadable forms for passport, visas, permit & passes.

Immigration database system developed by the Directorate is a management system for permit and passport application information. When applying for work permit and passport, an application number is created, and application date is captured. Through mapping with the application, the attachments to work permit can be retrieved. When the passport is made and issued, applicant information is automatically stored. Hardware is installed in the server room of the Ministry of Internal Affairs. O/S is Windows Server 2008, and SQL Server is for database. The networking system at the server room is linked with National Information Technology Authority (NITA) for e-Government connection.
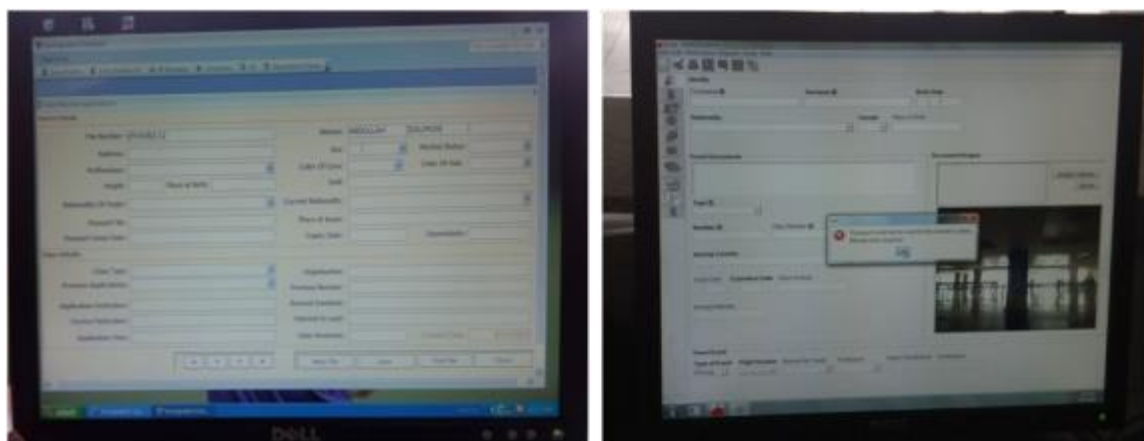
Figure 10. Immigration Database System & PISCES

PISCES is a supplementary management system for immigration developed by United States Department of State in African regions as the Terrorist Interdiction Program. Currently, PISCES is being used at 4 border posts, namely Busia, Katuna, Malaba, and Entebbe. The information at the 4 border posts where PISCES is installed is integrated, saved, and managed. PISCES system client consists of web cameras, Guardian fingerprint scanner, MRP equipment, desktop, and UPS as a single set. Two units of PISCES servers are operated at their own server room by the primary and standby modes at the Entebbe Airport. Operation system is Linux (Red hat), and the information saved in the server is transferred to HQ.

Passport information system was introduced by a package, having the function of entering personal information into passport and printing it out. The information on passport issuance is saved in local server, not transmitted outside. Servers are HP servers with HA configured. Server and client get no information connected with external entities and have Window-based operation system. The statistical information on passport issuance is prepared with Crystal Report by using MS-SQL.

Figure 11. Passport printer & PIS

B. **Information sharing**

The Police, National Security, Anti-terrorism division, and others can access PISCES. Central Security collects all watch lists on an offline basis. There is no, connection with PIRS hence the borders cannot share information with each other.

PIRS is not managed centrally, there is no information connection between borders and the border posts use it only for registration. Visa and work permit information is not shared with Border Control Information Systems(PISCES, PIRS). Further, the visa, work permit, and passport information is not networked/shared with other agencies. Hence, NITA is networking systems in order to share information sharing.

C. **Operation and management system**

There's no separate ICT group inside Directorate, and the ICT manager of the Department manages the system. US operates and maintains PISCES on a remote control basis, and pays a visit for upgrading every two years. The system operation and maintenance for other systems is made through NITA. H/W and N/W is operated by special vendor's certified IT contractor.

2.1.3 Key findings

o Uganda has a database management system that stores information on issuance of visa, passport, and permit.

o 30% of the operations are systemized using immigration database, the rest basically manual. Therefore there are challenges in keeping and managing old files, data integration, searching as well as loss, damage, to records and files etc.

o In order to have more efficient information management system, there is a need to develop applications for each function that will easily retrieve all certificates and attachments.

o No networking is available among the 12 local offices and the information on functions of immigration offices is not networked for integrated management. It is difficult to prepare statistics or reports.

o Ministry websites provide only the basic information and downloadable forms for visa, permit, pass, and certification. However, the online service is expected to be linked with the existing issuance information system.

o Uganda has no national ID, so other media other than photos can hardly be used for identification. Temporary travel documents without security features can easily be forged and falsified.

o The information system for foreigner registration and residency management is expected to be built, including the information use for foreigner crime and identification. However, the basic biometric information for personal identification will be acquired.

o Four borders only out of 41, (10%), are equipped with power and immigration system. There is need for information to be networked between the borders, and stable power supply put in place.

o Detailed systematic planning is urgently required on how to share at least the information on watch list between the border posts.

o There is no specific ICT department within the Directorate, hence systematic planning and investment for ICT is lacking. In order to enhance the efficiency of the Directorate a specific ICT, department should be created. This will enable different capacities to be developed for planning, development, service operation, and maintenance.

2.2 Rwanda immigration

2.2.1 Organization and Business Situation of Ommigration

Rwanda Directorate General of Immigration and Emigration manages border operation for nationals and foreigners, including visitors, residents, and citizen service. HQ located in Kigali, the capital, and the 17 immigration offices in airports, borders, and harbors perform the immigration-related affairs.

A. Vision & Mission

Rwanda set up a mission that matches the purpose of EAC Common Market Protocol, seeking both immigration security and high quality immigration service.

・ **Vision**

Build Rwanda as a prosperous, welcoming and secure nation

・ **Mission**

Create a secure, enabling environment for increased trade, investments, tourism and skills development through professional conduct and offering high quality service

・ **Core Value**

- Integrity and flexibility;
- Courtesy and compassion;
- Vigilance;
- Excellence

B. Related law & policy

The immigration-related legal systems include "The National Migration Policy and Strategy in 2008" and "Laws on Immigration and Emigration in Rwanda in 2012". Based these laws, the articles are provided relating to entry and exit for stay and residency, rights and obligations, travel documents and their use, violations, fault and penalties, and transitional and final provisions.

C. Organization of Immigration Directorate

The organization of Immigration Office comprises of the departments in charge of issuance and management of passport and travel documents, border control, and registration and management of international NGO.

・ **Business Functions of Departments at Headquarter:**

Type	Department	Description

Primary activities	Director General (DG)	Director General of Immigration and Emigration
	Director of Visitors and Residents (DVR)	In charge of visitors and Residents
	Director of Citizen Services (DCS)	In charge of citizen services
	Director of Management and Support (DMS)	In charge of Financial management
	Border operations and coordination	In charge of border Coordination
Support activities	Legal	Support of legal activities
	Communication and customer care	Support of customer activities
	Information Communication Technology	Support of technical activities

Table 17.   **Organization of Rwanda Immigration**

D. **Functions of Immigration Office**

The Rwanda is now operating a total of 17 borders including 1 international airport (Kigali International Airport).

Figure 12. Map of border immigration offices

· **Each border office is summarized as follows.**

Type	Border Office Name	Working Time	Location
Airport (1)	Kigali International Airport	24 Hour / 7 Days	Kigali
Border (15)	Nemba	6:00 AM – 6:00 PM	Estern-Province
	Rusumo	6:00 AM – 6:00 PM	Estern-Province
	Kagitumba	6:00 AM – 6:00 PM	Estern-Province
	Buziba	6:00 AM – 6:00 PM	Estern-Province
	Cyanika	6:00 AM – 6:00 PM	Northern -Province
	Gatuna	6:00 AM – 6:00 PM	Northern-Province
	Kabuhanga	6:00 AM – 6:00 PM	Western-Province

	Poids Lourd	6:00 AM – 6:00 PM	Western-Province
	La Corniche	24 Hour / 7 Days	Western -Province
	Rusizi I	6:00 AM – 6:00 PM	Western -Province
	Rusizi II	6:00 AM – 6:00 PM	Western –Province
	Bugarama	6:00 AM – 6:00 PM	Western -Province
	Ruhwa	6:00 AM – 6:00 PM	Western -Province
	Kanyaru Bas	6:00 AM – 6:00 PM	Southern -Province
	Kanyaru-Haut	6:00 AM – 6:00 PM	Southern -Province

Table 18.   **List of border immigration offices**

· **STATISTICS ON IMMIGRATION DATE OF MAJOR IMMIGRATION OFFICE**

All immigration offices in Rwanda make use of the statistical system that can collect the information on immigrants. The number of the immigrants to Rwanda increased two times from 3 million in 2009 to 6 million in August 2012. The past entrants had a business purpose, but a variety of visiting purposes have recently increased.

E. **Business Situation of Immigration**

Immigration functions are composed of issuance and management of visa, passport, and permit, administration of alien and citizenship, and other immigration functions. About 80% of operations are computerized, excluding alien and citizenship affairs.
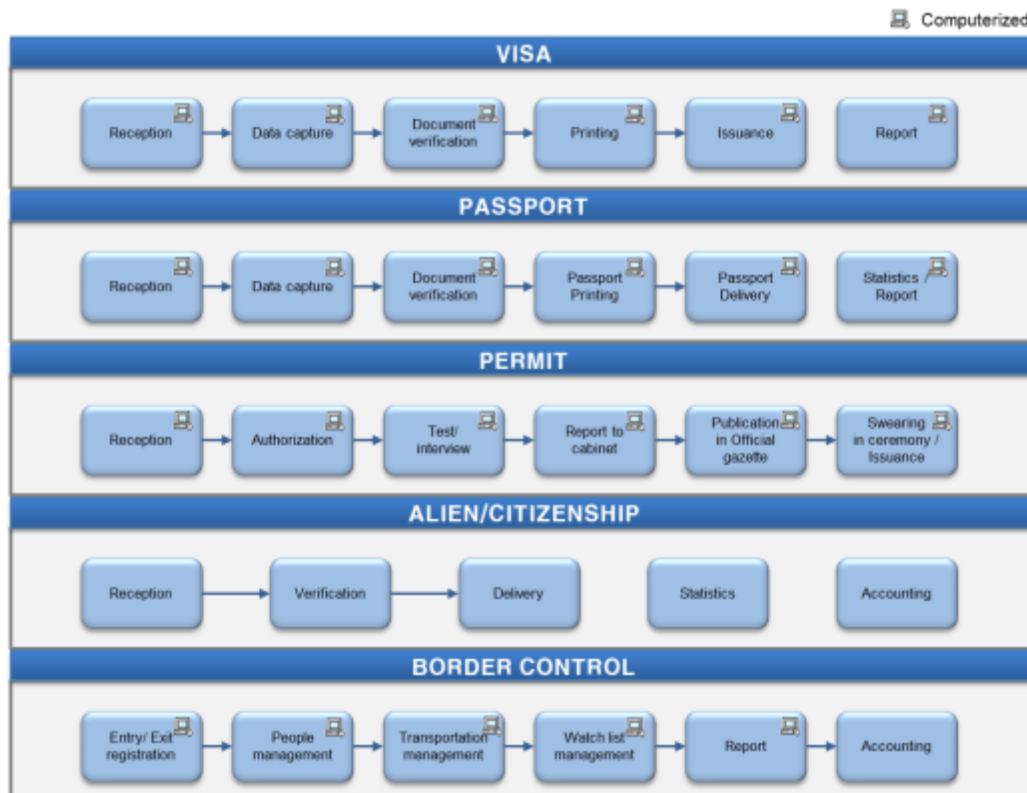
Figure 13.   Business Process of Rwanda Immigration

· VISA/PERMIT MANAGEMENT

Rwanda visa consists of entry visa, transit visa and tourist visa. An applicant prepares an application and the required documents to get a visa or permit and use a queue system to get a number ticket and submit the application. An Officer examines the application, documents and to enters the information into VISA/Permit Registration System, for the application process completed. It takes 3 working days from application to issuance, and if an issuance is completed, such notice is sent to the applicant by text message.

In addition, an applicant can search the application no. on the website to check the status of issuance process. The filed application goes through document screening, and then visa and permit sticker are issued. All the submitted documents are moved to the document room where all the documents are digitalized for archiving. There's an unmanned window (a dropping box) for urgent applications. If an applicant puts an application and required documents into the box, a receipt notification is sent by email or text message on that night to the applicant. If an online visa application form is prepared and submitted for entry visa, it is filed within 3 working days into the system of Immigration Office. If the applicant pays for visa during the immigration process, he or she can get the visa issued immediately. The prior online visa verification system shortens issuance time. All Rwanda Embassies issue an entry visa, using the visa system linked with Immigration Office on the web. Visas applied at the Embassies takes about 5 days.

· PASSPORT MANAGEMENT

Rwanda adopted the machine-readable passports issued by the Directorate of Immigration. Immigration Offices can issue passports, but the passports can only be made at the Immigration HQ. Laisser-passers can be made and issued at the 30 local issuance offices. The standard for passport and visa complies with ICAO.

An application for a passport can be made only at the Immigration HQ. If an applicant submits an application and attachments to a counter at the front desk of the Immigration Office, for passport issuance, the receipt process is completed. Officers compare an application with the attachments, and enter data into passport issuing system to print a passport. A text message for pick-up is sent to the applicant after the passport is printed. The entered application information is archived in the passport system server, and the attached documents are scanned and digitalized for archiving. Passport application is not available on the website, but an applicant can track down the status of passport issuance on the website by the application number.

Travel Document(T/D) can be used instead of Laissez-passer for a trip to Burundi, and DR Congo and a visa is not required. T/Ds have for a trip with security features, and are issued in form of booklets like passports. There is also an emergency passport, used for urgent purposes, such as family member's death and is allowed for a single way and for one time use.

Figure 14. Immigration HQ and Laissez-passer of Rwanda

∙ **ALIEN / CITIZENSHIP MANAGEMENT**

Green Card(foreigner registration card) is managed for foreigner management by Visa/Permit Issuing System. Green Card have no security feature implanted, and the biometric information is not collected for Green Card issuance and foreigners. But, an identification process for foreigners is refered to their national police agency for verification. The projects for biometric data management and the change of issuance from Green Card (paper) to ID card system is in process.

The functions of nationality approval don't belong to immigration in Rwanda, and nationality is acquired by approval of the cabinet. Most of the related works are executed manually. The acquisition of nationality entitles people to get a passport, and T/D and NID cards issued with the same qualifications and rights. National Identity Agency is connected to share national ID information. The issuance of smart card has not started, but is in process.

∙ **BORDER CONTROL**

Rwanda Immigration HQ manages personnel and equipment of each Immigration Office for border control. All offices directly enter and manage immigration information into the management system. Fee for entry visa issuance is paid to the Revenue Authority Office at the airport, and to the customs office at other places. A receipt is issued, and the immigrant takes it to the Immigration Office.

The immigration process at Kigali International Airport is completed if an officer receives a passport and an immigration card at the departure checkpoint and if he or she enters the information into Gate Keeper, an immigration system, and puts an immigration stamp after checking the old stamp on them. Immigration process is carried out by officers at the entry checkpoint and e-Gate. The nationals and foreigners are assessed at the departure checkpoint. In addition, an e-Gate was installed at the Kigali International Airport and launched in May 2012 ,the first of its kind in East African region.

Only the nationals can use e-Gate system, and prior registration is required. When using it, two thumbs are scanned, and a face is photographed for verification. Passport information is input into Gate Keeper by using a hand-swipe type of passport reader. Main advantage of e-Gate is a speedy immigration process with tighter security. 17 seconds are enough for immigration clearance to be complete. Exit door won't open before personal identification is checked due to stronger security based on biometric information.

Figure 15. Immigration on Kigali International Airport

Nemba Border Post at the border between Rwanda and Burundi launched One Stop Border Post(OSBP). The posts in Rwanda and Burundi are working together since October 2012, using different system for immigration and customs.

Figure 16. Nemba Border Immigration office

2.2.2 System and Border Post Situation of Immigration

A. **Immigration system status**

Gatekeeper and automated passenger clearance system are used for Rwanda Immigration, including visa issuing system, and online entry visa, etc. And there're a passport issuing system, e-Archive system for documents to support affairs, and others. A package type was introduced as part of the system, and the rest was developed with in-house development.

· **Immigration Systems**

System Name	Installed Year	Introduced Method	No of Users	Descriptions
Gatekeeper	2005	In-house development	100	· Save E/D card information · Search people not allowed to travel · Search of immigration data upon request · Reports
Visa Issuing System	2009	Off the shelf	20	· Information from application form · Register permit information · Print visa · Issue visa
Passport issuing System	2005	Off the shelf	20	· Data entry; · Authorization for printing · Personalization; · Issuance
Online Entry-Visa	2005	In-house development	5	· Register all applicants information filled online · Online issuance of visa acceptance letter
APCS (Automated Passenger Clearance System)	2012	Off the shelf	5	· Automatic-verification of citizen data with reference to National database · Self-clearance by use of finger print
E-archive	2010	Off the shelf	10	· Archive hard-copy documents
Laissez-passer Issuing System	2012	In-house development	65	· Data Entry · Print Laissez-passer · Issuance

Table 19. **List of Immigration information system**

Rwanda's information communication technology is being developed rapidly, and immigration functions are automated with a variety of systems and the department has well-trained personnel. After 2005 when immigration and passport systems were built, there has been efforts to improve immigration system with in-house skills.

The Directorate Immigration website (https://www.migration.gov.rw/) provides service information, public forms, tracking process, laws and acts, etc. The issuance procedures and forms downloadable for each service are well-prepared. Specially, e-Visa system is connected with the website where a single entry visa can be applied directly.
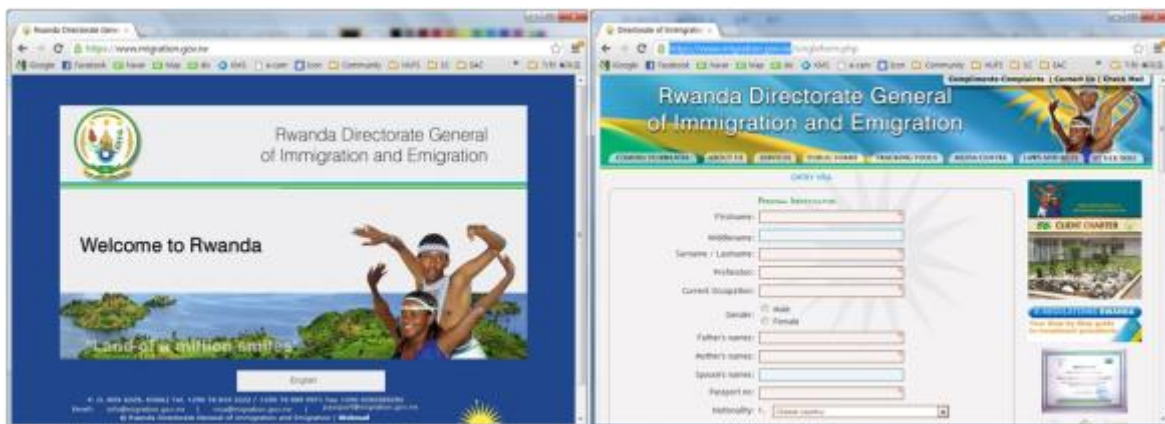
Figure 17. Rwanda Immigration website

Passport, visa, and permit systems are separated, but with similar functions. They have websites (sub-domain) for application receipt and information access. The websites are only accessible within the Immigration HQ. There's no separate printing system for passport issuance (manufacturing), and all the processes for passport issuance are executed by the passport issuing system. Gatekeeper was developed in 2005 in-house and system maintenance is also carried with in-house skills. The system does not capture biometric information. Hence a, new border system that will employ fingerprint and webcam is under development. An e-form system that will provide online application forms for visa and permit is also under development.

・ **Immigration Hardware**

System Name	Model Name	System Information					Location
		CPU	Memory	HDD	OS	DBMS	
Gatekeeper	DELL 2900	3.16*4	4GB	1TB	Windows server	Oracle	HQ
Visa Issuing system	DELL 2900	3.16*4	4GB	500 GB	Suse Linux	Mysql	HQ
Passport issuing system	N/A	3.16	4GB	125 GB	Windows server	SQL server	HQ
Online entry Visa	N/A	4G	4GB	250GB	Linux	Mysql	National Data center
APCS	MicroTower	4BG	8GB	3TB	Windows server	SQL server	HQ
E-archive	Dell 2850	3.16	4GB	500GB	Windows server	MySql	HQ
Laissez-passer issuing system	HP	3.16*4	8GB	1TB	Window server	SQL server	HQ

Table 20. **List of Immigration system hardware**

Apart from the online entry visa service to the public that is located in the National Data Center, all the other internal systems are installed at server room in Immigration HQ. Immigration systems are developed on different platforms, such as Windows or Linux,

hence posing challenges in system connection or extension. A database system that is managed internally requires various technical skills for maintenance due to different database management systems.

B. **Computerization status of Immigration Registries**

· **Computerization status**

Border Office	Computerization			Equipment					Network			Electricity	
	Dedicated system, SW (immigration)	Supporting system, SW	Manual only	Machine Readable	Detecting devices	Biometric Reader	Web Camera	Auto Gate	Internet/ speed	Phone	fax	Stability Rate	Alternative
Kigali International Airport	Gate keeper	Ms Office	-	OCR	OCR	Finger print scanner	O	X	Optic fiber	Mobile/, landline	O	95%	UPS
	APCS	Ms Office	-	OCR	-	Finger print scanner	O	O	Optic fiber	Mobile/ land line	O	95%	UPS
All land borders	Gate keeper	Ms Office	-	OCR	OCR	X	X	X	Optic fiber	Mobile	O	90%	UPS

Table 21. **Computerization status of Immigration Registries**

The APCS, connected with Gate Keeper and e-Gate for immigration management, is built at Kigali Airport. Immigration check points have no MRP, but only the hand-swipe method of 3M RTE-6701 passport reader. There're no fingerprint scanner and camera to take picture of faces. And x-ray scanning equipment for the entire body is separately installed for security check at the departure lounge.

All land border posts installed the Gatekeeper that supports immigration functions by capturing passport information with passport magnetic reader. Power is stably supplied, and UPS back-ups are on standby in case of upon power outage. Networking environment is built through optic-fiber cables and VSAT.

C. **Information sharing status**

Type		Target Organization	Information	Connecting Type
Internal	Incoming	Border control department	Immigration information (E/D card)	Electronic
	Incoming	Passport management department	Passport information	Electronic
	Incoming	Visa management department	Visa information	Electronic
External	Outgoing	Police	Watch list, immigration information	Electronic
	Outgoing	National Security Agency	Watch list, immigration information	Electronic
	Outgoing	Resident registration management department	Resident registration information	Electronic

	Outgoing	Court, Prosecutors' office	Prohibition of departure	Document
	Outgoing	Tourist Authority	Immigration information	Electronic
	Outgoing		Immigration statistic	Electronic
	Outgoing	National statistics office	Immigration statistic	Electronic
	Outgoing	EAC	Immigration statistic	Electronic

Table 22. **Status of Information linkage**

Borders are internally networked with Immigration HQ for the related functions, many of which are executed within the Directorate through systems. Information sharing with other agencies is availed on request by e-mail such as a watch list that is shared with the police.

D. **Operation and management system**

Rwanda Immigration System is managed by ICT department consisting of 9 Officers in all, including a manager, 5 for Information System and e-service, and 3 for hardware and maintenance.

2.2.3 Key findings

o Rwanda keeps the strategy and system of immigration office in line with the EAC objectives of the common market. The system is used in all the borders and well-developed for information networking for free movement and one stop border post.

o All the functions are networked and programmed in computer systems, excluding foreigner management, and the e-Gate system installed at the airports guarantees speedy and safe immigration processes.

o Visa, permit and passport systems for e-Immigration were developed are managed in-house and they are steadily being improved.

o Immigration systems are connected with all the borders, and the centralized database created enables precise and efficient data management. But, the system of immigration office for passport, visa, and others adopted technology trend that was available that time. Accordingly, relatively new inter-system information networking is not available, and data sharing and networking with other agencies is not possible.

o There are some viler abilities for forged and falsified passport and personal identification, because immigration examination of foreigners is made only on the basis of passport information without personal identification by face or fingerprint information. In addition, green card is weak in security due to possible forgeries and falsification.

o Only the online application is available for entry visa. Rather than only a single service for entry visa, additional services are expected to be introduced.

o Strategy and networking are comparatively stable, but a back-up plan for emergency is in the process of being put in place.

o ICT Department of Immigration Office is capable of planning, developing and maintaining the systems. In order to steadily develop further, the functions shall be specialized and categorized so as to strengthen capability of strategic planning of IT Department.

2.3 Burundi immigration

2.3.1 Organization and Business Situation of Immigration

Direction Générale de la Police (Air) and des Frontiers et des Etrangèrs (PAFE) control travel documents, visa for nationals, permit, and pass for foreigners, including border management. Migration Headquarters located in Bujumbura, the capital city, and 18 immigration offices in airports, harbours, and land posts execute immigration-related functions.

A. **Vision & Mission**

Burundi seeks easier immigration for people and goods as well as border security in accordance with EAC Common Market Protocol.

・ **Vision**

"To establish an effective, efficient and integrated migration management mechanism to have open, but well controlled and secured borders"

・ **Strategy Statement**

- Security at the border

- Facilitation movement of the people and goods

- Prevention of cross-border crimes

・ **For those strategy, the direction needs:**

- Proper equipment

- Trained and motivated staff

- Clear division of tasks and responsibilities

- Adequate infrastructure

- Law enforcement

- To exchange information

B. **Related law & Policy**

"The Immigration Act" legislated in 1989 prescribes prohibited immigrants, entry and rejection, administration, violation, and the related legal proceedings. The Act will be amended.

C. **Organization of Department**

The Immigration Department is under the Ministry of Public Security. The government through the Public Security is developing the migration policy. The purpose of this policy is to guide the securing and issuance of National Identity Card and travel documents. The

head of Immigration Department is the General Commissioner, assisted by the Deputy General Commissioner. Under the General Commissioner, there are 5 Central Commissioners: ①Personnel Management and Logistic, ②Burundian Travel Document Production, ③Foreigners, ④Border Management, ⑤Intelligence.

・ Business Functions of 6 Departments at Headquarter are as follows:

Type	Department	Description
Primary activities	Central Commissioner in charge of production of travel document	Management of travel document production
	Central Commissioner in charge of Foreigners	Management of visa and permit pass for Foreigners
	Central Commissioner in charge of Border Management	Border Management
	Central Commissioner in charge of intelligence	Intelligence Management
Support activities	Central Commissioner in charge of Administration and logistic	Management of personnel and logistic
	Information Communication Technology	Support of technical activities

Table 23.   **Organization of Burundi Immigration**

D. **Situations of Immigration Office**

Burundi has actually one International Airport, One port and 17 Border posts. Three of them: Kobero, Ruhwa and Gasenyi 1 are going to be operated as OSBP (One Stop Border Post).

・ **Each border office is summarized as follows.**

Type	Border Office Name	No of Gate	Working Time	Average Pass Time	Location
Airport (1)	Bujumbura International Airport	2	24h	05min	Bujumbura
Seaport (1)	Bujumbura port	1	07h AM to 06 PM	05 min	Bujumbura
Border (16)	Gatumba	-	06 AM to 06 PM	05min	Gatumba
	Vugizo	-	06 AM to 06 PM	05min	Vugizo
	Ruhwa (OSBP)	-	06 AM to 06 PM	05min	Ruhwa
	Kabarore	-	06 AM to 06 PM	05min	Kabarore
	Kanyaru-Haut	-	06 AM to 06 PM	05min	Kanyaru-Haut

Kanyaru-Bas	-	06 AM to 06 PM	05min	Kanyaru-Bas
Gasenyi1-Nemba (OSBP)	-	06 AM to 06 PM	05min	Gasenyi1-Nemba
Giteranyi	-	06 AM to 06 PM	05min	Giteranyi
Kobero (OSBP)	-	06 AM to 06 PM	05min	Kobero
Gahumo	-	06 AM to 06 PM	05min	Gahumo
Gasenyi 2	-	06 AM to 06 PM	05min	Gasenyi 2
Gisuru	-	06 AM to 06 PM	05min	Gisuru
Mabanda-Mugina	-	06 AM to 06 PM	05min	Mabanda-Mugina
Nyanza-Lac	-	06 AM to 06 PM	05min	Nyanza-Lac
Rumonge	-	06 AM to 06 PM	05min	Rumonge
Gitaza	-	06 AM to 06 PM	05min	Gitaza

Table 24. **List of border immigration offices**

・Statistics on Immigration Data of Major Immigration Offices

Immigration Information recorded by the immigration offices, is collected by wireless phone and the related statistics is analysed. In 2010 Burundi Immigration is estimated to have handled around 0.8 million people. The proportion of Burundi nationals is high, and most of them use land routes.

Type		2010			
		Native	EAC	Foreigner	Total
No. of Airport Passenger	Departure	19,800	23,767	23,767	67,334
	Arrival	22,616	24,096	24,096	70,808
No. of Seaport Passenger	Departure	1,024	319	319	1,662
	Arrival	145,507	62,436	62,436	270,379
No. of Border Passenger	Departure	138,731	82,899	82,899	304,529
	Arrival	145,507	62,436	62,436	270,379

Table 25. **Statistics on Burundi Immigration**

E. **Functions of Immigration Department**

Immigration functions consist of issuance and management of visa, travel document, passport, permit, and pass, and the administration of alien and citizenship, and other immigration functions. 80% of the functions excluding alien and citizenship are computerized, but the system is only available at the Immigration Headquarters.
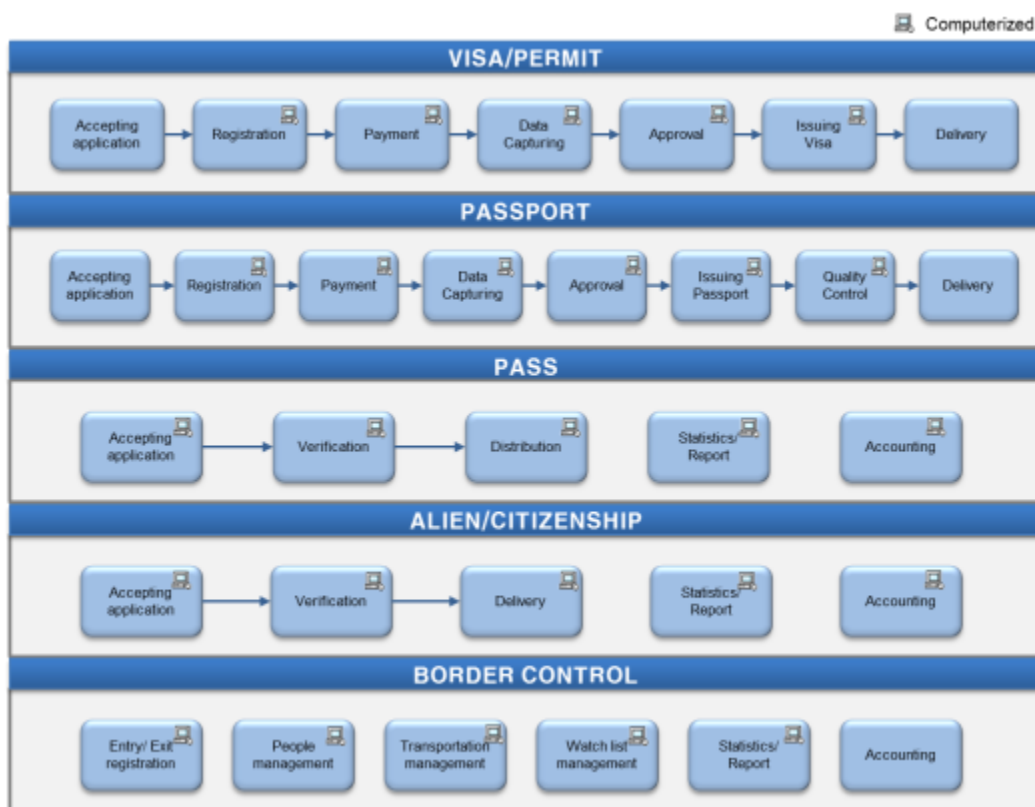
Figure 18. Business Process of Burundi Immigration

· **VISA/PERMIT MANAGEMENT**

Burundi visa consists of 4 types, such as tourist, employment, investment, and diplomatic visas. It takes a day to get a visa, and the fee for tourist visa is $70 USD, and the entry fee at the airport is $90 USD. Permit doesn't exist, and employment visa corresponds to a work permit. If EAC partner states travel to Laissez-passer, free immigration process is available. Only the HQ and BIA can issue a visa by system. Other border posts or embassies grant a visa manually due to no system networking.

A visa applicant submits an application and the required documents. Officer inputs application information into the system, and the applicant pays fee at the bank counter to get a receipt. The application process is completed if the receipt is submitted to the visa issuing desk. After the documents to be issued are approved, the photo in the passport is scanned and entered into the system. The issuance is completed by printing application information on a sticker and attaching it on the passport after visa issuance information is entered into the system. The delivery desk, 1st floor, sends the issued passport to the

applicant. The processes of application, registration, payment, examination, and issuance are all connected over the network system in Immigration Office.

In addition, visa type can change during the stay. For example, if a visitor with travel visa has a job in Burundi, the visa can be converted into a work visa. This work visa is reissued covering period of the contract.

Figure 19. Bank counter and VISA application

· **PASSPORT MANAGEMENT**

Burundi has three types of passports, ordinary, official, and diplomatic. E-Passport, which can implant biometric information into IC chip, is being used. Passport issuing system is used from application to issuance. On average it takes 3 days to issue a passport. The number of daily issues is logged manually, and on average 70 passports are issued daily. Migration Headquarters make and issue the passports, and collects a fee of round $180 USD per passport.

Figure 20. Data capturing equipment and e-Passport printer

If a passport applicant submits an application and attached documents, an officer confirms the submitted documents and enters application information into data capturing station.

The applicant pays fee at the bank desk, and gets a receipt. The applicant then moves to the data capturing room and gets his photo, signature, and fingerprints (2 fingerprints) registered, the application is competed and the applicant leaves the office. If the head of the department compares a file with system data, and recommends the issuance, the Director of Immigration Office makes the final approval Personalization of approved issuance information and quality control is carried out, and the process finalizes the issuance. The applicant can pick up the passport after identification is cleared by fingerprint.

· **PASS MANAGEMENT**

Laissez-passer is a travel document for EAC residents. The issuance procedures are the same as the passport. But the machine readable passport (MRP) does not use fingerprint information. The passport identification can be verified by photo, effective period, etc. In addition, there's a temporary travel document for 15 day travel that border residents usually use. This document has no security feature and has risks of forgery and falsification.

· **ALIEN / CITIZENSHIP MANAGEMENT**

Foreigner ID will soon be issued, but currently identification is by passport which also can be used by a Foreigner to open a bank account.

· **BORDER CONTROL**

Burundi has an international airport, a harbour, and 17 land posts. Three borders, Kobero, Ruhwa, and Gasenyi, are operated as OSBP. 31%, or 6 border offices out of 19, has immigration system installed. Four Burundi border offices, Mabanda, Mugina, Kobero, and Gisuru, have PIRS system and equipment installed by IOM. And Bujumbura International Airport and Gasenyi are employing the Check 121 system. Immigration Office confirms and permits the immigration of an immigrants and their vehicles and performs issuance of temporary travel document and other processes.

The immigration process at the Bujumbura International Airport requires E/D Card to be filled out, and an Immigration Officer makes a confirmation of visa before immigration clearance. If one has no visa, he shall get an entry visa issued ($90 USD, multiple, 30 days), and the Transit Visa($40 USD, single). An application for visa is submitted to a visa issuing desk at the airport. Immigration officer uses visa issuing system to enter visa issuance information, and an applicant pays fee at the bank counter nearby, and then submit the receipt. If the Immigrant Officer confirms the receipt and prints visa information on the sticker and attach it on the passport, a visa issuance process is completed.

Burundi nationals and foreigners with the visa go through immigration clearance at the checkpoint. Identification of Burundi nationals is made through fingerprints through the Machine Readable Passport and Check121 systems introduced with e-Passport at the airport. Ultraviolet and passport feature inspection examine whether or not foreigner's

passport is forged. E/D card is gathered at the immigration desk, and the information is written on the note for management. The entered E/D Card is archived at each border's storage for 3 months.

Figure 21. VISA application and Immigration on Burundi International Airport

Kobero Border Post lies on the border with Tanzania where about 100 people come and go through immigration. The border office issues travel documents and perform immigration clearance. All the functions are executed manually because immigration system is not developed. The Immigration information is logged in the book, and daily immigration status is reported to HQ with brief information such as date, the number of immigrants by each nation, and security matters.

3 PCs are operated with solar energy, which is not available in rainy season, but UPS and battery are used. Electricity is not enough. Cell phone is mainly used as the communication device, and a radio is used for communication with the officers around.
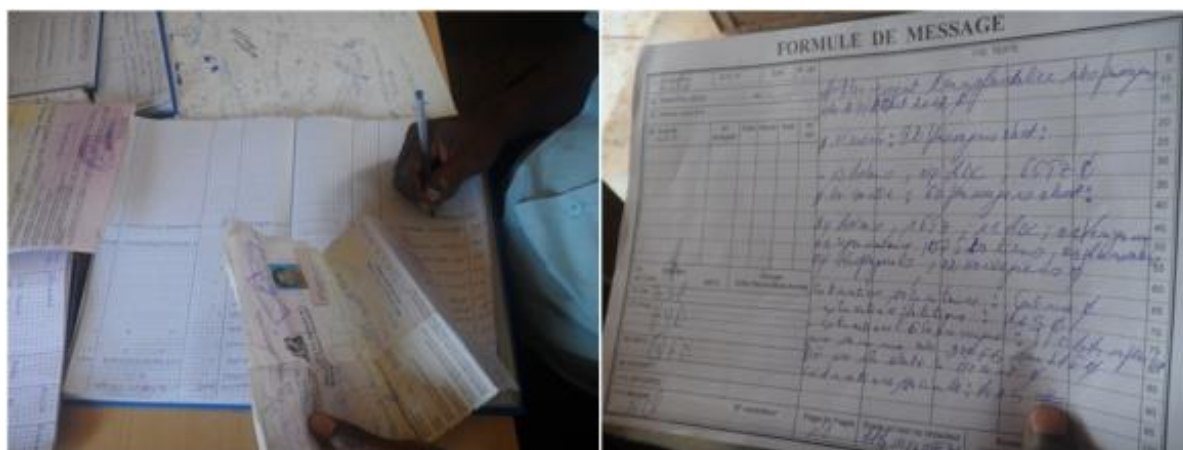
Figure 22. Immigration clearance and report on Kobero Border

A new building for OSBP (One Stop Border Post) is being constructed in Kobero. Tanzania Border Office will also construct an OSBP nearby.

2.3.2 System and Border Post Situation of Immigration

A. Immigration system

Burundi Immigration systems are PIRS, Check 121, and Edison TD for immigration management, including visa, Laissez-Passes, passport issuing systems. PIRS was introduced in 2010 by IOM. The other systems have been used by the type of a package from a private company in 2011. S/W and H/W are operated and maintained by a contractor.

· **Immigration systems**

System Name	Installed Year	Introduced Method	Location	Descriptions
PIRS (Personal Identification & Registration system)	2010	Package	3 border	· Input the immigration data(entry) · Input the immigration data(departure) · Search the immigration data · Search the watch list · Statistic/report
Check 121	2011	Package	Airport	· Search people not allowed to travel · Search of fingerprint data upon request
Edison TD	2012	Package	Airport	· Provide example images of travel documents and resident permit
Passport Issuing System	2011	Package	HQ	· Information from application form · Register passport information · Personalization · Quality Control · Issue passport
Visa Issuing System	2011	Package	HQ	· Information from application form · Register Visa information · Print & issue visa
Laissez-Passes Issuing System	2011	Package	HQ	· Information from application form · Register Laissez-Passes information · Print & issue Laissez-Passes

Table 26. **List of Immigration information system**

Immigration website is not set yet, so information service for issuance of visa and passport and form downloading are not available.

PRIS was introduced in 2010 at the HQ and 3 border offices in Kobero, Gisuru, and Mabanda-Mugina, but is yet to be installed due to power and capacity issues. Airports use Check 121 and Edison TD to verify identification by fingerprint and to detect if a passport is forged or not. But Check 121 is used only to confirm e-Passport and fingerprint information. Edison TD system was developed in 2012 by Dutch National Police Services Agency (KLPD), it is used to retrieve images of travel document, resident permit and to compare and verify passports.

There're passport, visa, and Laissez-Passes issuing systems at the Immigration HQ to handle issuance processes. Officers enter the issuance information on passport and Laissez-Passes,

connect the issuance information with each issuing printer, print e-Passport and Laissez-Passes, and personalize such information. Visa issuing system is separately built, and has the function to print a visa sticker if visa issuance information and passport photo are registered. The attachments are not electronically documented, and physical files are archived. In addition, only the HQ has the system installed, and connection is not available with the visa information issued at other borders and embassies.
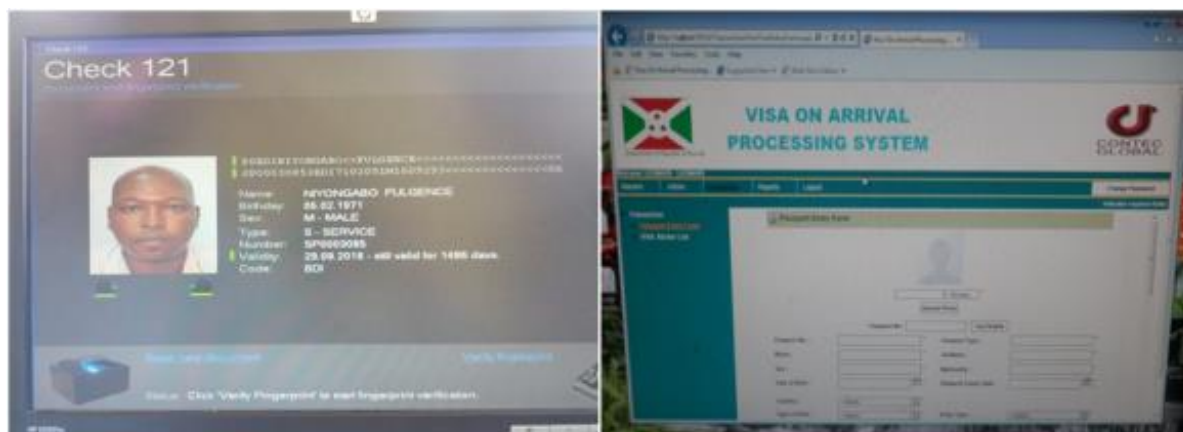
Figure 23. Check 121 and Visa issuing System

A server room is located at the Immigration HQ, but it is not networked with the borders or airports. In addition, it is managed by a private company, and the Immigration Office cannot easily access it.

Networking between immigration offices and national agencies, is not available, hence information is shared through e-mail, telephone, and fax. In addition, there is no connection between airports and border offices. The borders with telephone lines can use an internet service, those without use internet flash modems if mobile services are available. Other borders cannot use computers due to lack of power supply.

B. **Computerization of immigration**

· **Computerization status**

Border Office	Computerization			Equipment					Network			Electricity	
	Dedicated system, SW (immigration)	Supporting system, SW	Manual only	Machine Readable	Detecting devices	Biometric Reader	Web Camera	Auto Gate	Internet/ speed	Phone	fax	Stability Rate	Alternative
Bujumbura International Airport	Check 121	Edison TD	-	MRP	Passport Detector	Finger print scanner	-	-	-	Mobile	0	90%	UPS,Backup generator
Bujumbura port	-	-	O	-	-	-	-	-	-	Mobile	-	90%	UPS,Backup generator
Gatumba	-	-	O	-	-	-	-	-	-	Mobile	-		
Vugizo	-	-	O	-	-	-	-	-	-	Mobile	-		
Ruhwa	-	-	O	-	-	-	-	-	-	Mobile	-		

Kabarore	-	-	O	-	-	-	-	-	-	Mobile	-		
Kanyaru-Haut	-	-	O	-	-	-	-	-	-	Mobile	-		
Kanyaru-Bas	-	-	O	-	-	-	-	-	-	Mobile	-		
Gasenyi1-Nemba	Check 121	-	-	-	-	-	-	-	-	Mobile	-	80%	-
Giteranyi	-	-	O	-	-	-	-	-	-	Mobile	-		
Kobero	PIRS	-		-	-	-	-	-	-	Mobile	-	70%	UPS,Backup generator
Gahumo	-	-	O	-	-	-	-	-	-	Mobile	-		
Gasenyi 2	-	-	O	-	-	-	-	-	-	Mobile	-		
Gisuru	PIRS	-	-	-	-	-	-	-	-	Mobile	-		
Mabanda-Mugina	PIRS	-	-	-	-	-	-	-	-	Mobile	-		
Nyanza-Lac	-	-	O	-	-	-	-	-	-	Mobile	-		
Rumonge	-	-	O	-	-	-	-	-	-	Mobile	-	80%	-
Gitaza	-	-	O	-	-	-	-	-	-	Mobile	-		

Table 27.   **Computerization status of Immigration Registries**

Bujumbura Airport gets stable power supply, and the Check121 and Edison TD system are constructed to manage the immigration. In addition, there're scanners for passport and fingerprint. Excluding the borders of Gasenyi1-Nemba, Gisuru and Mabanda-Mugina, there's no power supply and computer system.

C. **Information sharing status**

The borders are not linked with HQ regarding border immigration, and data sharing is not possible with other agencies and most of the processes are executed at the Immigration HQ. The information is shared by e-mail on request, and the watch list is shared with National Police by e-mail.

D. **Operation and management system**

There is one Officer in the ICT Department of Burundi Immigration who takes charge of ICT planning and education. There are 16 engineers for IT infrastructure and operation, and each engineer belongs to different section. A private contractor operates S/W and H/W based on the contract.

2.3.3   Key findings

o   The HQ of Burundi Immigration Office built the task support system suitable for business scale, and performs the functions effectively.

o   There's a business support system for Immigration Office, but the system is mainly used for issuance of passport and visa rather than immigration control.

o   The systems are not networked across the borders, so immigration and control are executed manually. Immigration system requires the creation of a centralized database connected with all the borders, for data precision and management to be enhanced.

o   The most advanced e-Passport system is built, and some airports adopted e-Passport to manage immigration, but it's necessary to implement it at to other borders.

o   The Immigration Department has no website, so it's urgent to provide service for immigration policy and guidance.

o   Laissez-Passes is a different type of e-Passport, and has no security features, like the temporary travel document hence posing security challenges. An e-Passport type is soon to be introduced.

o   Power supply and networking systems are not developed at most of borders, (70%). Solar energy supplies some power, but doesn't work in rainy season. So the top priority task is to enhance ICT infrastructure.

o   The national system in charge of national security that manage information and equipment of the Immigration Office depend on private company. This is a serious challenge in terms of security, response to trouble shooting problems and skills development.

o   The ICT department in Immigration Office is under staffed. Therefore there is a need, to build capacity of the department with specialized IT personnel in order to effectively handle tasks of planning, developing, and maintaining.

2.4 Kenya Immigration

2.4.1 Organization and Business Situation of Immigration

Kenya Immigration Department is under the Ministry of State for Immigration and Registration of Persons. The Ministry has 5 departments, including Immigration Department. Kenya Immigration Department controls entry and departure, travel documents to Kenyans, regulation of non-Kenyan's residency and employment, consular services for Kenya Missions abroad, and the maintenance, safe custody and retrieval of records according to the functions of departments. Headquarters of the Immigration Department is located in Nairobi, the capital, there are 3 regional offices, and 3 sub-regional offices. The Immigration Offices at the 7 airports, 5 seaports and 14 border posts perform the processes of immigration clearance.

A. **Vision & Mission**

Kenya have goals that correspond to the EAC Common Market Protocol, and seeks to promote both immigration security and socio-economic development.

・ **Vision**

"To be the best immigration services provider in the world."

・ **Mission**

"To contribute to security and socio-economic development of the country by facilitating international travel and regulating entry, exit, residency and citizenship"

・ **Core Value**
 - Professional integrity and excellence
 - Transparency and accountability
 - Zero tolerance to corruption
 - High standards of safety and security
 - Discipline and courage
 - Teamwork
 - A strong commitment to quality customer service
 - Respect for the human rights
 - Fairness and Impartiality
 - Timely, efficient and ethical service delivery

B. **Related Law & Policy**

"The Kenyan Citizenship and Immigration Act" established in 2011 prescribes the articles for citizenship, civil rights and duties, other travel documents, immigration control, and the management of foreign nationals. In addition, the functions are executed in compliance with the laws and legal systems, including the Kenya Citizens and Foreign Nationals Management Service Act 2011, the Privileges and Immunities Act CAP 179, the Privileges and Immunities Act CAP 179, the Refugees Act (2006), the Children's Act (2001), the Human Trafficking Ban Act (2010), the Article 104 of the EAC Treaty, administrative regulations, and international conventions and protocols.

C. **Organization of Immigration Department**

The Department of Immigration is headed by a Director, with 4 Deputy Directors, 8 Senior Assistant Directors, 40 Principal Immigration Officers, 100 Chief Immigration Officers, 190 Senior Immigration Officers, 972 Immigration Officers and 30 Assistant Immigration Officers.

There are several sections, including Administration and Finance Section, Foreign Nationals Management Section (foreigner management), Passport Section, Permits Section, Investigation and Prosecution Section, Training and Research Section, Kenyanization Section, Visa Section, Citizenship Section, Customer Relations Section, and others.

ㆍ**The functions of the departments at HQ are as follows.**

Type	Department	Description
Primary activities	Passport	Processing citizen's travel document
	Visa	Processing entry document
	Permits and passes	Processing work permits
	Citizenship and nationalization	Considering citizenship application
	Foreign nationals management	Registration of foreign nationals
	Permanent residence	Processing permanent residence
Support activities	Administration and Finance	Co-ordinating department's operation
	Investigation and Prosecution section	Investigation and Prosecution
	Customer Relations Section	Providing customer relation services

Table 28.   **Organization of Kenya Immigration**

D. **Status of immigration office**

Kenya is currently operating a total of 35 Immigration Offices at the harbor, road, airport, island, and lake. Nadapal Border Post and Muhuru Bay Border Post and other posts have

just been constructed, and other offices. Busia, Malaba(OSBP), and Mbita(OSBP),are being expanded. 24 hour services are being operated at JKIA, Mombasa International, Namange, Lunga Lunga, Lokichoggio while other borders operation is from 06:30 AM to 06:30 PM.
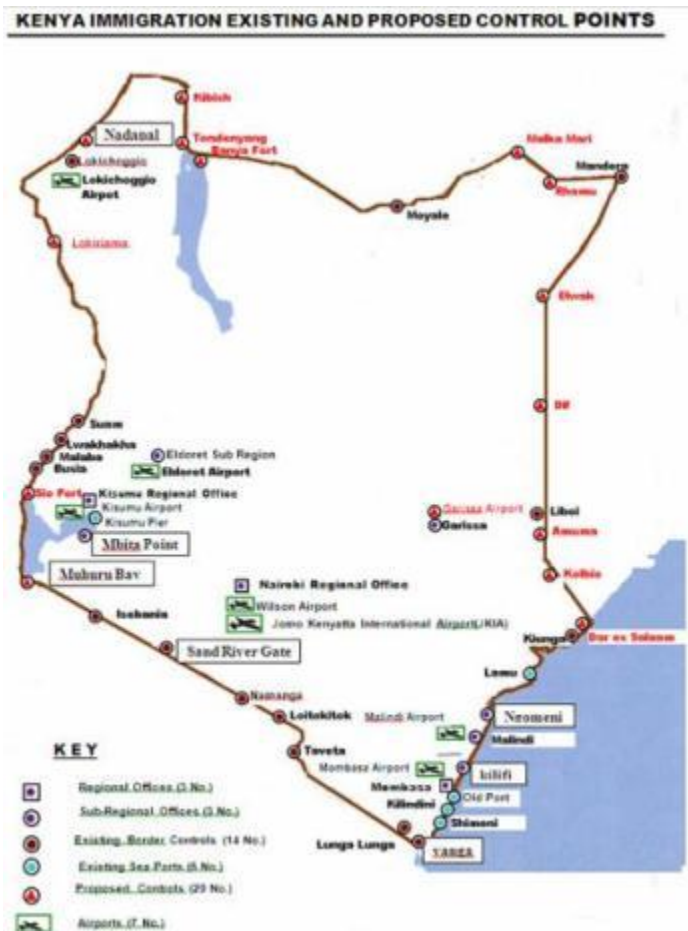
Figure 24. List of border immigration offices

· **STATISTICS ON IMMIGRATION DATA OF MAJOR IMMIGRATIOIN OFFICE**

Kenya Immigration Statistics are collected with E/D Card by the Ministry of Tourism. Tourist statistics can be obtained at the website of the Ministry of Tourism (http://www.tourism.go.ke). The number of the tourists to Kenya in 2010 was about 1 million, an increase of 15% from 2009. Holiday was the first key purpose of entry, and the tourist nationalities are UK (16%), US (10%), Italy (7.8%), Germany (5.3%), France (4.8%), and Uganda (2.8%), the 6th most tourists.

Unit: 1,000 people

Type	2006		2007		2008		2009	
	Arrival	Departure	Arrival	Departure	Arrival	Departure	Arrival	Departure
Holiday	1087.5	1077.9	1278.5	1232	936.1	891.7	1061.2	1064.9
Business	226.2	219.5	242.2	232.3	109.4	108.9	180.6	169.3

Transit	137.2	116.8	130.9	124.6	62	65.2	98.4	97.4
Others	149.8	164.1	165.2	183.3	95.8	77.3	150.2	136.6
Total	1600.7	1578.3	1816.8	1772.2	1203.3	1143.1	1490.4	1468.2

Table 29. **Statistics on Rwanda Immigration**

E. **Functions of Immigration Department**

Immigration functions are divided into issuance and management of visa, passport, and permit and the management of alien and citizenship and administration of immigration. About 73% of affairs are computerized, excluding alien and citizenship.
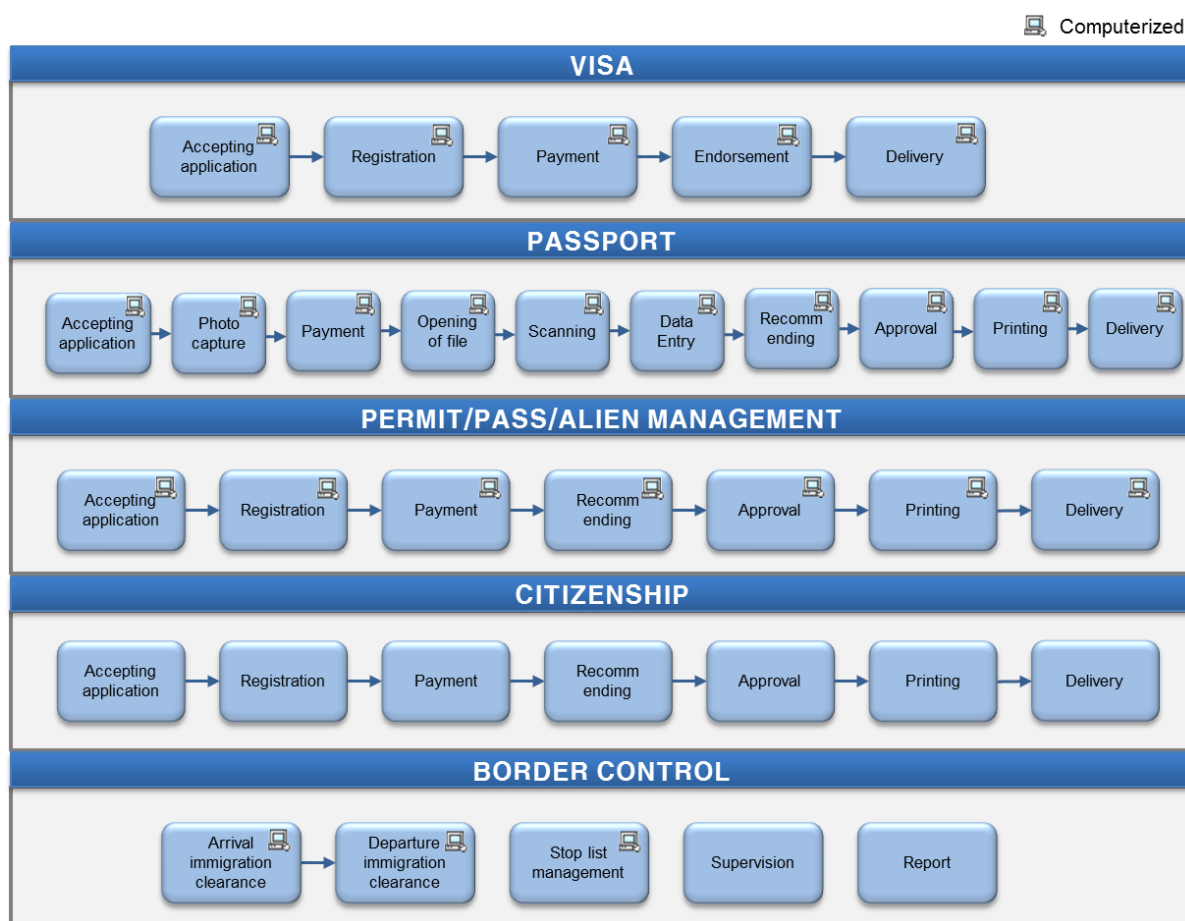
Figure 25. **Business Process of Kenya Immigration**

・ **VISA MANAGEMENT**

The reason for application of a visa and place of issuance vary with for different countries. An application for entry visa can be made at the airport and after payment of the required visa fee a visa sticker issued. If an applicant needs a multiple visa for business, medical, education, etc., the application is logged at the Nairobi Immigration Office. An application form, photo, and attachment submitted and if payment is made, visa application process is

completed. It takes 3 working days to process a single visa, and 5 working days for multiple visa, and single entry is processed immediately.

While Visas are issued at airports, Embassies, and Central Office, the issuance information is not integrated, hence posing challenges of effective management, as duplicated issuance and loss may occur. In addition, with many applicants at the airports, there is less time for visa information management.

· **PASSPORT MANAGEMENT**

Both paper passport and MRP passport are used. Varying with the type of passport, it generally takes about 40 days to issue the passport.

An applicant is expected to submit an application form, 3 photos, and a National ID, to an officer at the application desk, who confirms that the submitted documents are in order and enter personal information into the Kenya Passport Issuance System. The applicant proceeds to pay the required fee at the cashier window and moves to the camera room for a digital photo. The applicant's documents are then transferred to a data capture room, where information is scanned and entered into the system. The files with issuance information are registered at data entry rooms and the collected information is transferred to Quality Control Officers. The Final approver, authorizes the passport to be printed at the Issuing Room. The issued passport is delivered to an applicant at the issue desk.. The processes for handling application file and system information are well-managed with a tracking system, however, it takes long for a passport to be issued due the several processes and steps that that are involved.

Figure 26. Kenya passport application desk and application form

· **PERMIT/PASS/ALIEN MANAGEMENT**

Permit/Pass and Alien management is the process used to issue a work permit to a foreigner who will work in Kenya. The working process is completed if an applicant visits Immigration Office to submit an application and pay some fee. Immigration officers give a

recommendation or approval for the submitted documents and the committee finally approves a work permit. A foreigner with a permit may be issued with an alien card after 6 months of his/her entry. These issuing procedures are managed by a tracking system, but issuance information is not managed by the system It's impossible to know how many and what workers reside in Kenya because. Furthermore, there's difficulty in issuance control because the information on skill inventory is not managed. And passport, permit, and border systems are not linked mutually, including local offices, and there's a problem that a work permit can't be checked upon immigration clearance.

· CITIZENSHIP MANAGEMENT

There are separate sections for foreign nationals and citizenship. Their working processes are similar, manually managed with no tracking system used. The requirements for citizenship include 7 years or more stay, speaking skills in local language, and other various conditions. The work permit process is not standardized, so issuance time is not uniform.

· BORDER CONTROL

A few of the borders in Kenya have a system in place to manage immigration information, the majority of borders manually manage the information and periodically report to Immigration Headquarters.

Jomo Kenyatta International Airport located in Nairobi, Kenya is equipped with immigration system (PISES), webcam, and fingerprint scanner immigration with which examination is executed. Officer receives a passport and an immigration card at the entry checkpoint, and enter passport information into the system with MRP equipment, and makes immigrants enter their facial data and 10 fingerprints. E/D Card is transferred to the office of Kenya Tourism Board, and the data is entered into the system of the Ministry of Tourism. Such information is sent to Kenya Statistic Bureau, and E/D Card is discarded.

Figure 27. JKIA Immigration desk and fingerprint scanner

Overstay, visa expiration, and wrong passport are checked upon departure. But the information from HQ and other borders cannot be confirmed, unless the persons exist from the same boarder they used for entry. On departure, Immigration requires 4 fingerprints in contrast to the 10 finger- print required on entry.

Namanga Border Office is one of the most crowded posts across Kenya and Tanzanian borders where about 2,000 people cross the borders to and fro daily. Among those that cross the borders 80% are EAC residents. The immigration counters have the same system installed as at the airport and with similar processes. The issuing process is manual, but a Single journey visa and temporary permit take about 5 minutes to be issued. Temporary document is made of paper, but has unique security feature imprinted and there's a special reader for it. OSBP is being constructed on the border, and works are already on-going at the Tanzanian side. If the OSBP is completed, the' immigration offices of the two countries will merged into one.

Figure 28. Namanga Border Immigration office

2.4.2 System and Border Post Situation of Immigration

A. **Immigration system**

Kenya Immigration uses PISCES for immigration management, KMRS for passport issuance, and permit management system for issuance, and the file movement system which is a document tracking system for processes support. The system partly introduced a package, and the rest was developed in-house.

· **Immigration Systems are as follow:**

System Name	Installed Year	Introduced Method	No of Users	Descriptions
PISCES (Personal Identification Secure Comparison and Evaluation	2003	Package	300	· Input entry/exit data from the passport · Data storage, watch list, reports and statistics

System)				
KMRS (Kenya Machine Readable passport System)	2008	Package	400	· Manage passport processes which include registrations, scanning, data entry, approval, personalization and passport delivery - Passport Issuing system - Passport Management System
Permit Management System	2006	In-House	100	· Manage approvals, rejection · Store data · reports and statistics
File Movement System	-	In-House		· File tracking functions

Table 30.   **List of Immigration information system**

Immigration website (http://www.immigration.go.ke) provides service type, issuance procedures, requirements, fee, and form downloading service for passport, visa, Kenya citizenship, permit, and pass.

PISCES is installed and operated in JKIA, HQs (NyayoHse), MIA, Namanga, Malaba, Wajir, Taveta, and Lunga. This system shares and saves data, and update a watch list on WAN (Wide Area Network) via communication service provider. Rather than management of immigration information, more weight is put on strengthening and supplementing border security function by collecting immigrant's passport and biometric information to contrast with a watch list. The border immigration information is collected and reported to the Immigration Office, and each border doesn't use such collected information. In addition, a package type of system was installed, so the access to internal database is impossible and there's difficulty in using immigration information and upgrading system.
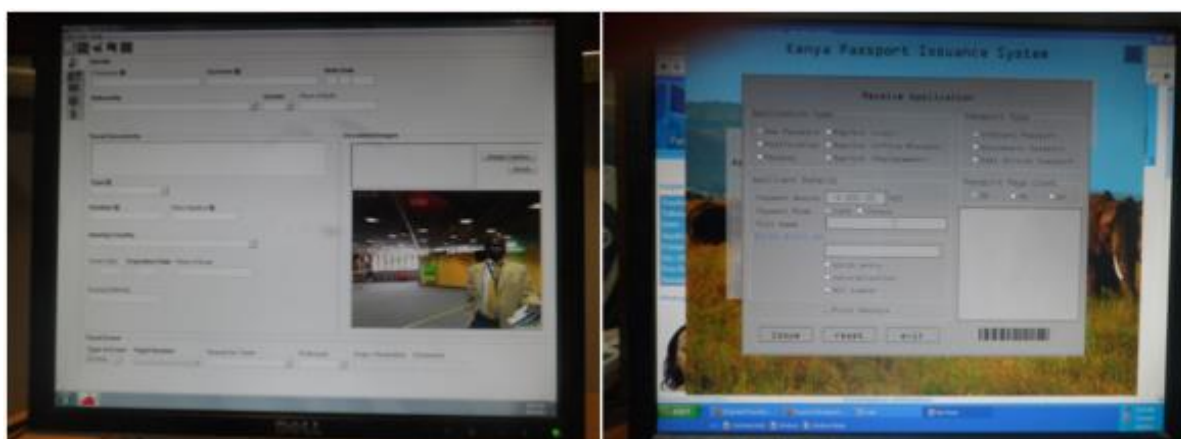
Figure 29. PISCES and KMRS

KMRS is the system used for issuing passports, it consists of passport issuing system(CS environment) and passport management system(web). The system covers the entire passport issuing processes, but has long and complicated processes because the paper file-based manual process, was computerized as it was without any process improvement. In

addition, the process is organized with both manual work and system processing, the working steps cannot proceed without a paper file. Regional offices   system is not configured, and therefore, sends paper files to HQ.

· **Immigration Hardware**

All servers are located at the server room of the Ministry of Immigration. A server for passport application is the IBM server connected with storage. Headquarters and regional offices are decentralized, and all the systems exist at the server room of each regional office of which data only is transmitted to the Central Centre. PISCES server is a Dell server, and 2 systems are set up at 2 airports, and 5 systems in land port, and the immigration information is transmitted to Headquarters. Permit management system manages all of the permit information and attached documents.

Government core common network is linked with the Ministry of Finance. UPS can stand 15 to 20 seconds upon blackout, and a generator is operated automatically. Auto backup system is being considered, but manual backup cartridge is archived at the fire-proof vault. The Ministry of Immigration takes care of operation and maintenance of S/W, H/W, and N/W, but the technical problem refers to a vendor.

B. **Computerization status of Immigration Registries**

Only 8 borders operate PISCES systems, not networked, but other borders depend on manual work. JKIA is equipped with PISCSE system, and standard equipment, such as webcam, fingerprint scanner. There's a device to detect forged passport, and the security feature is investigated by checking a micro print with a magnifier or UV light.

As in Namanga, the land port border office at which network and system are installed with PISCES system and standard equipment. Power supply is stable, and the UPS and back –up generator automatically works upon blackout. Networking is made with the Central Centre through VSAT, and there's no problem in use.

C. **Information sharing**

The National Police, National Security, Anti-terrorism Division, and others can gain access to PISCES. The National Security collects all the watch list offline and input the information, linked with the US. The information connection is not made between NRB and KPMS. But if an ID Number and a verification request are sent, the result is transmitted on the network. But, it takes long to share information because there's no policy support, infrastructure, and standard for information sharing between the ministries.

D. **Operation and management system**

ICT organization comprises total 5 officers, including 1 officer for planning and project management, 3 for service operation, and 1 for data administration. H/W and N/W is operated by special vendor's certified IT contractor.

It's difficult to hire a developer, security specialist, and N/W engineer because the process for employment and training is very complicated and takes long. The problem arises because one person performs many things redundantly.

2.4.3 Key findings

- o Kenya has a big department and a management system to control broad border areas and many immigrants, and one stop border post is being developed.

- o Immigration functions are 73% systemized excluding alien management, but long processes and heavy workload the period of issuance relatively longer. In addition, immigration and passport systems are developed, but it's hard to use statistics and immigration information due lack of information sharing between borders and local offices. Accordingly, it is desirable that automation process and system integration are implemented , process improved to achieve a paperless system.

- o Local offices are authorized to receive applications, but it is the central offices which handles all the processes of visa issuance. Due to heavy workload visa application process is handled offline. In order to solve this, there is a need to introduce a centralized management system for web-based e-Visa service support.

- o There's no alien management system to control foreigners and verify identification. Specially, the skill inventory management system is needed that can administer and control the issuance information of foreigner permit.

- o Immigration Management System is dependent on the provider (US Government). Lack of access to the central database blocks use of immigration information and regular upgrading of the system. In addition, the border Immigration information is connected in a single way to HQ. It's necessary for all border posts to use integrated information on immigration, visa, and permit.

- o About 80% of Immigration Offices are not systemized, and some offices have challenges of aged power system, network, and equipment. Non-sharing between borders and local offices causes difficulty in using statistics and immigration information. Specially, border posts near Somalia have issues on control and security.

- o Manual documentation at border entry points lacks in watch list or criminal screening. For tighter immigration security, immigration office needs overall watch list management system.

o   Power and networking system is a serious challenge in the EAC region. Even if computer systems were installed, they may not operate effectively, due to power shortages.

o   The ICT Department in the Immigration Office has capability for planning, developing, and maintaining. The scope of functions can be specialized and categorized in detail to reinforce the IT Department's strategic planning and development capabilities.

2.5 Tanzania immigration

2.5.1 Organization and Business Situation of Immigration

Tanzania Immigration Department is under the jurisdiction of the Ministry of Home Affairs. The Ministry controls 4 departments, 6 divisions, including Immigration Department. Immigration Office manages 8 regional immigration offices, excluding HQ Office located in Dar es Salaam and Zanzibar Immigration Office, and also controls 18 airports(including 3 International Airports) offices, 15 sea/lake offices, 2 immigration railway posts, and 43 immigration road posts.

A. **Vision & Mission**

Tanzania has the goals that correspond with EAC Protocol for Common Market, and seeks both immigration security and economic development.

・ **Vision**

"To become an efficient and effective Institution, which provides high quality Immigration services that meet both national and international standards."

・ **Mission**

‐ To facilitate and control movements of person through implementation of relevant laws and regulations

‐ To safeguard national security

‐ To safeguard Economic Interest"

・ **Immigration Motto**

‐ "Migration Security and Development"

B. **Related law &policy**

"The Immigration Act" legislated in 1995 prescribed 'function and general power of immigration officer', 'controlled immigrants' and 'conditions for entry and residence', and 'alien management'. This Act is the legal foundation for organization and scope of affairs. In addition, 'The Passport and Travel Document Act' legislated in 2004 prescribed issuance of passport and procedures for travel documents. And the affairs are being operated in accordance with 'The Tanzania Citizenship Act(1995)' and 'The Anti-Trafficking in Persons Act(2008)'. Based on 'The National ICT Policy' established in 2003, informationization proceeds in accordance with the objective and direction of immigration affairs.

C. **Organization of Immigration Department**

The Principal Commissioner of Immigration Service, the head of Immigration Service, is under the Minister of Home Affair and controls 2commissioners and 4acting commissioners under which 4 divisions and other regional immigration offices(including

Zanzibar Immigration Office). Divisions consist of 'Visa, Passes and Permits Division', 'Passports, Citizenship and Nationality Division', 'Border Management and Control Division', and 'Administration and Finance Division'. Besides, including HQ Dar es Salaam, and its similar Zanzibar Regional Immigration Office, there are regional immigration offices and Tanzania Regional Training Immigration Academy.

· **Business Functions of Departments on Headquarter are as follows:**

Type	Division	Description
Primary activities	Passport, Citizenship and nationalization	- Processing citizen's travel document(passport) - Processing citizenship, permanent residence, nationality
	Visa, passes and Permit	- Processing entry document - Processing work permits
	Border Management and Control	- Control and monitoring the inflow and outflow of migrants
	Regional immigration Office	- Issuance of residence permits, passes - Receive, process and issuance of travelling documents
Support activities	Administration and Finance	- Co-ordinating department's operation - Managing the human resources & education - Managing & monitoring the budget &cost - Planning & procuring - ICT & information management
	Regional Training Immigration Academy	- Basic training for newly recruited officers

Table 31.   **Organization of Tanzania Immigration**

D. **Status of immigration offices**

Currently Tanzania operates a total of 78 Immigration Offices at the harbors, roads, airports, islands, and land. 11, 24 hour-operated border posts are located in Julius Nyerere International Airport, Kilimanjaro International Airport, Abeid Amani Karume International Airport, Tunduma Rail Post, and road posts in Holili, Horohoro, Kasumula, Kasesya, Sirari, and Tarakea, and other border posts are operate from 06:30 AM to 06:30 PM.

Figure 30. List of border immigration offices

· **Statistics on Immigration Data of Major Immigration Offices**

The Department directly compiles Tanzanian Immigration statistics with passenger manifest, and the statistical information collected at each border is reported monthly to the HQ for management. The number of entry and departure increased to 15%from 3,103,334 persons in 2009 to 3,591,664 in 2011.

Unit: People

Type	2009		2010		2011	
	Arrival	Departure	Arrival	Departure	Arrival	Departure
Natives	783,924	810,017	797,776	892,701	870,980	963,445
EAC	244,105	246,612	257,537	268,114	257,124	262,213
Foreigners	502,300	516,376	525,165	611,003	610,870	627,012
Total	**1,530,329**	**1,573,005**	**1,580,478**	**1,771,818**	**1,738,974**	**1,852,670**

Table 32. **Statistics on Tanzania Immigration**

E. **Functions of Immigration Department**

Immigration Functions are divided into issuance and management of visa, passport, and permit and management of alien and citizenship, and other immigration administration. About 40% of documentation processes are systemized for passport, border management, and document management.
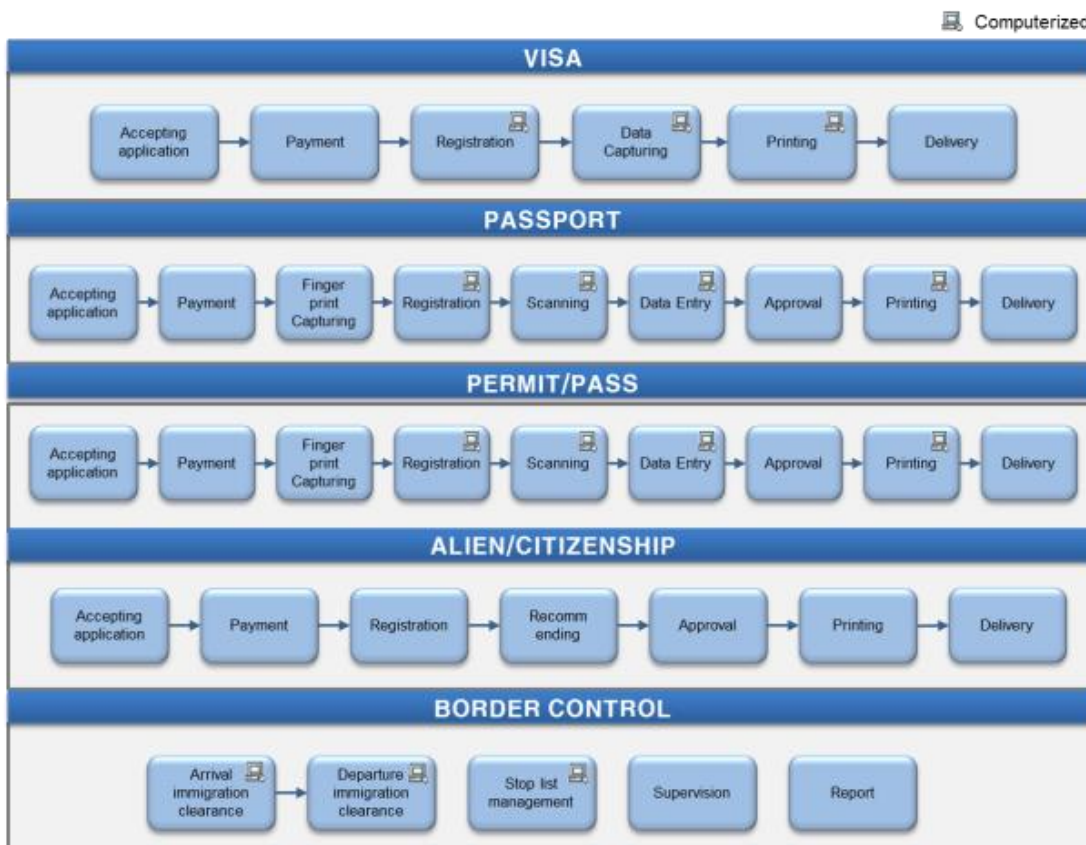
Figure 31. Business Process of Tanzania Immigration

· **VISA MANAGEMENT**

Tanzania issues 5 types of visas including ordinary, transit, multiple, gratis, and referral. Ordinary and transit visas are immediately issued at the entry point, but other visas take 2 weeks to be issued.

Payment and visa sticker issuing process for entry visa   at the airport are completed by one stop service if an application form is submitted to a visa reception desk. At this point, Visa Administration System (VAS) is used for issuing a visa sticker. VAS reads MRP information on passport, scans the passport to acquire photo information. And the information for visa issuance (sticker no.) is entered into system, and a sticker is printed and attached on the passport, which is issued after that.

If a visa is issued at the JNIA Airport, a passenger can immediately pass through the immigration without immigration clearance. Visa desk operates two systems of immigration and visa issuance at the same time. But, it can take 2 hours or more   to get a visa during   busy times because visa and examination processes are performed at the same time, and waiting lines are sometimes not orderly. Further, too much information is required for visa application, which has been prescribed in the laws legislated at the time of manual processes. But there is a possibility of improvement with the new system.

VAS is installed in all the systems of at the HQ and local offices, but not networked. So, each local office transmits monthly visa issuance information in Excel to HQ to calculate general statistics.

Figure 32. Tanzania Visa application counter

・ **PASSPORT MANAGEMENT**

Tanzania has 7 types of passports, including ordinary, service, diplomatic, East African, and all of them are MRP passports.

There are 9 stages of   procedures to be completed during the Passport issuing process. . First, one makes an application, and submits to an application counter. An officer reviews the application and attachments. At this time, identification is made by a birth certificate instead of National ID. Payment is made at the bank counter after the reception is completed. Then, fingerprint information is collected one by one by putting 10 inked fingerprints on the paper. After that, the applicant leaves the process. The date due for issuance is notified right there.

The information in the filled application and attachment is entered in the computer system. The documents are scanned and archived in Saperion, a document management system. And the main data, including nationality, birthday, sex, name, and company, is entered directly into the Saperion system.

If documents submitted lacks all required information the documents are returned to the applicant, while the passport file is archived at Registry Room., and an officer can give a recommendation if necessary. The person-in-charge then directly examines and approves them at the Passport Officer Room. Passport Pool takes care of document transfer and the filing processing at each office, and executes document process to transfer to the competent department after tracking.

The approved application is taken to the printing room and a special passport issuing system prints the passport by scanning the photo and fingerprints attached in the

application and uploading them into Saperion system. About 250 passports are printed daily, and Toppan 3000LP printer can complete printing and laminating of the main page within 90 seconds. The printed passports are delivered to the local offices or overseas. Maximum of 1 to 7 days are required from application to issuance..

Figure 33. Tanzania passport application desk and Fingerprint collecting

Examination of the visa watch list is made by checking bio information (name, date of birth, etc.)as different persons having the same name are common. Only HQ and local offices issue emergency travel documents, but the processes are not systemized. Emergency travel document is a paper without security features, and can pose challenges of possible photo, and characters forgeries.

- **PERMIT/PASS MANAGEMENT**

There are 3 type of permits; Residence Permit Classes "A", "B", and "C". Residence permit is issued to the foreigner who stays 30 days or more for the purpose of business and employment in Tanzania. The Permit process is basically similar to that of the passport. 14 days are required from application to issuance. Permit is color-printed in the A4 paper of security features. Upon issuance of permit, a stamp is put on the passport for confirmation. Permit is inclined to easily make errors in data input. In addition, the permit certificate is security-featured, but it is printed on the paper, with high possibility of forgery and falsification.

Figure 34.   Permit Computer room and Residence Permit

· **ALIEN / CITIZENSHIP MANAGEMENT**

Double citizenship is not permissible in Tanzania, and the government gives citizenship to a native-born, a spouse of Tanzanian nationality, and a foreigner applying for naturalization. The competent department receives and examines an application for citizenship. But the final decision is made by the ministry. About 1 year is required from receipt to issuance. Most processes are executed manually.

Alien management doesn't have a separate information system, and most of processes are executed manually.

· **BORDER CONTROL**

Some of the Tanzanian border posts use PISCES and PIRS to manage immigration information. But most borders administer the immigration processes manually, and make a periodic report to Immigration HQ.

Immigration system (PISCES) is installed at Julius Nyerere International Airport, Dar es Salaam, and the system is used to handle immigration processes. Upon entry, E/D Card is process, and the passenger with Tanzania citizenship, resident permit, or EAC Partner States citizens can go through immigration without visa. Other foreigners in need of visa complete a visa form to get the issuance.

Entry immigration is executed for the passenger with already issued visa. There're entry checkpoints and a separate window for visa issuance, but it requires considerable time because both PISCES and VAS(Visa Administration System) system performs a separate input process after complete payment for visa issuance. One place handles payment, visa issuance, and entry immigration, including issuing a visa sticker for which passport information is scanned and the photo data is processed. This process takes as long as the 45 minutes prescribed in the facilitation guidelines of ICAO References Annex 9.

For departure immigration, the passenger's entry information and passport are checked. The date of entry is confirmed with the stamp on passport, and MRP inquiry through PISCES confirms the passport information. At this time, personal identification is made by checking already registered fingerprint (one finger). Then the photo information is saved.

Figure 35. JNIA Entry & Departure Immigration desk

Kabanga Border connects Tanzania and Burundi to land routes. There is flow of cargo than people crossing the border. On average 100 people cross the border daily. PIRS system, old version of MRP, fingerprint scanner, webcam and VSAT provided by IOM are equipped here. But, the system is hardly used due to power shortages and malfunction.

If an immigrant submits his passport, an officer compares with the handwritten watch list and stamps the passport. Nationals' and foreigners' immigration and vehicle information are logged manually. Daily immigration status is reported to the regional offices by phone. The report is managed by a separate type of book, and month-end report is provided on paper. The report is written with information on date, the number of exit immigrants by country, the number of entry immigrants, and visa fees.

Transit visa and entry visa are granted, but temporary travel documents are not issued. T/D is issued only at the Distinct Office. The visa fee is collected directly, and the total amount is reported every day.

OSBP is planned to be constructed soon. The major challenges of the border post are inadequate manpower, disconnection between border offices, incomplete ownership and control of systems, deficient hardware and software, small office space, frequent blackout, etc. In addition, there is no temporary pass for people living across the borders.

Figure 36. Kabanga Border Immigration office

2.5.2   System and Border Post Situation of Immigration

A.   **Status of immigration system**

Tanzania adopted PISCES and PIRS systems for immigration management. In addition, PIS for passport issuance, VAS for visa, permit management system for permit (under development). Saperion system is used for document management.

  · Immigration System

System Name	Installed Year	Introduced Method	Supplier	No of Users	Descriptions
PISCES (Personal Identification Secure Comparison and Evaluation System)	2005	Package	USA GOV.	Approx. 400	⁻ Immigration management & identification ⁻ Terrorist verification
PIRS (Personal Identification & Registration system)	2009	Package	IOM	Approx. 70	⁻ Immigration management & identification
PIS (Passport Issuing System)	2005	Package	GET	35	⁻ Passport application data input ⁻ Issuing & printing the passport
VAS (Visa Administration System)	2006	Package	Centric	Approx. 200	⁻ Collect the data for input from passport ⁻ Issuing & printing the Visa
PMS (Permit Management System)	2012		MFI	35	⁻ Permit application data input ⁻ Issuing & printing the residence Permit
SAPERION	2007	Package	MFI	10	⁻ Content Management System ⁻ File indexing, scanning and archiving

Table 33.   **List of Immigration information system**

Immigration website (http://www.immigration.go.tz/) provides service types, issuing procedures, requirements, fees, and downloadable forms for passport, visa, residence permit and pass. In addition, provided is the information on department vision, introduction, news, procurement information, etc. E-mail account is given to employees and clients through MS Outlook Web.

PISCES is the identification solution that is installed at the airports and other key areas by the US Government to prevent terrorism. The installed areas are 3 airports, 1 seaport (Julius Nyerere International Airport, Kilimanjaro International Airport, Abeid Amani Karume International Airport(Zanzibar), Zanzibar Seaport), and 5 land routes (Horohoro, Namanga, etc.).HQ collects the immigration information of JNIA and Namanga, but the information created in Zanzibar is collected and managed by Zanzibar Regional Immigration Office. KIA is used for recording immigration information without webcam and fingerprint scanner. Generally, each border post where system is installed has 2 servers of primary and standby, and the client comprises a set of a fingerprint scanner, webcam, MRP, PC, and UPS.

The Department is not authorized to assess the DB and system. When trifle system change and upgraded are needed, namely in case a new flight is added and its name needs to be added, the department requests the US Embassy to modify it. The US Government modifies and upgrades the system remotely after the embassy's notification. The US officers visit every two years to upgrade the system. PISCES watch list is provided by the police and security authorities. The watch list information is entered into the system directly.

PIRS is the standard solution distributed by IOM to manage the immigration information. The system records the information on personal data, fingerprint, and photo in the passport (MRZ). Basically, MRP, webcam, fingerprint scanner, and PC are a set. HQ server performs data consolidation, watch list uploading, etc. PIRS can collect and extract the information date, different from PISCES. And the information exchange between HQ and borders are possible. In addition, the ownership of system lies in the department, easy to customize and upgrade the system. But sometimes malfunction of HW and others is left alone due to limited maintenance.

Tanzania has a total of 9 posts, such as 1 at the airport, 1 at the port, and 7 land routes. Mwanza Airport, Mwanza Regional Immigration Office, and HQ are networked with each other. Other border posts are connected with regional offices, and the information collected by regional offices (Bukoba, Kigoma, Musoma) is periodically carried with HDD in hand to the HQ for uploading information.

PIS is a passport printing system that was installed to print verified applicant information on the passport. Application information is entered into system. Photo and signature are scanned and printed with personal information on the passport. PIS has the function to save and retrieve issued passport and personal information. Furthermore, Saperion built in 2004 is used to archive and manage the application and attachments of the issued passport. However, biometric information system was not in built. The main information is displayed upon issuance, but the detailed information on passport issuance lies in the attached documents, so it is not retrieved on the system. It's inconvenient that a change of

a single field on the PIS screen requires HQ's involvement. The system has been in operation for 8 years and therefore requires, to be reviewed, upgraded or replaced. An integrated passport management system that connects to local offices should be considered.

Figure 37. PIS and Passport Printer

VAS was installed with a package type in 2006. VAS extracts personal (MRZ) and photo information from passport to issue a visa, and has the function to print the information and approved immigration conditions on a visa sticker. VAS has the functions for inquiry and statistics of visa information. VAS is installed in 16 border posts.

As of 2012, PMS is under development and testing to convert to permit system by upgrading the Saperion. PMS will use the Saperion DB, and develop a different UI with the function of adding a printing command. The borders can check the permit information, but only passport and stamp are confirmed. The borders need a system that can compare the permit with the issuance information of HQ in the future.

Figure 38. VAS and PMS

ㆍ **IMMIGRATION HARDWARE**

All the servers of immigration information systems are at the server room of HQ office. There are PISCES, PIRS, PIS, VAS, PMS, Saperion, web/mail server, and storage.

System Name	Model Name	System Information				
		CPU	Memory	HDD	OS	DBMS
PISCES	DELL PowerEdge 310	-	8GB	72G*6	LINUX(Red Hat)	ORACLE
PIRS	HP ProLiant DL380	-	8GB	72G*6	WIN 2008	MySQL
PIS	HP	-	2GB	43G*6	WIN 2003	MySQL
VAS	HP	-	2GB	72G*6	WIN 2003	MySQL
PMS	DELL	-	8GB	72G*6	WIN 2008	MySQL
SAPERION	HP	-	6GB	72G*6	WIN 2008	MySQL
Storage	Power Edge 2950	-	-	36.4G * 6 * 4	WIN 2003	-

Table 34. **Server Inventory**

The information system (PISCES, PIRS, VAS) is installed and operated in total 18 border posts. 11 of the border posts of them are directly networked with the local offices or HQ.8 of the entry points of them are connected by optic-fiber line (2Mbps), and the rest by PSTN line, such as JNIA(1Mbps), Zanzibar(1Mbps), and Namanga(256kbps). 50 to 70% of regional immigration offices are networked with e-Government WAN.

Telecommunication is maintained by National Telecommunication Company. Some local offices and HQ are not networked yet, but the task for this is on-going.

B. **Computerization status of immigration registries**

Tanzania has immigration system only in 4 airports, 2 seaports, and 12 land ports out of 78 borders. PISCES, PIRS, and VAS are built in a mixed way. MRP and fingerprint are constructed at the place where PISCES or PIRS is installed. But the rest of them handwrite the immigration record manually.

ㆍ **Computerization status**

Border Office	Computerization			Equipment					Network			Electricity	
	Dedicated system, SW (immigration)	Supporting system, SW	Manual only	Machine Readable	Detecting devices	Biometric Reader	Web Camera	Auto Gate	Internet/ speed	Phone	fax	Stability Rate	Alternative
JNIA Airport	PISCES, VAS	INTERPOL SYSTEM, MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X	PSTN-1 MBPS	WIRED	O	80%	UPS, Generator
ZANZIBAR Aiport	PISCES, VAS	INTERPOL SYSTEM, MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X	PSTN-1 MBPS	WIRED	O	80%	UPS, Generator
Kilimanjaro Airport	PISCES, VAS	INTERPOL SYSTEM, MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	X	X	PSTN-1 MBPS	WIRED	O	80%	UPS, Generator

Mwanza Airport	PIRS, VAS	INTERPOL SYSTEM, MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	X	X	PSTN-1 MBPS	WIRED	O	80%	UPS, Generator
ZANZIBAR Seaport	PISCES, VAS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X	PSTN-1 MBPS	WIRED	O	80%	UPS, Generator
KIGOMA Port	PIRS,VAS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	X	X	PSTN-1 MBPS	WIRED	O	80%	UPS, Generator
DAR Seaport	-	MS OFFICE		X	X	X	X	X	X	X	X	80%	UPS, Generator
HOLILI	VAS	MS OFFICE		X	X	X	X	X		X	X	80%	UPS, Generator
HOROHORO	PISCES, VAS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X		MOBILE	O	80%	UPS, Generator
KABANGA	PIRS, VAS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X		MOBILE	O	80%	UPS, Generator
KASUMULU	PIRS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X		MOBILE	O	80%	UPS, Generator
MTUKULA	PIRS, VAS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X		MOBILE	O	80%	UPS, Generator
MANYOVU	PIRS, VAS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X		MOBILE	O	80%	UPS, Generator
MABAMBA	PIRS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X		MOBILE	O	80%	UPS, Generator
NAMANGA	PISCES, VAS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X	PSTN-512 KBPS	WIRED	O	80%	UPS, Generator
RUSUMO	PIRS, VAS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X		MOBILE	O	80%	UPS, Generator
SIRARI	PIRS, VAS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X		MOBILE	O	80%	UPS, Generator
TARAKEA	VAS	MS OFFICE		X	X	X	X	X		X	X	80%	UPS, Generator
TUNDUMA	PISCES, VAS	MS OFFICE		MRP	PASSPORT READER	FINGER PRINT READER	O	X		MOBILE	O	80%	UPS, Generator

Table 35. **Computerization status of Immigration Registries**

C. Information sharing

VAS was installed with a package type in 2006. VAS extracts personal (MRZ) and photo information from passport to issue a visa, and has the function to print the information and approved immigration conditions on a visa sticker. VAS has the functions for inquiry and statistics of visa information. VAS is installed in 16 border posts.

As of 2012, PMS is under development and testing to convert to permit system by upgrading the Saperion. PMS will use the Saperion DB, and develop a different UI with the function of adding a printing command. The borders can check the permit information, but only passport and stamp are confirmed. The borders need a system that can compare the permit with the issuance information of HQ in the future.

D. Operation and management system

The ICT Department consists of 15 specialists: planning and project management (3 persons), service operation (2), data admin (1), H/W and device management (2), N/W management (3), and security management (2).Most of maintenance and operation is

executed by   the ICT department , but part of equipment and NW are being operated by vendor outsourcing.

The absence of ICT plan results into under-budgeting for the department. Adequate and human resource   and skills are lacking in areas such as project management, database administration, and development. Absence of ownership of the system (PISCES) causes difficulty in operation. In addition, there is general all lack of infrastructure (aged hardware, little networking, etc.) limit operation and maintenance.

2.5.3   Key findings

- o Tanzania possesses a huge organization and a document management system to control many borders and immigrants.   Its own Immigration F/S is being prepared to integrate immigration system, and a system improvement project proceeds by each field.

- o 40% of immigration processes are systemized, but the process is complicated, and the period of issuance is takes long dues heavy workload. Immigration processes are executed with various systems as well as manual work, which requires s improvement.

- o Passports can be issued by Immigration HQ and in Zanzibar, but the issuance information is not linked, so there's security risk of duplicated or wrong issuance.

- o It takes considerable time to go through the entry because visa issuance as well as immigration process is spontaneously made at the airport. The process exceeds two times or more than 45 minutes prescribed in the guideline for ICAO References Annex 9 – Facilitation.

- o Immigration system works with the mix of PISCES and PIRS. Most of borders are still operate manually. There is no information connection between systems and borders, for immigration information to bes effectively integrated and managed.

- o Some systems installed in the form of a package are not authorized to gain access to DB and system, and hard to maintain and extend. A few borders have the system, but don't use it because of the information system failure due to restriction and difficulty in maintenance.

- o Visa, passport, permit systems use Saperion for archiving documents, but inter-system connection is made by user's file uploading or other manual works, which lowers efficiency in system use. In addition, double entry into affairs system and documentation system occur.

- o Only 19 borders of the 78, (24%), have installed power and immigration systems. Stable power supply and networking should be availed for information

connection between local offices and borders.

o The immigration status is reported from borders to HQ daily and manually, which can have an effect on precision and credibility of statistical data.

o Tanzania has no national ID system, and it's difficult to verify the identification upon application and immigration. In addition, the emergency travel document made of paper has no security features, posing possibility of forgery and falsification.

o Immigration Department has a website, but only simple information and a form downloading service are available.

o The ICT department in the Immigration Office has the capability to plan, develop, and maintain systems in-house. For steady development, the scopes of processes should be specialized and detailed to reinforce IT   department' strategic planning capability.

3 Bench Marking

3.1 KISS System in Korea

Korea Immigration Smart Service (KISS)   is an Immigration Information & Management System of the Ministry of Justice, Korea. KISS is one of the systems that EAC can bench mark with as a model of best practice for   the Immigration Information & Management System.

3.1.1 Background of KISS

The Korean Immigration Information & Management System was installed in 1980 to address and manage issues arising from the rapid increase of tourists, resident aliens and illegal aliens brought about by national economic growth and globalization. However, in the recent past, the need for an integrated passenger information system and immigration automation system arose from a number of factors including.

- The activation of electronic passport,
- The need for reinforced security of immigration clearance,
- Simplification of immigration procedures,
- Expansion of immigration sharing system and
- Increased requirements for the public services,

Major improvements competitive powers of the Immigration Information & Management System of Korea are as follows: (

- Government-wide alien service management process innovation interconnected to the multiple departments and agencies
- Immigration procedure automation services for security and utilization of e-Passport of the Ministry of Foreign Affairs and Trade
- Development of Immigration policy to address multiple cultures through accurate alien information and statistics
- Increased requirements for reinforcement of aviation security and simplification procedures from the international organizations (ICAO, IATA)
- Acquisition of international immigration information sharing system through Interpol
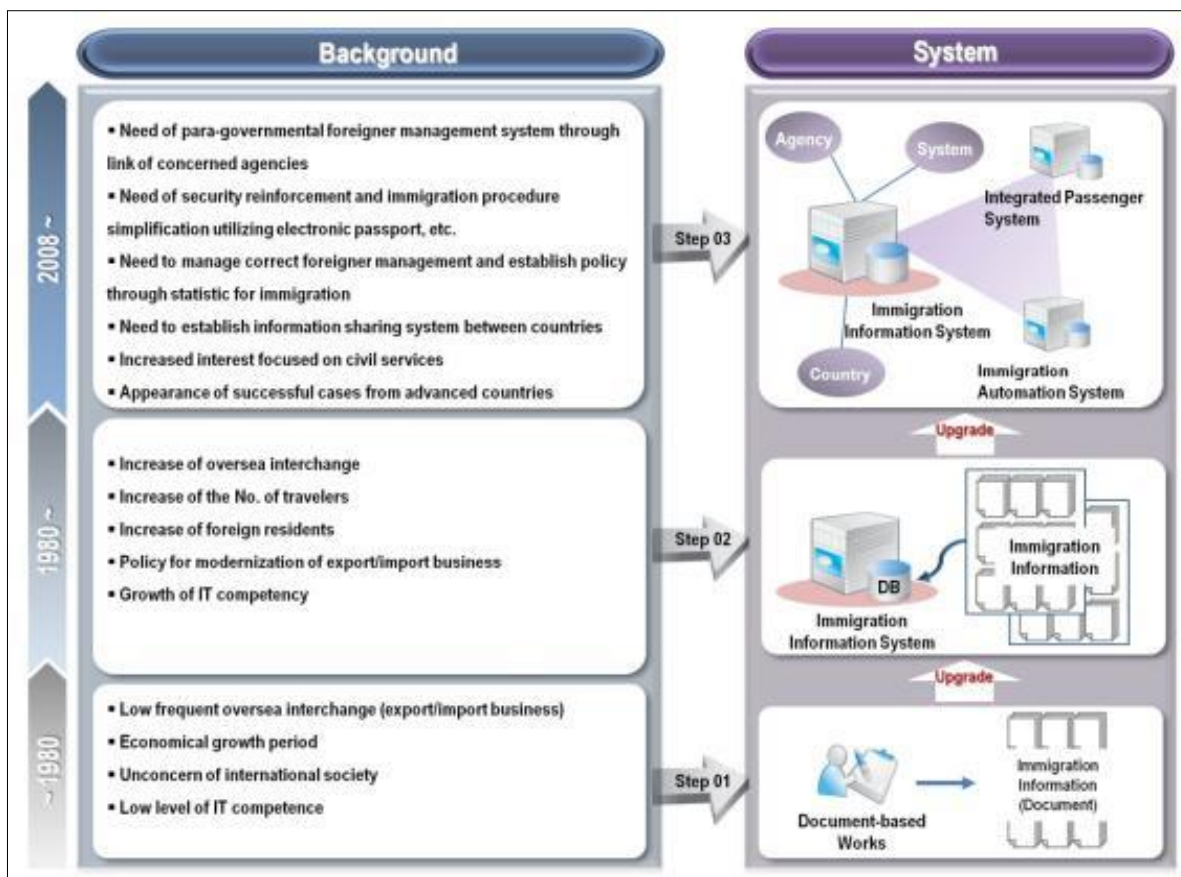
Figure 39. Background of KISS

3.1.2 Major Tasks of KISS

Major tasks of KISS can be divided into immigration clearance, alien residence, invitation, Visa, immigration offence/protection and recognition of refugee status.

A. **Immigration clearance**

Immigration clearance carries out the tasks checking the validity of ID cards including passports, etc. for natives and aliens to support convenient and safe travel and control the illegal immigration passengers and restricted persons for exit and entry including those having forged/modified passports.

- **Immigration Clearance for Natives**

Immigration clearance for natives on exit requires a passport and boarding pass, and for entry customs declaration form for customs clearance is required.

- **Immigration Clearance for Aliens**

Immigration clearance for aliens requires valid passport (or passport and crew certificate for crews), valid visa and no reason on restriction on entry. If any people of the Countries under Visa Waiver Agreements wants to enter Korea, he/she can enter without visa. Hold-departures for aliens include those who are likely to threaten benefit of Korea, public

safety or economic order such as those who are suspect of crime, under criminal cases, in prison, do not pay national or customs tax, etc.

· **Ship/Airplane Clearance**

In case the ship or passenger airplane, etc. enters/exits the airport or seaport, the head or transport business of the ship or airplane shall submit the estimated arrival/departure notice to the head of the immigration office. Immigration clearance for ship, passenger airplane, etc. checks validity of crews and their ID cards, compatibility of list, restricted persons, etc.

· **Crew/Shore Pass**

Crews of Korean nationality and   alien crews of the flag ships and airlines are mandated to take crew registration process to be issued with crew ID card. With an ID, the crews go through different immigration clearance procedures that are quick and convenient. For crews whose ship and airplanes temporarily land and depart may be issued with   shore passes from the Immigration officers on arrival and exempt from the standard visa issue procedures.

· **Automatic Immigration Clearance**

Automatic immigration clearance is a clearance system that provides fast and convenient immigration clearance to crews and people of 17 years and above, who may have registered their fingerprint information before. Procedures of automatic immigration clearance requires checking registration of passport through the passport reader, principal verification through the fingerprint scanner and passing through the Auto-Gate.

· Coming and Going between South and North Koreas

Natives travelling to and from North Korea, submit their travel certificates (certificate of North Korea, certificate of South Korea) to the Immigration Officers for clearance.   For aliens exiting Korea via North Korea, submit passports, travel certificates and immigration declarations.

B. **Alien Residents**

Aliens who wish to stay in Korea for more than 90 days from the date of arrival, apply for alien registration to the jurisdictional Immigration Office and get issued with the alien registration card. If a registered alien wishes to change his status of stay, he is required to report to the jurisdictional Immigration Office within 14 days.

· **Alien Registration**

In case any alien wants to stay in Korea for more than 90 days from the date of arrival, he/she shall apply alien registration to the jurisdictional immigration office and get issue of the alien registration card. If any matter to be registered for the alien has changed, it is

required to report the jurisdictional immigration office of the changed align registration within 14 days from the date of reason for reporting.

· Grant of Residence Qualification

The aliens who reside in Korea without residence qualification due to loss of Korean nationality, birth in Korea or other reasons are given residence qualification.

· Extension of Duration of Stay

Aliens who wish to stay in Korea beyond the authorized duration of stay should get extension approval for the duration of stay, by filing the application within 2 months before the date of expiration of stay. Otherwise   a negligence fine is imposed.

· Activities beyond Residence Qualification

Those who have a short term visa of 90 days or less, or work longer working hours or learn larger wage from working place, other than the original working place, or who are deemed to violate the national benefit, are not allowed to conduct other activities beyond what the residence qualification prescribes. If any residing alien wants to conduct other activities beyond those prescribed in the residence qualification, one should file an application for change of residence qualification.

· Obligations of Various Reports

Heads of the Industrial Training Companies(assuming that there are than one) who employ aliens should report to the Immigration Office jurisdictional the resignation, death, dismissal, contract change or missing of the employed aliens within 15 days, pursuant to the Immigration Control Act. In addition, Principals of schools that educate or train foreign students or language course students should report the temporary absence, removal from a register, training suspension or termination for foreign students

· Letter of Invitation/VISA

It refers to an entry clearance certificate or entry recommendation to permit the alien to enter Korea. However, if they do not comply with the entry admission requirements, the Clearance Immigration Inspector at the airport/seaport immigration offices, may   reject entry.

· Letter of Invitation

The Minister of Justice issues letters of invitation to the Jurisdictional Immigration Office to persons who wish to invite aliens in order to simplify visa issue procedures or reduce issue period. The alien who wishes to enter or the native in Korea should apply for issuance of the letter of invitation together with required documents to the jurisdictional immigration office. The letter of invitation is valid for 3 months and is effective once.

∙ **VISA**

Visas are issued by the Directors of the embassies under entrustment of the Minister of Justice, however, in special cases, an application for visa issue confirmation may be logged directly to the Immigration Office before issue by the embassy.

C. **Immigration Offence/Protection**

It is possible to set forth the provisions (penalty provisions) to prohibit or order specific activities pursuant to the Immigration Control Act for the purpose of impartial enforcement of immigration administration or order maintenance and conduct forced eviction, departure recommendation, departure order, etc., if any alien violates the provisions.

∙ **Investigation of Immigration Offence**

It is possible to set forth the provisions to prohibit or order specific activities for the purpose of impartial enforcement of immigration administration or order maintenance and impose punitive rules if any alien violates the provisions.

∙ **Examination and Determination of Immigration Offence**

Forced eviction is a type of administrative measure under the Immigration Control Act, which may not allow the alien lawbreaker to stay in the country or repatriate the respective alien out of the territory of the Republic of Korea to the contrary of his/her intention. The immigration office should issue the departure order by setting a time limit of 14 days from the date of issue upon determination of the departure order. If any alien violates provisions of activities for residence qualification pursuant to the Immigration Control Act, it is possible to recommend him/her to depart Korea.

∙ **Protection of Immigration Offence**

It may protect those aliens who have material reason to suspect that it is relevant to the forced eviction pursuant to the Immigration Control Act and escape or might escape, or who are subject to forced eviction, or who have any reason that cannot repatriate immediately until repatriation becomes available.

D. **Recognition of Refugee Status**

Any alien who stays in Korea to avoid wants to oppression due to racial, religious, political or ideological difference and wants to be recognized as a refugee may apply for recognition of refugee status. A certificate of refugee recognition is issued and residence qualification is given to the alien who has been recognized as refugee.

3.2   KISS System Configuration Diagram

KISS system is an integrated passenger information system that collects/manages the passenger information comprehensively at each immigration and transit procedure and share the immigration information through linkage between the concerned agencies and the immigration automation system for the passengers utilizing automation equipment such as MRP, Auto-Gate, etc.
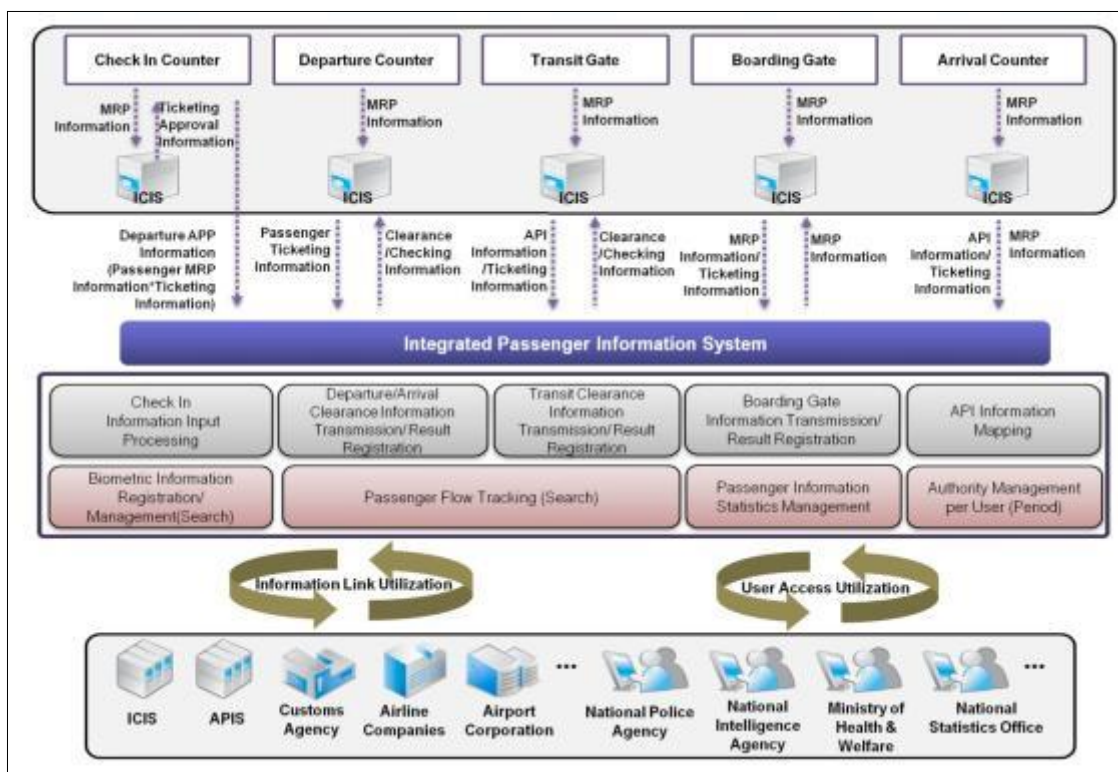

Figure 40. KISS system configuration diagram

· **Integrated Passenger Information System**

Collects information of passengers at each step and provides the integrated passenger information by linking them with the existing Immigration Information & Management System, flight information, and passenger monitoring information, etc.

- Sends the Advanced Passenger Information (APIS) and the Passenger Reconciliation System (PRS) to the Integrated Passenger Information System

- Sends passenger analysis information so as to handle with the civil affairs on immigration in advance

- Sends passenger information through MRP reader and automation systems

- Generates integrated statistics and flow by combining and analyzing the transmitted data

   - Implements real-time information sharing system with the agencies concerned on passenger information

   - Grants the concerned agencies right to use the system for using the information requiring authorization

· **Immigration Automation**

It provides immigration clearance automation service for the passengers using the passenger information collected from integrated passenger information system and automation system using IT and biotechnology from the check-in stage.

   - Utilizes passenger information to support for check-in process automation of the immigration passengers

   - Introduce electronic boarding pass and provide home check-in (web check-in) services

   - Provides civil affair guide service for administrative service for departure (Korea Military Manpower Administration, Ministry of Foreign Affairs and Trade)

   - Provides information services in connection with the system at Incheon Airport Corporation

   - Utilizes passenger certification technology for immigration clearance automation (Fingerprint recognition, Auto-Gate)

3.2.1 KISS H/W Configuration Diagram

H/W and network configuration diagram of the integrated passenger information system and immigration automation of KISS is shown below.
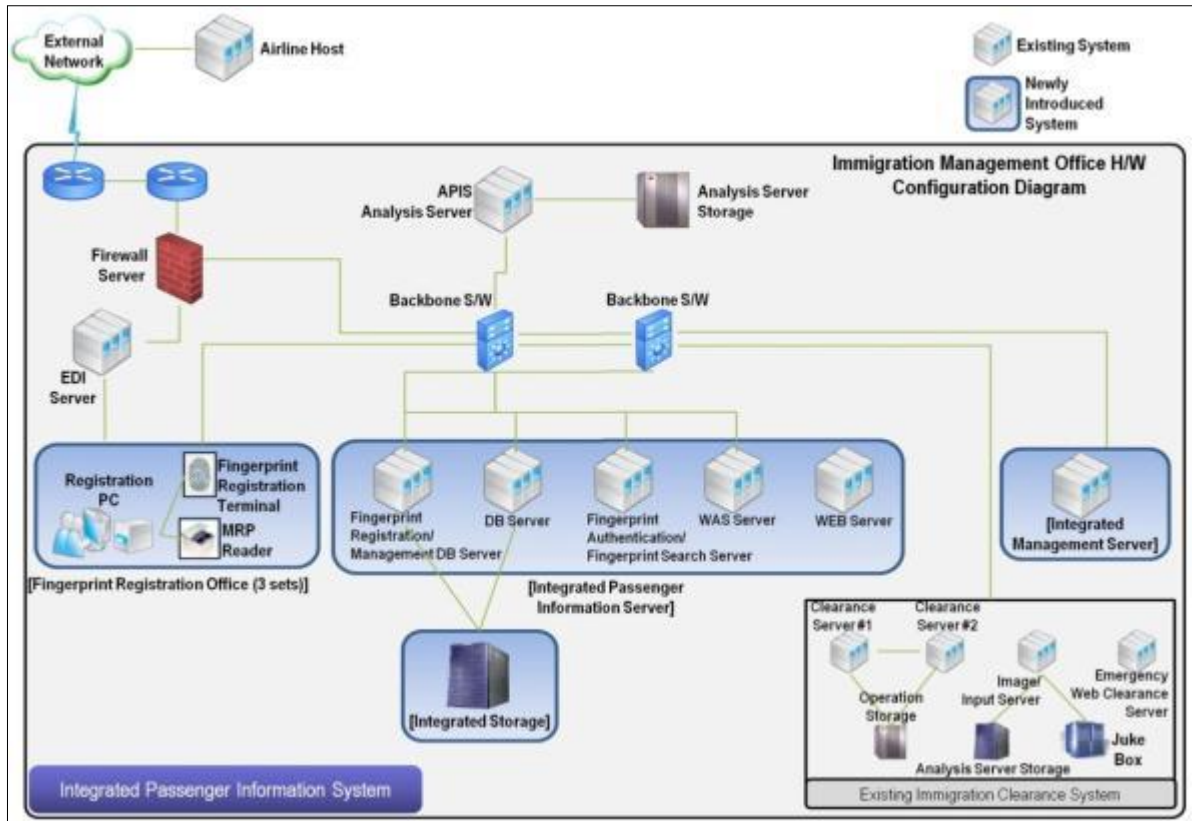
Figure 41. KISS H/W configuration diagram

3.2.2 S/W Configuration Diagram

S/W configuration diagram of the integrated passenger information system and immigration automation of KISS is shown below.
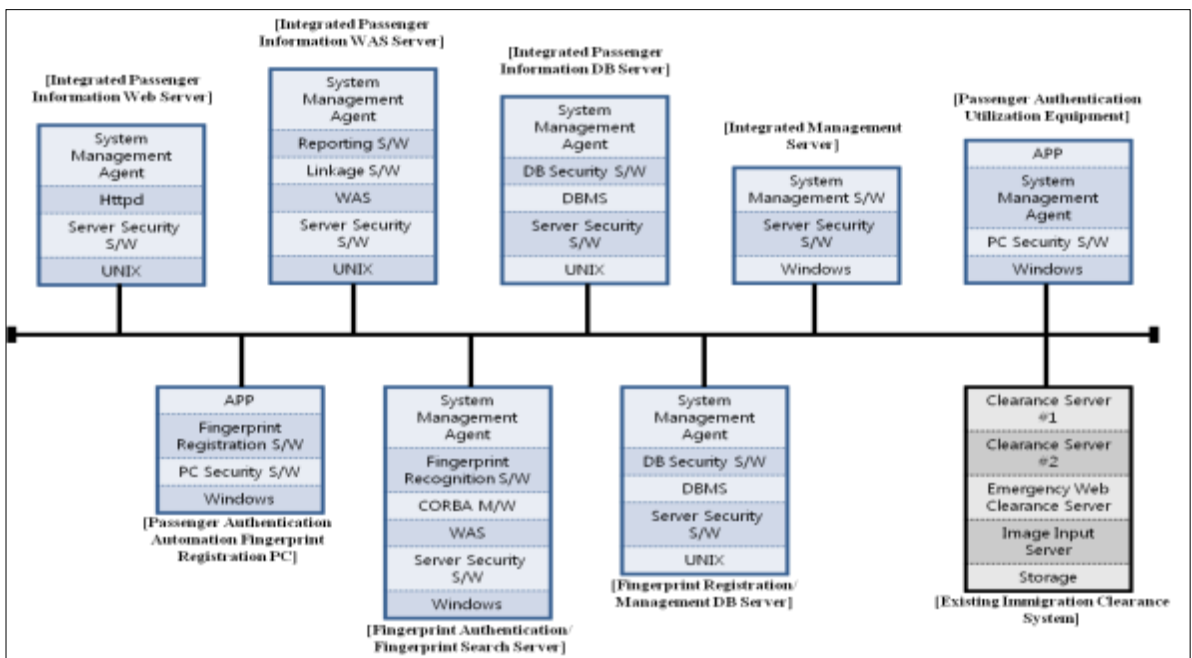

Figure 42. S/W configuration diagram

· Composition of Automation Equipment

Configuration of automation system for the immigration automation of KISS is as follows:

Name of System	Specifications	Remarks
PC	· Intel Core 2 Duo · 1GB DDR2 Memory · VGA 256M or more · 200GB HDD or more	PC for passenger certification terminal
MRP Reader	· Passport data page scanning function · OCR (MRZ) reading function · Electronic chip reading function	For passenger certification terminal
Fingerprint Recognition Terminal	· 500DPI or more · 1"x1" or larger input window · USB interface	For passenger certification terminal
Terminal	· Terminal configuration	For passenger certification terminal
Face Photo Camera	· 500 pixels or more · USB interface	Embedded on the passenger certification terminal

Table 36.   **Composition of automation equipment**

3.3 EU's policies & system

3.3.1 Schengen Area

EU citizens, non-EU residents and visitors to the EU need to be able to freely and safely travel within the Union. The Schengen Area has made this a concrete reality.
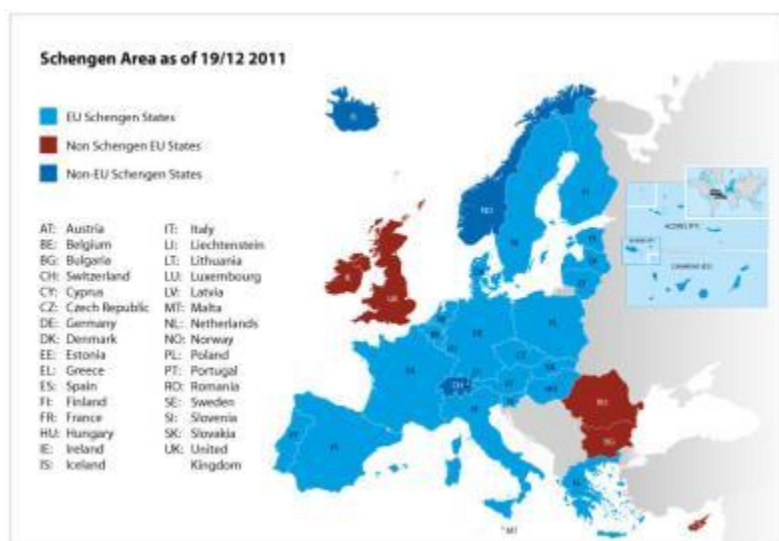

Figure 43. Schengen Area

The Schengen Area is one of the greatest achievements of the EU. It is an area without internal borders, an area within which citizens, many non-EU nationals, business people and tourists can freely circulate without being subjected to border checks. Since 1985, it has gradually grown and encompasses today almost all EU States and a few associated non-EU countries.

While having abolished their internal borders, Schengen States have also tightened controls at their common external border on the basis of Schengen rules to ensure the security of those living or travelling in the Schengen Area.

3.3.2 Polices

A. Visa policy

The border-free Schengen Area cannot function efficiently without a common visa policy which facilitates the entry of legal visitors into the EU, while strengthening internal security. The EU has set up a common visa policy for short stays, i.e. stays up to three months, which is applied through the delivery of so-called "Schengen visas". In 2010, the present 25 Schengen States issued around 11 million Schengen visas.

Citizens from some non-EU countries are required to hold a visa when travelling to the Schengen Area. The EU has a common list of countries whose citizens must have a visa when crossing the external borders and a list of countries whose citizens are exempt from that requirement. These lists are set out in Regulation No 539/2001 and its successive amendments. Generally, a short-stay visa issued by one of the Schengen States entitles its holder to travel throughout the 25 Schengen States for up to three months within a six-month period. Visas for visits exceeding that period remain subject to national procedures.

B. Security

EU State authorities need to cooperate on border management to ensure the security of citizens and travelers in the EU. A number of information sharing mechanisms are central to this cooperation.

3.3.3 Systems

A. The Visa Information System (VIS)

The Visa Information System (VIS) allows Schengen States to exchange visa data. It consists of a central IT system and of a communication infrastructure that links this central system to national systems. VIS connects consulates in non-EU countries and all external border crossing points of Schengen States. It processes data and decisions relating to applications for short-stay visas to visit, or to transit through, the Schengen Area. The system can perform biometric matching, primarily of fingerprints, for identification and verification purposes.

B. **The Schengen Information System (SIS)**

The Schengen Information System is the largest information system for public security in Europe. By allowing for easy information exchanges between national border control, customs and police authorities, it ensures that the free movement of people within the EU can take place in a safe environment.

By the end of 2012, these large-scale IT systems VIS and SIS, as well as EURODAC, which are currently managed by the European Commission, will be operated by a new European Agency. It is also necessary to ensure the security of travel documents to fight against the falsification and counterfeiting of travel documents and to establish a reliable link between the document and its holder.

3.4   Key Findings

As mentioned on the advanced cases above, today, many countries all over the world are pursuing correctness and convenience of information through mutual sharing of immigration passengers between countries and simplification of immigration procedures for each country, as individual countries require safe immigration business processing for immigration security and safety reinforcement. Therefore, individual countries have increased efficiency of border control tasks by implementing the advanced Immigration Information & Management System to integrate various immigration information and sharing information with the respective concerned agencies to provide real-time immigration administration services.

Further, countries have introduced immigration automation systems with new technologies to simplify immigration procedures, reduce time and cost required for immigration clearance, provide convenience and various services for the immigrating passengers in order to increase quality of immigration administration and national competitiveness at the same time.

4   SWOT Analysis

SWOT analysis was made for the external and internal environment that can occur in the course of introducing e-Immigration information system. In Part 2, Environmental Analysis, opportunity and threat factors were drawn and presented. Through the status analysis in Part 3, the strength and shortcoming of EAC 5 Partner States were arranged to draw common factors. The results are shown below::

Strength	Weakness
· EAC members agreed to launch e-Immigration to facilitate travel. · EAC passport will guarantee speedy immigration among Partner States. · Immigration process using part of biometric information and computer system · Rwanda adopts e-Gate to make immigration speedier and more secure. · Average 60% of immigration is computerized by using information system. · Website service for visa application, issuance tracking, and others · Burundi uses e-Passport to enable personal identification more secure. · ICT Departments of Immigration Office capable of operation and maintenance	· Working process using documentation is weak in file archiving, retrieving, missing, etc. · Complicated working process due to spontaneous use of paper and system · Issuance information is not integrated, therefore hard to manage due to the problems arising from duplicated issuance and lost information. · Information connection and sharing are not available for local offices, borders, and agencies. · Manual work and non-networking make it difficult to create statistics or reports. · Only 30% borders are equipped with power and computer systems, and immigration work is executed manually. · Some systems are limited to DB access, and impossible to use and upgrade information. · Different O/S and DBMS interferes connection, integration, and maintenance. · Temporary travel documents have security risks due to absence of security features. · Few immigration offices have ICT departments, with limited capabilities for ICT planning, developing and maintaining.

Opportunity	Threat
· Attracting investment based on large territory and plentiful national resources · 5 countries' similar political system and history facilitating application of policy and management system. · Advance economic development through political stability and national government system improvement · Industrialization based on natural resources, such as oil, gas, etc., and plentiful labor · 10 consecutive years' average 5% or more of growth rate in stable growing economies · Possible to provide stable labor supply with young and well-trained large population · Rising demand for the infra service due to population increase and urbanization · Speaking English and French as an official national languages with strength in foreigner investment and employment · Expanded communication infrastructure with high rate of cell phone penetration and connection to submarine fiber-optic cables · Implementing strategic plans for economic growth and roadmap for e-Government	· Inactive economic growth, process innovation, and consciousness change leading to high corruption index · Aggravated market uncertainty and trade deficits duet to the recent hyper-inflation in some countries · Agriculture-centered and resource-dependent industry and economy · Low economic independence due to poor tax revenue and strong foreign aid dependence · Rapidly increasing unemployment rate due to influx of working population into cities · Food insecurity scarcities and refugee inflow from the disputes and droughts in the neighbouring countries · Low service rate of internet and high internet fee due to a wide range of service area

Table 37. **SWOT Analysis**

5 Analysis result and Implications

5.1 Implications summary

The essential steps for designing a model of e-Immigration information system include synthesizing results of environmental and current analysis, benchmarking with best practices, identifying opportunities, and coming up with vision and strategic directions and improvement tasks

Implications of environmental analysis were drawn from analysing opportunity and threat factors, the status of affairs, including systems, and infrastructure Partner States, as well as through study of best practices, current trends and technology of advanced Immigration Office Systems as outlined below:

- **General implications from environmental analysis**

  - Similar political and social systems can easily facilitate the introduction of a single management system.

  - Industrialization and increasing investment based on political stability and economic growth

  - Increased population and economic growth increase the labor movement among the 5 Partner States

  - Needs for process innovation and more transparent affairs to eradicate corruption

  - The need for a management system to manage illegal immigrants and refugees

- **General implications for analysis of immigration status**

  - Weak Documented work process in file archiving, retrieving, missing, and others

  - Intricate working process using paper and computer at the same time

  - Un-integrated issuance information that leads to challenges of duplicated issuance and lost information.

  - Lack of information networking and sharing with local offices, borders, and agencies

  - Challenges of generating statistics or reports due to manual systems and unlinked information

  - Few borders with power(30%), inadequate computer systems and largely manual work processes of immigration functions

  - Some systems not connected to databases and impossible to use and upgrade information

  - Difficulty in connection, integration, and maintenance due to different O/S and DBMS

‑ Security risk coming from absence of security features on temporary travel documents

‑ Lack of dedicated ICT departments and where they exit, inadequate capacities in areas of   planning, development and maintenance

· **General implications for benchmarked analysis**

‑ Automated immigration service for e-Passport and passenger's advance information

‑ Government-driven innovation for foreigner service management

‑ Building the immigration information system linked with other ministries and departments

‑ Establishing immigration policy for precise immigration information and statistics

‑ Creating a connection system with local dirstrics to allow information sharing and use

The opportunities and directions were concluded regarding the solution and improvement obtained from the implications of analysis result. In consideration of similar points in those implications, the direction of improvement was arranged by each type in terms of relevance and integration. 9 opportunities were presented as follows, including process, management system, information system, advanced technology, etc.
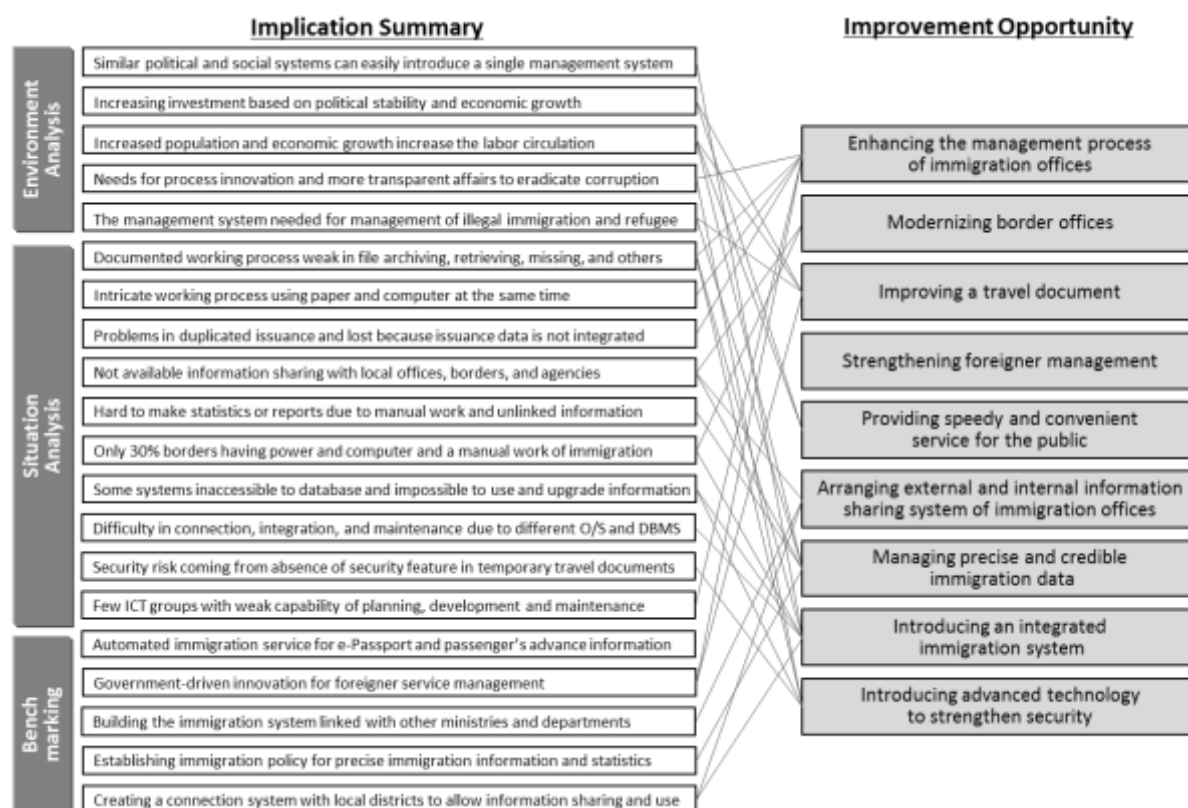

Figure 44. Improvement Opportunity

· **Improvement opportunity for e-Immigration information system**

- Enhancing the management process of immigration offices

- Modernizing border offices

- Improving a travel document

- Strengthening foreigner management

- Providing speedy and convenient service for the public

- Arranging external and internal information sharing system of immigration offices

- Managing precise and credible immigration data

- Instituting an integrated immigration system

- Introducing advanced technology to strengthen security

5.2 Improvement tasks

The types of improvement opportunities drawn in the above are categorized into process, system and infrastructure, and 15 major implementation tasks were derived as presented below and in figure.

Figure 45. Implementation Task for To-Be System

・ Tasks for implanting e-Immigration information system

- Developing border management system

- Developing T/D management system

- Developing passport management system

- Developing alien management system

- Developing OCR-based e-Archiving system

- Developing biometric information system

- Developing interconnection system

- Developing immigration mobile portal

- Improving ICT infrastructure

- Developing payment system

- Developing data warehouse &business intelligence

- Introducing immigration auto-gate

- Introducing biometric-based e-Passport

- Developing advanced passenger Information system

Part 4. Implementation Plan

PART 4: Implementation Plan

1 Direction

The opportunity for improvement was derived from implications of Part 3, and the strategic intervention came from e-Immigration stakeholder's workshop held 2007 in Zanzibar. The results create strategic directions for e-Immigration.

- o First strategic direction is to develop an integrated management system for a common integrated e-Immigration system

- o Second strategic direction is the creation of a fast and convenient enhanced e-Immigration service for the public by adopting advanced technology and improving processes.

- o Third strategic direction for putting in place secure e-Immigration, through adoption of modernized biometric technology at all borders to reinforce the national security system.

Figure 46. Strategic direction of e-Immigration

A. **Integrated e-Immigration system**

The objective of an integrated e-Immigration system is to combine the dispersed immigration services into one. This can be achieved by putting in place the following:

・ improvement of the Immigration Department's working processes and standardization;

・ Business process reengineering by integrating the related Immigration functions, such as visa, permit, and pass, into the travel document;

・ Develop supplementary measures for alien management including citizenship management and categorize into 4 areas of scope (passport, travel document, alien management and border control).

・ Develop an interconnection system to integrate internal and external information and unify all the information connection functions;

・ Develop a business intelligence system for integrated information management for data analysis and generation of statistics and reports;

B. **Fast and convenient e-Immigration**

The objective of the fast and convenient e-Immigration is to make delayed immigration service faster, more convenient and customer-friendly in order to enhance customer satisfaction. This can be achieved through the following:

・ Automate the manual paper work by using a scanner with optical character recognition function to capture data in application forms. Multiple information and voluminous attachments can be reduced/ eliminated by connecting/harmonizing with citizen's national ID information;

・ Re-engineer business processes, and automate information work flows to eliminate movement of physical files;

・ Develop and implement web and mobile portal services to enable customers make online applications, monitor the status of their applications;

・ Put in place mechanisms for e- payment of various fees (eliminate bank visits)

C. **Secure e-Immigration**

The objective of the secure e-Immigration, is to put in place/strengthen security features and full identification, improve East African Partner State's image by controlling inflow of illegal immigrants and terrorists in-order to guarantee citizens safer travel and migration.

 This can be achieved by putting in place the following:

・ Put in place a tight identification system such as use of biometric information, for fingerprints;

・ Acquire highest level of immigration controlled security by introducing the e-Passport and Advanced Passenger Information System (APIS).

2 Vision & Strategic direction

"To Build an Africa Hub with the Most Advanced e-Immigration Services" is set as the vision of e-Immigration to realize the strategic direction concluded in the above and to conform to the EAC direction of "Achieving Free Movement of Labor and Services for Regional Economic Development".

Top strategies for technology, cooperation, and best practice are established as the implementer to achieve the vision of e-Immigration.

· **Technology Strategy**: Adopting advanced technology for building e-government based governance

· **Cooperation Strategy**: Applying an integrated system model for regional cooperation

· **Best Practice Strategy**: For early stabilization of e-Immigration and system by using best practice
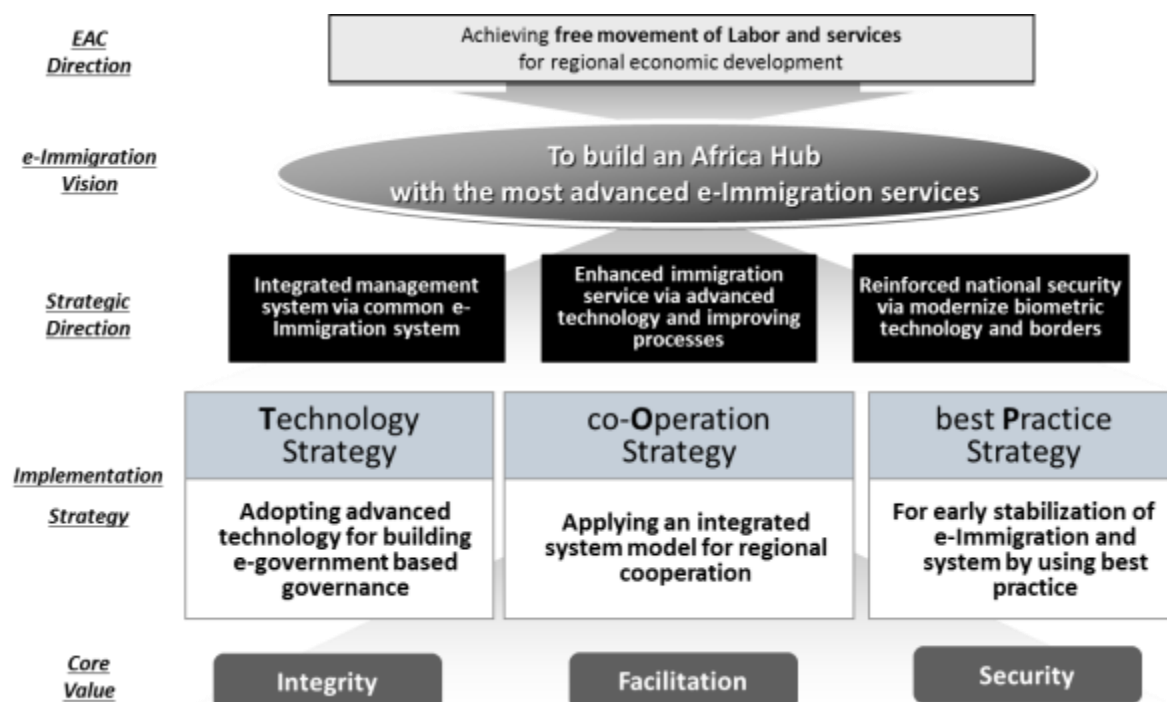

Figure 47. Vision & Strategy of e-Immigration

Implementation strategy was made by Part 3 SWOT(Strength, Weakness, Opportunity, Threat) Analysis. SWOT is an environmental analysis to define strength, weakness, opportunity, and threat to establish a strategy based on them.

Technology strategy is ST (Strength-Threat) strategy that takes strength to avoid threat. The strategy is to attempt a technology-driven process innovation and system improvement including e-Government, biometric and digitalization technology to

overcome the threats for members' economic growth, such as non-fulfillment of process and consciousness innovation, financial revenue with poor tax revenue, and foreign aid

Cooperation strategy is SO (Strength-Opportunity) strategy, and is to take strength to use opportunity. This is the strategy for joint execution of EAC members' e-Immigration by utilizing the recent political stability, and growth in economy and labor. In addition, the strategy is to apply the integrated system model for execution of e-Immigration, based on the fact that the political system and history of 5 countries are similar so that the application of policy and management system can be easy.

Best practice strategy is WO (Weakness-Opportunity) strategy, and is to make use of opportunity by overcoming weakness. This is to apply an immigration best practice to get over EAC Partner States' weakness, such as manual work, unconnected system and unavailable network, and lacks of its own technological capability. This is a soft-landing strategy, and to reduce trials and errors to achieve early process improvement and system development.

Through TOP strategy for EAC e-Immigration information system, the goal is to develop a common model and to establish an implementation plan.

3   Conceptual Model of e-Immigration

3.1   To-Be System Model of e-Immigration

There are 15 improvement tasks are set for the each strategic direction of e-Immigration, and the following defines 'To-Be e-Immigration System Model. There is a front office for service to the public and a back office for administration service to Immigration Office.
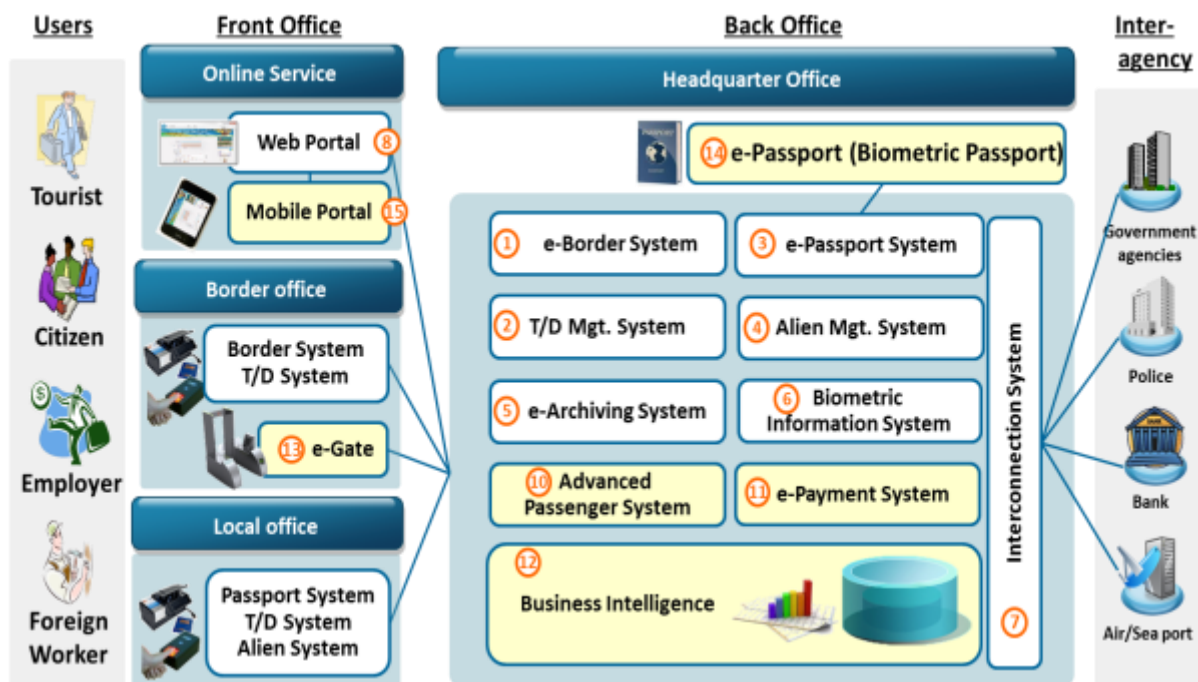

Figure 48.   To-Be System Model

The scope of the back office services comprises of border, passport, travel document (T/D), and alien management system that provide e-Immigration core service.

The business support system consists of advanced passenger information system, e-Payment system, data archiving system and business intelligence system for information analysis. The information connection between internal systems adopts interconnection system for data interface. The services of the front office are configured into the system according to the location of the service provision. Web service portal system and mobile service portal are developed for online service. The business functions of the core system in border and local offices are connected and constitute the e-immigration system.

3.2 Information Sharing Model

An Information model shall be developed to support information sharing, as one of the strategic intervention approaches, to EAC e-Immigration. Information sharing means providing necessary information to others or obtaining it from others and providing it to an individual or a specific organization to attain a desires goal. For this, the guidelines and standards for the entity to share with, the sharing method and details shall be prepared for information sharing among e-Immigration's front end, back end, and agencies.

Type	Description
What to share with	Agency, system, information
How to share	Sharing, connection, and joint use of information
Sharing details	Route (online, offline), cycle, permission

Table 38.   **Standard of Information Sharing**

Common information use is divided into three categories: information sharing, connection, and joint use, as explained below according to the sharing parties and purpose. The connected processes will vary with method of information sharing, and the related technology applied by the implementation approach as follows.

Type	Process Approach	Implementation Approach
Sharing	Providing the information a specific entity possesses, if necessary, for other entities in the standard form	・Data level information sharing ・Information sharing by documentation ・DB to DB
Connection	Providing the information necessary for the action under flow of work processes	・Web service, BPM, work flow
Joint use	A relay center shall have the information on standard forms, and provide such information when necessary, and is a concept of the relay center of government for citizen.	・Unified DB, data archive

Table 39.   **Definition of System Functions**

In consideration of the standard and perception for joint use of information and by benchmarking analysis, a model was jointly designed for both internal and external information connection of e-Immigration Information System in EAC regions.
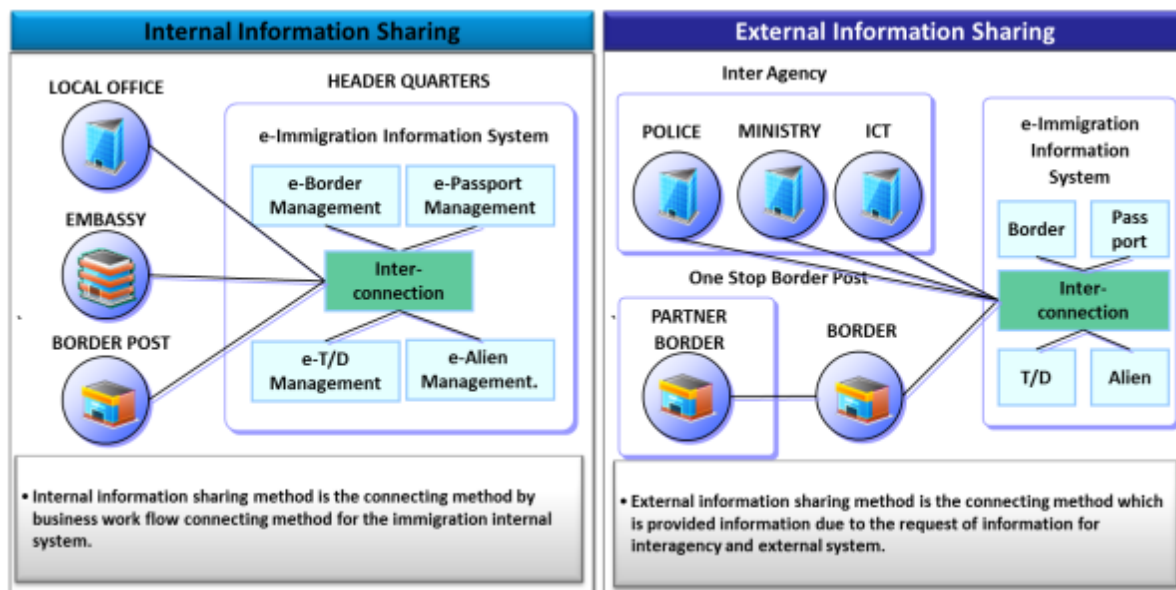
Figure 49. Information Sharing Model

・ **Internal information sharing method is the connecting of the business workflow to the internal immigration system**

・ **External Information sharing method is the connecting of requested information to the inter-agency and external system**

Information sharing model of e-Immigration system consists of internal and external information sharing methods. The internal information sharing model is divided into internal system for Immigration Office HQ and external system for local offices, embassies, and border posts. Enterprise Application Integration (EAI) is one of the solutions that is appropriate for the inter-system information connection. Local offices and embassies use the interconnection system connecting information with each information receiver, and managing a message queue is separately.

The external information sharing model is divided into within and outside the country, connecting internal ministries and departments of a country. This action is executed by the provision of information requested. For example, if one Agency requests for confirmation of authenticity of a travel document, information connection will be made by requesting for a specific T/D number. Only authenticity results will be shared, rather than the information of the entire T/D. However, the benchmarking analysis has shown that international information connections are rare. Therefore, discussions and standardization for international information connection should be advanced.

4 Scope of Development

4.1 Decision on priority

The urgency and importance of the 15 improvement tasks for developing "To-Be e-Immigration system" of the EAC Partner States was evaluated. **Urgency** means the prioritization for one project to be executed first and followed by other projects. **Strategic importance** is the value of relatively important projects that can achieve mid- and long-term strategic goals. Through this, the priority of improvement tasks was determined by dividing the projects into core project, quick fix project, mid- and long-term project, and selective project.

Core project means the one that is higher than others in strategic importance and urgency. These projects affect business considerably, and can gain visible outcome through improvement activities. Therefore, they should precede other projects.

Mid- and long-term projects have high strategic importance. But they are not urgent in terms of business continuity, and should be performed successfully in mid- and long-terms.

Quick fix project has low strategic importance, but improvement activities are urgent. Most of them can be figured out through quick fix or short-term project.

Selective project has low strategic importance and urgency, such projects require a decision on execution or not. A project evaluated to have lower priority can be cancelled due to the limited input resources.
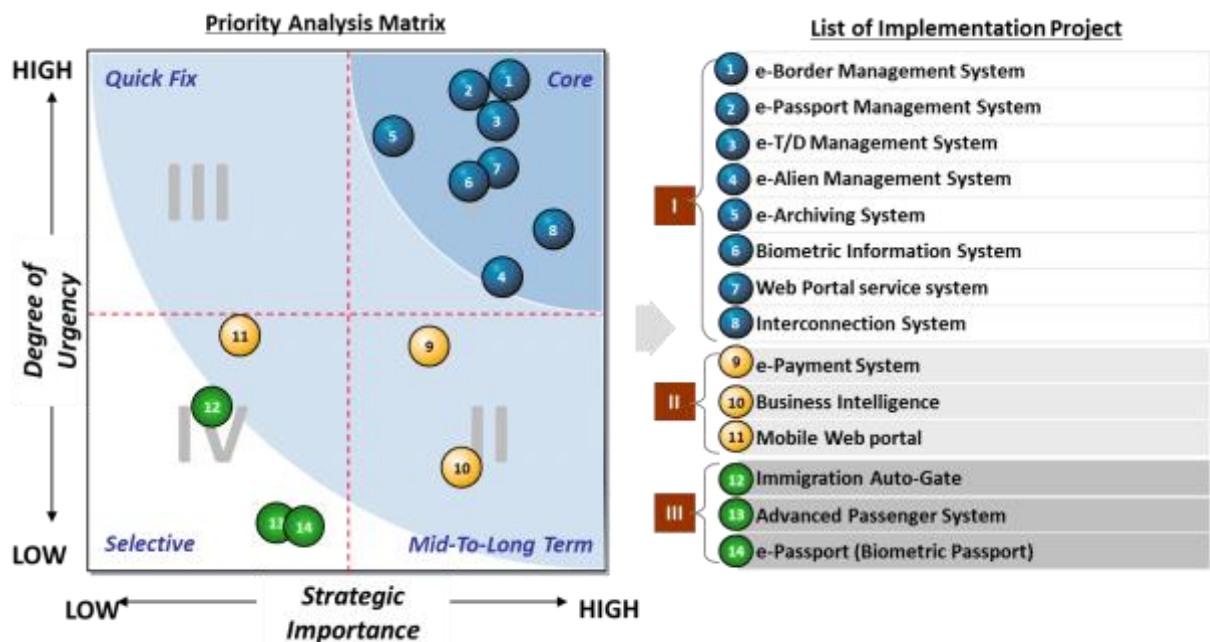

Figure 50. Priority Analysis

4.2 Development by Phase

To operationalize the proposed aims, vision and service of the 'Common e-Immigration Information System', the scope of development could divide in 3 phases in consideration of each country's different situations.
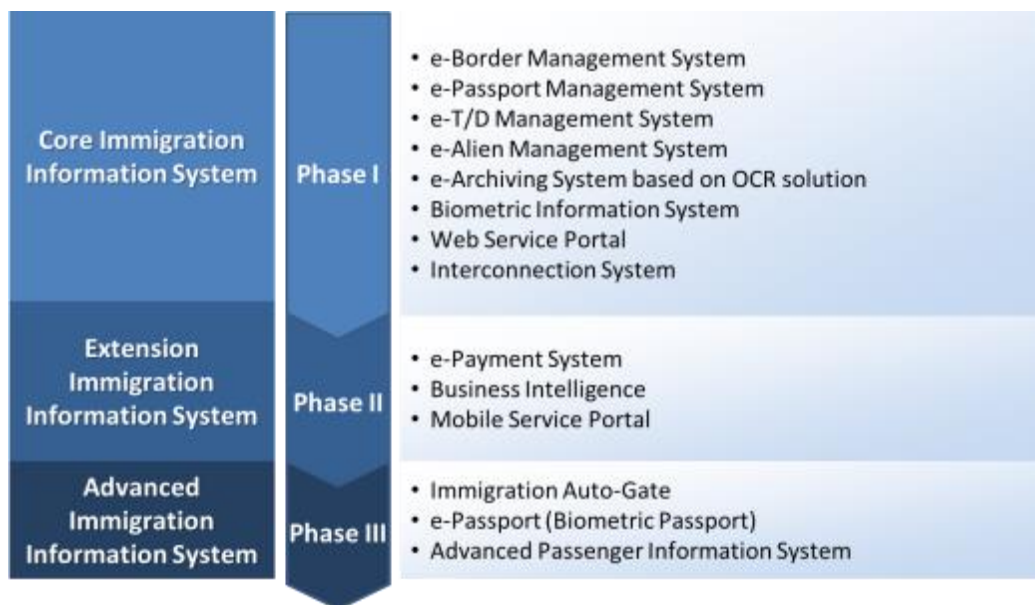

Figure 51. Development by Phase

Phase I aims at developing the 'Core' information system, which is the Core Project. Informationization will be executed to provide the core immigration service by developing 'e-Border Management System', 'e-Passport Management System', 'e-Travel Document Management System', e-Alien Management System', 'OCR-based e-Archiving System', 'Biometric Information System', 'Web Service Portal', and 'Interconnection System'. Modernization and maintenance of ICT infrastructure will form the foundation on which the above systems will provide a stable and efficient service.

Phase II's objective of information system development is to extend the immigration information system developed in Phase I. Extensions are mid- and long-term projects and quick fix projects. The 'Extension' of immigration service is made by developing the information systems, such as 'e-Payment System' for application and reception, 'Mobile Service Portal' accessible to work process whenever and wherever, and the 'Business Intelligence System' for efficient analysis and management and of collected data/ information.

Phase III's objective is to use the newest technology to provide 'Advanced' Immigration Service. Selective project is the example. 'Immigration Auto-Gate' for unmanned auto immigration, 'e-Passport (Biometric-passport)' for reinforcing immigration security with biometric information, and the 'Advanced Passenger Information System' that can check passenger information before his entry.

4.3 Service Definition

The content of services and the names of future system by each phase are suggested in the below.

Phase	Development System	Description
Phase I	e-Border management system	Information system that supports the immigration affairs, such as immigrant's background check, information recording, statistics, report, etc.
	e-Passport management system	e-Passport management system to issue a passport provides the service that manages reception, examination, issuance, and pickup, including consumables management, statistical information.
	e-T/D management system	e-Travel Document Management System provides the service that supports issuance and management of visa, permit, and temporary travel document, excluding passport
	e-Alien management system	e-Alien Management System that provides the support service for foreigner registration, address management, and statistics to manage foreigners staying and residing in the country.
	e-Archiving system based on OCR	e-Archiving system that can automatically input, archive, and retrieve the application and attachments by OCR technology.
	Biometric information System	Biometric information system provides the service that supports identification by integrated mamagement and matching of nationals' and foreigners' biometric information (fingerprint).
	Web Service Portal	Immigration web service portal provides overall information on immigration, and issuance of passport and T/D and others. Online application service for passport, T/D
	Interconnection system	Information interconnection system supports connection with internal affairs of Immigration Office and with external agencies through EAI solution.
Phase II	e-Payment system	Electronic payment system enables the fee paid online for application by credit card, and other means.
	Business intelligence System	Implementing the data archive for information analysis to manage data effectively and efficiently Executive Information System is the service that provides the managerial information supporting proper decision- and policy- making by analyzing and using collected information.
	Mobile Service Portal	The servie is to help the existing service access to a mobile device so that customers can always get desired information at any place and take care of the business.
Phase III	Immigration Auto-Gate	This is the unmanned immigration point that simplfies the related affairs by using biometric information to read the passport automatically and check the identification.
	e-Passport (Biometric Passport)	The existing machine readable passport (MRP) is upgraded to an IC chip-implanted passport with biometric information and additional security technology.
	Advanced Passenger Information System	The passenger information is collected in advance by the information system before arriving at the airport so that simpler immigration service is available.

Table 40. **Details of Services**

5 Common e-Immigration Information System

5.1 Core Immigration Information System (Phase I)

5.1.1 Overview

Phase I supports the core task among 'Common e-Immigration Information System Model', and constructs the 'Core' Immigration Information System that integrates the basic system. The e-Border, e-Passport, and e-Alien management systems, and e-Travel document system are built to informationize the core immigration affairs. A web portal that allows online application to be hosted enhances public service delivery. Furthermore, the interconnection system between internal and external related agencies is constructed by developing an interconnection system for information connection and sharing. Biometric information system for managing the biometric information collected from each information system, and the e-Archiving system for paper document management will be developed.

Automation and Informationization of manual immigration functions will promote efficiency and enhance service delivery to the public by reducing working hours.
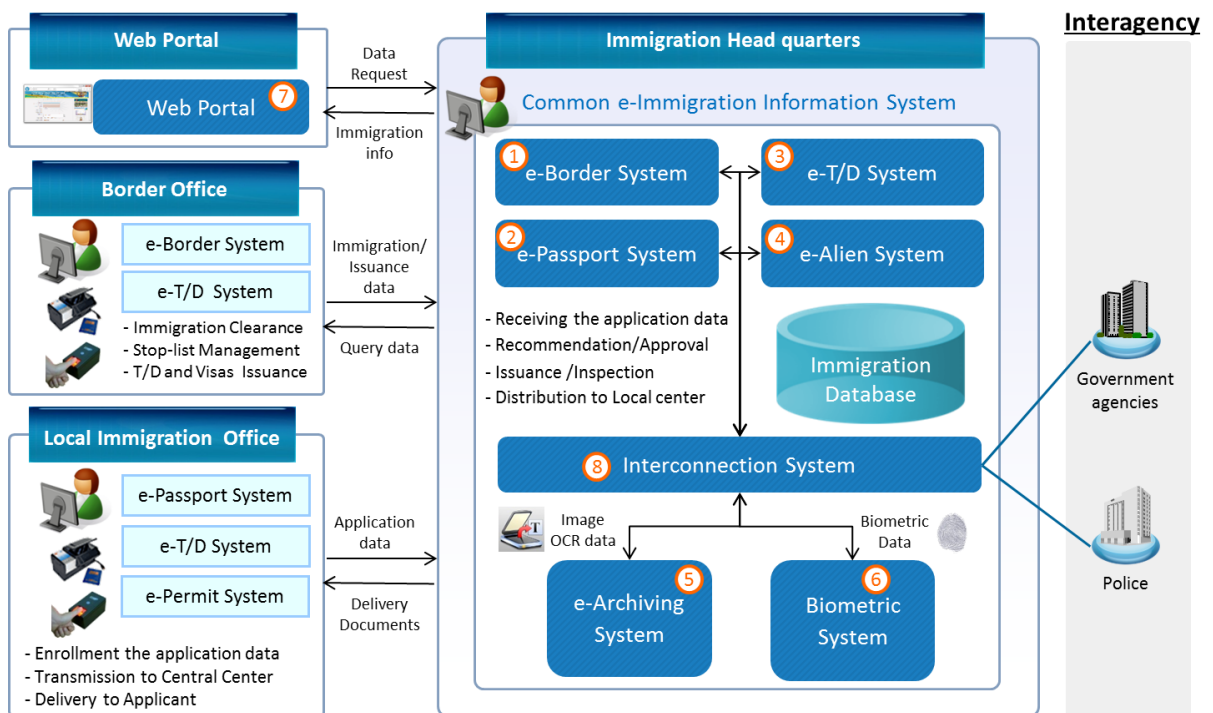

Figure 52. Core Immigration Information System Model

Within Phase I, modernization of ICT infrastructure, including HW, NW, and stable power facilities, shall be executed simultaneously with the development of the core e-immigration system.

Networking will enable information to easily be accessed and organized Connection between HQ and border offices allows integrated management and monitoring.

5.1.2 Standard Business Process

During the analysis of data it was established that in some cases what is legally prescribed in the laws was different from management of processes, for immigration functions (visa, passport etc). Some of the processes such as 'Registration - Data capture – Payment - Approval - Issuance – Distribution' were similar among the Partner States. However, Tanzania and Kenya differed in some processes, operating rules, workload, and management system and data collection tools.

Type	Rwanda	Burundi	Uganda	Tanzania	Kenya
VISA	○	◎	◇		
PASSPORT	○	◎	◇	☆	-
PERMIT/PASS	-	□	-	☆	♤
ALIEN/CITIZENSHIP	-	□	-	-	♤
BORDER CONTROL	-	-	-	-	-

Table 41.   **Similarity of Immigration Process**

Basing on the situation analysis of each country and the standard processes established through the benchmarking analysis, the standard functions of e-Immigration system were established. The travel documents defined in ICAO doc 9303 include a passport, visa, and officer travel document. However, in some cases it was found that a passport for citizens and a travel document for foreigners differ in the required applicant information. So, it's desirable to create separate databases for T/D and passport processes. Given the above findings, standardizing the work processes, requires a separate consultancy to carry out business process reengineering.

Alien management process or issuing and managing of alien cards was not systematically defined. To achieve the goal of free movement of persons, there is a need to effectively manage and administer the inflow of foreign travellers and workers. Accordingly, based on the best practices under benchmarking analysis, 4 mega processes are being proposed to supplement alien management.

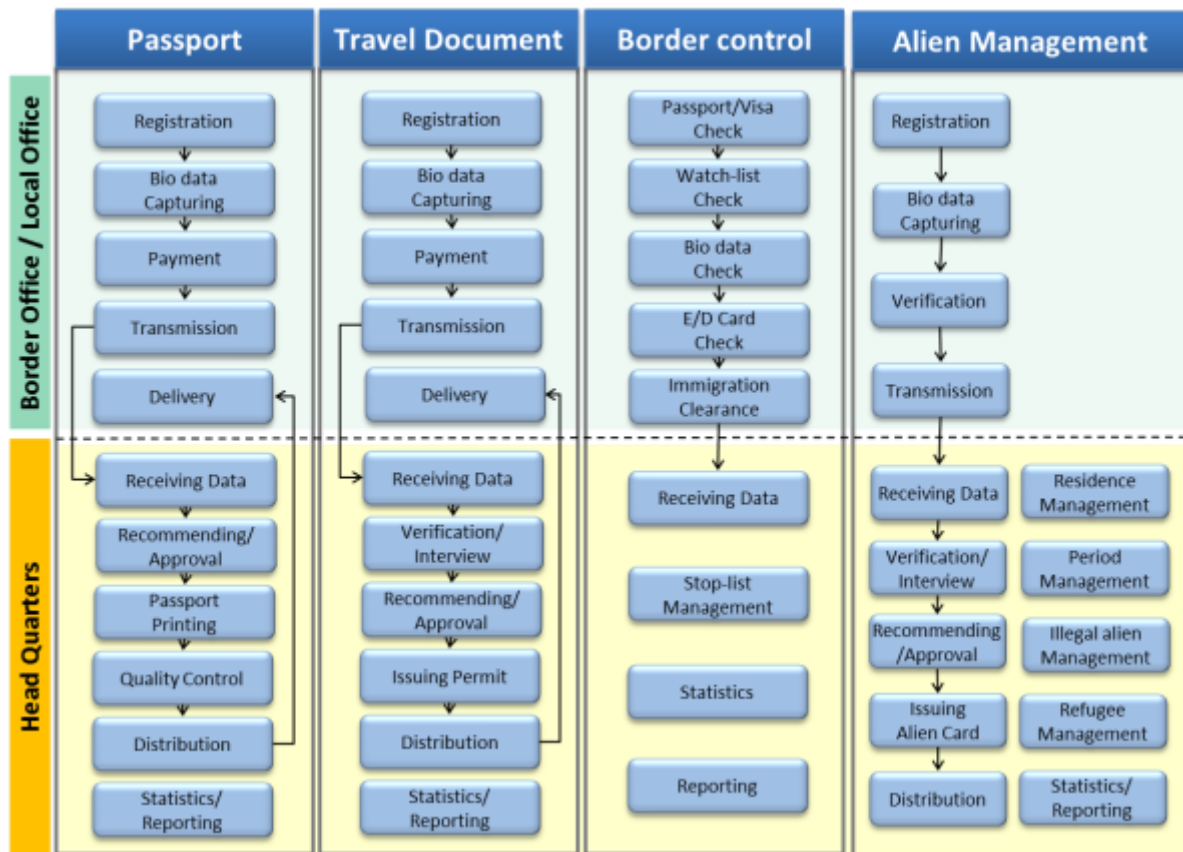Below is a sample of a Standard Immigration process:

Figure 53. Standard Immigration Process

5.1.3   e-Border Management System

A.   **Overview**

e-Border Management System is the integrated management system that EAC's can use to solve various problems, such as illegal immigration, information management and sharing, manual work, etc. It is the system that supports border control and management by supporting immigration clearance. The functions and processes that the integrated immigration management system supports are as follows:
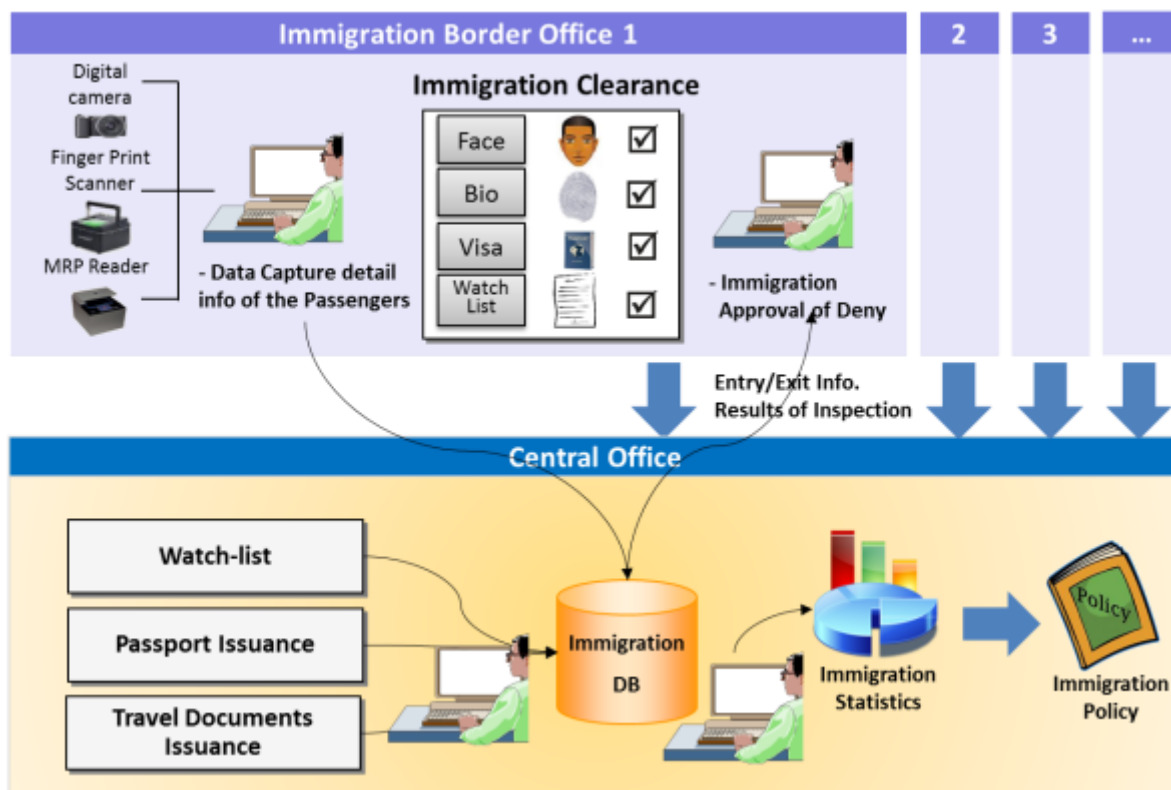
Figure 54. e-Border System Model

- **Integrated management of border immigration information**: All the borders are expected to install the border system(Client Program) to connect with Immigration HQ interactively. The border immigration information is managed in a centralized way, and all the border information can be shared. Moreover, all the borders can use immigration-related information in connection with passport, travel document, and alien management systems.

- **Automation of immigration clearance:** The manual works, forged or falsified certificates (passport, visa, foreigner card), and wrong arrest of illegal immigrants can be improved by immigration clearance process and automation equipment. MRP reader and OCR scanner can capture the information on passport, visa, and E/D Card, and use the linked system to enable authenticity of watch list and document to be checked automatically checked. This supports speedy immigration check.

⁃ **Biometric-based tighter immigration security:** The use of biometric information like fingerprint will enhance the security for personal identification upon entry and departure. Furthermore, newly introduced e-Passport can prevent a passenger from illegally entering with other person's passport.

B. **Approach of Development**

According to the current Immigration clearance process, there is no connection between travel document information and immigration system, hence there are challenges of precise immigration checks, information retrieval, and generation of statistics among others. If an integrated e-immigration information system, is put in place linking the HQ and the borders, it will enhance accuracy and security and address the above mentioned challenges.
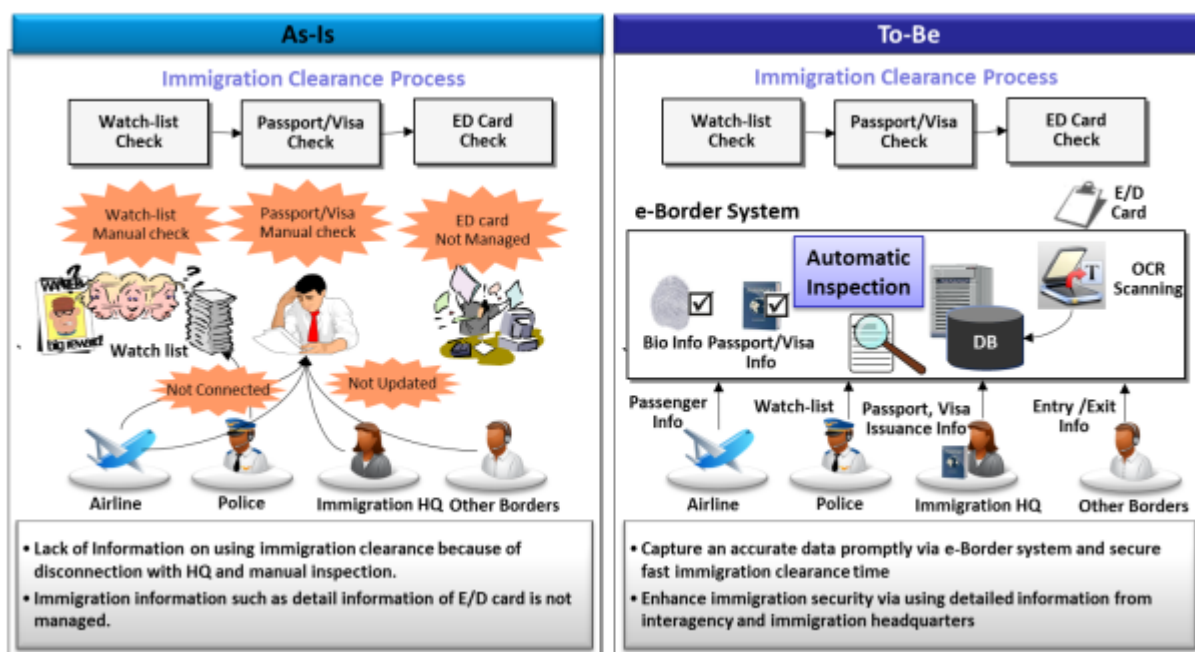

Figure 55. Comparison between As-IS and To-Be

C. **System configuration**

The e-Border management system is mainly used in the border office and Immigration HQ. The major functions consist of departure and entry checks and the watch list management. By analysing and comparing the travel document collected by border offices and HQ and the watch list information, the result of immigration check is saved in the database.
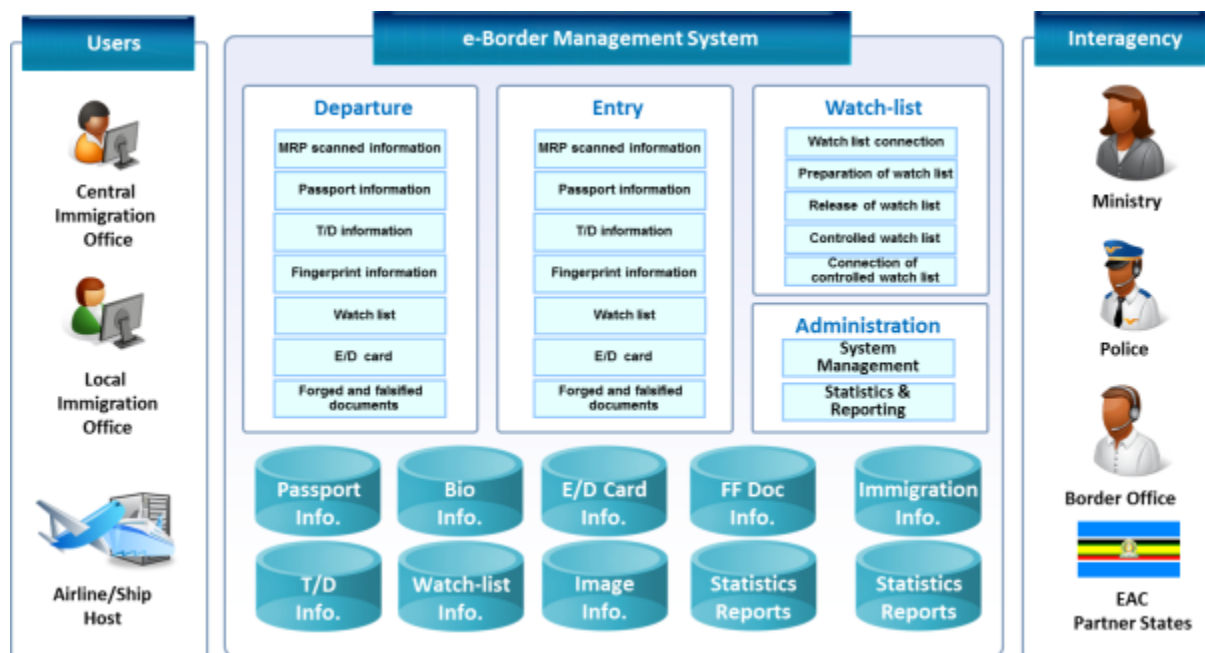
Figure 56. System Architecture

D. System Functions

Type	Functions	Description
Departure management	MRP scanned information	· Passenger's passport and image data are collected by MRP
	Passport information	· System registration and management of passenger's general passport information
	T/D information	· System registration and management of passenger's T/D information
	Fingerprint information	· Registration and management of the identification information, a fingerprint, to separate a watch list from passengers.
	Watch list	· Detecting criminals and suspects by comparing passenger's departure information with the watch list.
	E/D card	· A departing passenger's registration and management of the E/D card of itinerary information.
	Forged and falsified documents	· Registration and management of forged and falsified documents detected in the immigration process
Entry management	MRP scanned information	· Passenger's passport and image data are collected by MRP
	Passport information	· System registration and management of passenger's general passport information
	T/D information	· System registration and management of passenger's T/D information
	Fingerprint information	· Registration and management of the identification information, a fingerprint, to separate a watch list from passengers.
	Watch list	· Entering criminals and suspects by comparing passenger's departure information with the watch list.
	E/D card	· An entering passenger's registration and management of the E/D card of itinerary information.
	Forged and falsified documents	· Registration and management of forged and falsified documents detected in the entry process

Watch list management	Watch list connection	・Using the watch list and the list of prohibition of entry and departure sent by Immigration or the related agencies
	Preparation of watch list	・Registration of the watch list prepared by Immigration Office for use in immigration
	Release of watch list	・Management of the persons released from immigration's and the related agency's watch list
	Controlled watch list	・Registration and management of the controlled criminal, suspect, and the passenger on lookout book in the course of immigration check
	Connection of controlled watch list	・Notifying the related agencies of the information on the controlled watch list upon immigration
Administration	Statistics and report	・Statistics on passport issuance and income status
	System management	・Management of the basic information, user, menu, ・and authorization

Table 42. **Definition of System functions**

E. **Expected Effect**

e-Border Management System is expected to affect efficiency of administration work, enhancement of reliability, and the standardization, expansion, stability, and security of passport issuing system.

・Integrated management of immigration information

  – Interactive information connection between borders makes immigration information flow well.

  – Active connection of immigration information with the related agencies

・Enhanced service to the public

  – Shortening waiting time for immigration check

  – Providing process convenience by automation of immigration check

  – Giving convenience of capturing by modernized equipment

・Immigration control and tighter security

  – Improving the rate of personal identification by use of biometric information

  – Incapacitating an attempt to forge or falsify a passenger's documents by integrated information management

  – Strengthening response to the watch list by information exchange

5.1.4 e-Passport Management System

A. **Overview**

e-Passport management system is a system that supports application and issuance of passports for citizens. It is the improved system that allows application, examination, and issuance in a speedy and precise way without handling of paper. The components of e-passport management system to be implemented are as follows:

· **One place of issuance**: Applications are available at local offices, central office, and embassies, but the issuance is only at the central office. The integrated system shall be developed to enable the local offices and embassies to take personal and bio information and the attached documents, and to transmit them online to the central office that can examine and print it out.

· **Process improvement:** Upon passport application, more credibility should be obtained in registered data management, personal identification, etc. In case of failure in system and communication, the system should be built in a way that guarantees continuous passport affairs in an unstopped way.

· **System upgrade for e-Passport:** Preparing to switch to e-Passport, a system complying with tighter quality and security in line with ICAO Standard should be developed. Through connection with biometric information system, the facial and fingerprint information are taken and saved so that reliability can be attained in personal identification and the detection of double registration of passport.
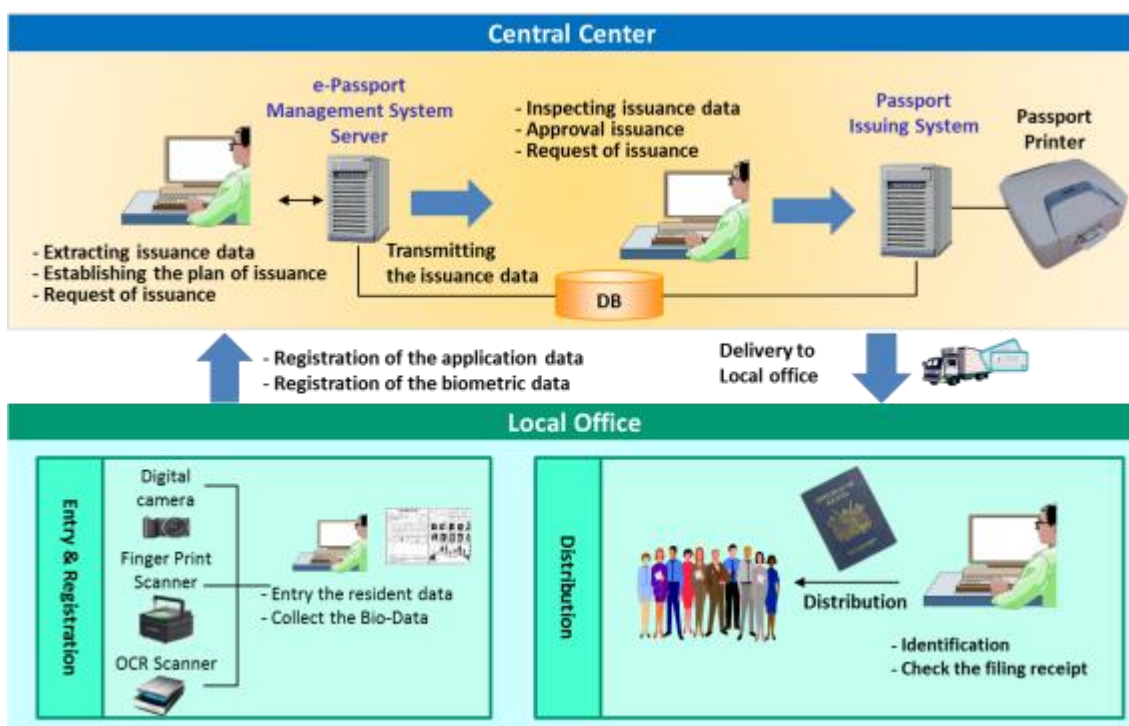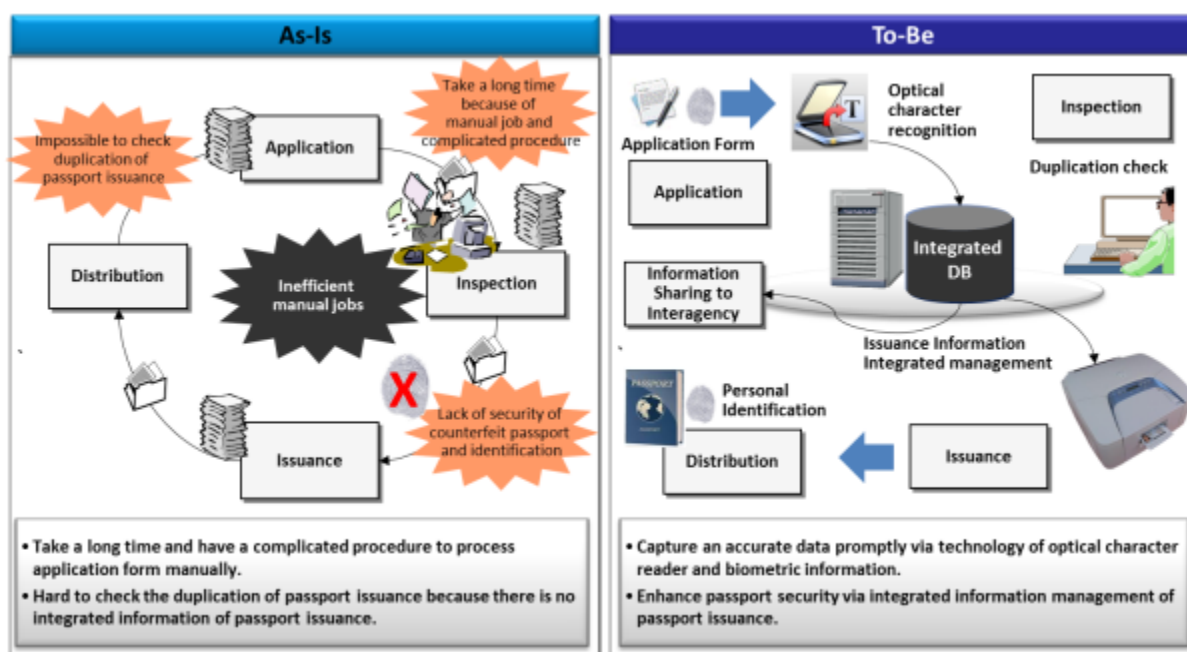

Figure 57. Passport Issuance Process

B. **Approach of Development**

The e-Passport Management System is the integrated management system that can provide a solution for the various problems that Immigration departments are faced with. OCR technology if applied to the existing issuance procedures, enhances paperless, speedy and precise work. The issuance book managed by the issuing agency code is administrated by the integrated system, which can reinforce detection of double issuance and use of a watch list. With the bio information taken together, personal identification can easily be more controlled, as can serve as a basis for preparation for introducing future e-Passport. In addition, the information connection with the agencies and systems within and outside Immigration allows, online information sharing with immigration offices or the related agencies.

Figure 58. Comparison between As-IS and To-Be

Workflow system shall be considered to support the issuance process. Workflow System is a management support system that efficiently manages and optimizes the entire working processes by visualizing work process and inputting and controlling the workers and systems involved into the process. Workflow system automatically allocates and directs works d in the system according to the defined standard.
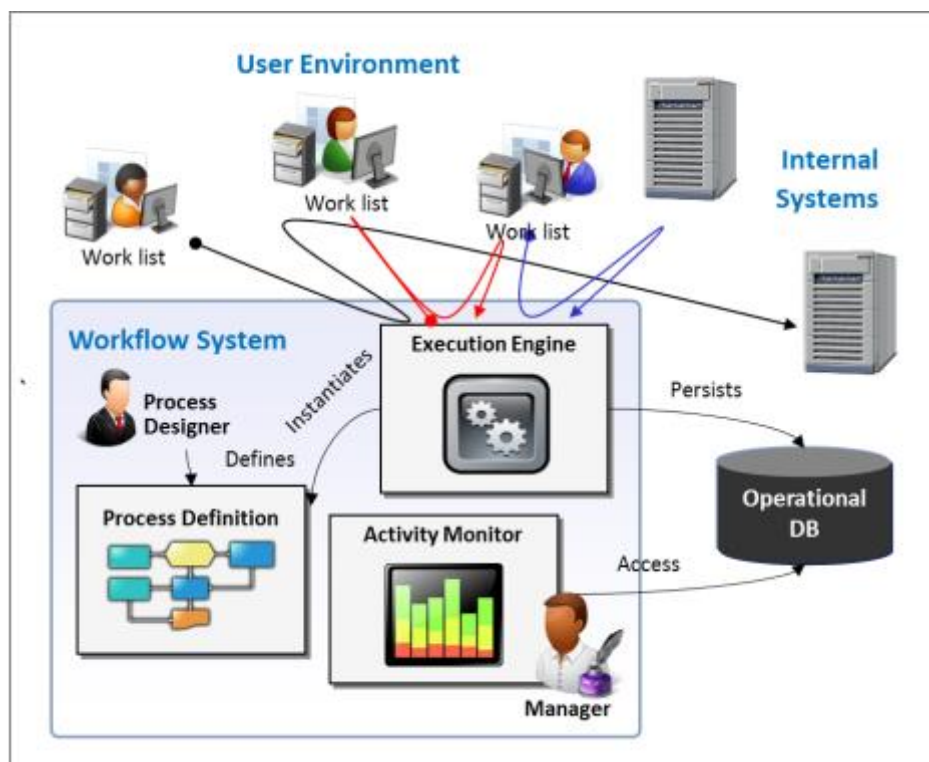
Figure 59. Concept of Workflow System

Workflow system consists of 3 steps, such as process definition, execution, and monitoring. The first process improves and redesigns the current working process by business process reengineering. Then, the system models the improved process, and defines the work, role, and the related system. The execution of the second process interprets a process model of execution engine of Workflow system, and if the work starts, it assigns a work direction to a designated worker and controls the work flow. Finally, the Workflow system automatically estimates the execution performance by each work and worker, and reports to a manager what process should be improved.

The related research tells that workflow system can reduce 20% or more of working period and 50% or more of errors. This can enhance about 30% of productivity in the work.

C. **System configuration**

Application forms are scanned for the passport at the local offices and embassies, and the application information is filed for reception. If fee payment is checked, the filed information is transmitted to the person-in-charge of examination management at the central office.

Examination process checks the images of received application form and attachments, and then makes a decision on issuance, transfer, supplementation, or rejection.

The issuance management is made with the examined waiting list, and a request of issuance is made by personalization system. The issued passport shall pass through quality control.

The issued passport is delivered to local offices or an applicant, and the information on receipt is managed.
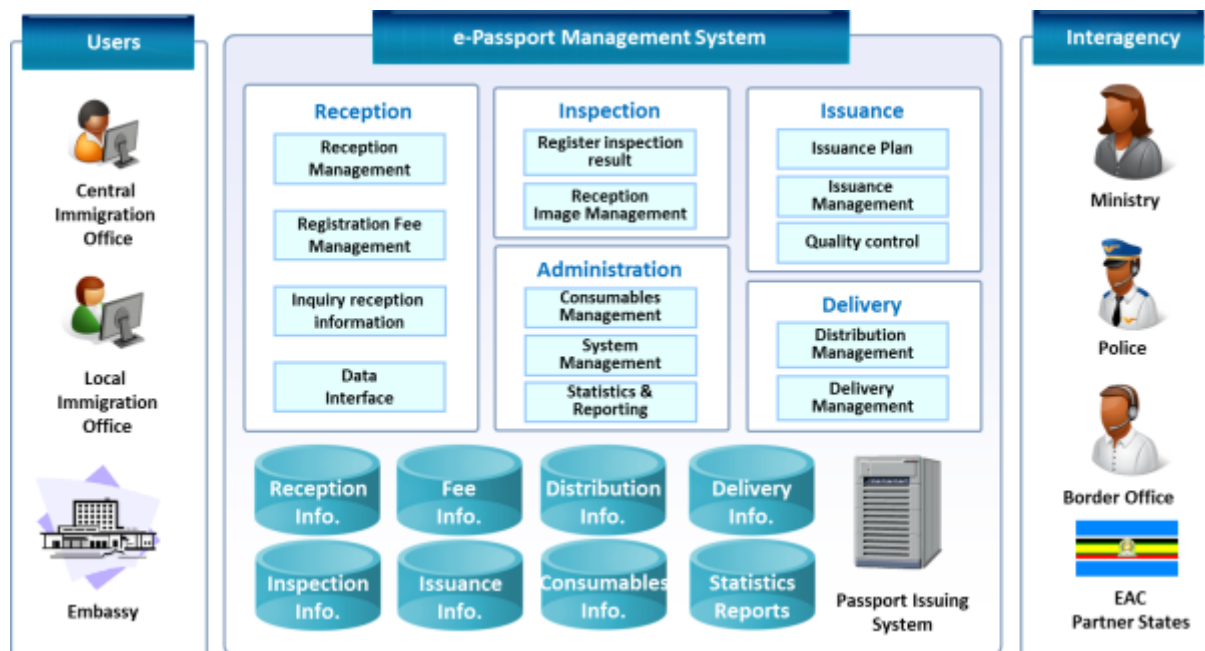

Figure 60. System Architecture

D. **System Functions**

The e-Passport Management System takes care of reception, examination, issuance, and delivery, which are a lifecycle of passport issuance and provides consumables and statistical information to support the affairs.

Type	Functions	Description
Receipt	Receipt management	・ Handling new issuance and change in stated item ・ Application registration and scanning ・ Bio information registration and identification ・ Return and lost article management
	Registration Fee management	・ Payment and refund of fee
	Receipt information inquiry	・ Background check, and the application inquiry
	Connection management	・ Information connection with the embassy, immigration office, and police
Examination	Non-permission inquiry	・ Inquiring applicant's status of non-permission by logging on the policy agency system
	Registration and examination	・ Register the examination results, including inspector's comments, pass, or fail etc.
Issuance	Issuance plan	・ Creating a waiting list of issuance and making a schedule for issuance
	Issuance management	・ Management of issuance and history

	Quality control	・Quality control for issued status
Delivery	Passport delivery management	・Managing the status of delivery to the applied agencies and the applicant
	Passport pickup management	・Confirmation and inquiry into receipt of passport
Administration	Management of consumables	・Use and management of blank passport and consumable materials
	Statistics and report	・Statistics on passport issuance and income status
	System management	・Management of the basic information, user, menu, ・and authorization

Table 43. **Functions of Passport management system**

E. **Expected Effect**

The introduction of e-Passport Management System is expected to have an effect on efficient administration affairs, increased reliability for the public, and the standardization, scalability, stability, and security of passport issuance system.

・ Efficiency of administration affairs

- Computerization of manual work and improvement of work speed

- Management of the precise statistics on passport issuance

- Cost reduction effect through effective management of issued passport

・ Increased reliability for the public

- Speedy passport issuance and more transparent public service

- Monitoring the status of passport issuance

- Providing public convenience through system operation for 365 days a year

・ Providing standardization, scalability, stability, and security of passport issuance system

- Standardization of passport issuance system

- Raised national competitiveness through prevention of forged or falsified passport

- Secured system through security/authentication system by each system stage

5.1.5   e-T/D Management System

A. **Overview**

The e-Travel Document Management System is an information system that manages issuance information and supports a visa, permit, and pass for foreigners, and the issuance of temporary travel documents for nationals. The system standardizes travel documents and enhances the speed and precision for handling the process of reception, examination, and issuance through paperless system. The directions to be implemented by travel document management system are shown in the below.
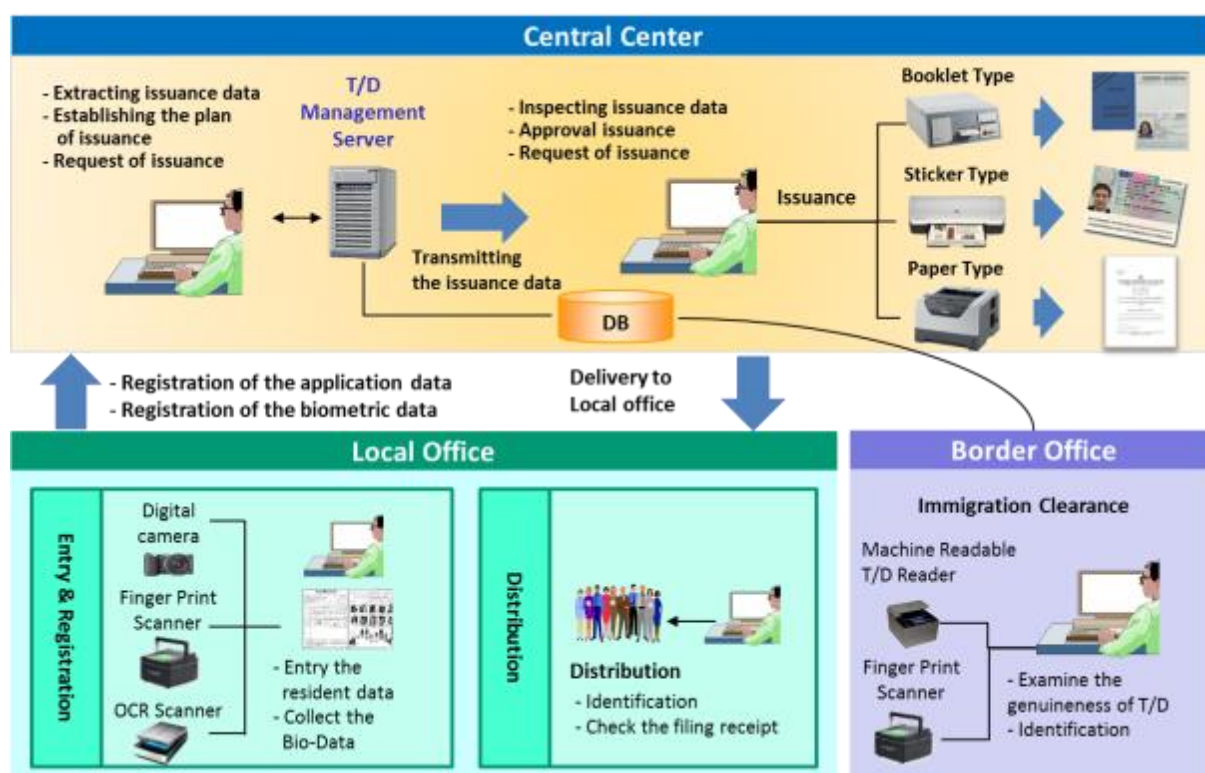
Figure 61.   Travel Document Issuance Process

· **Standardization of travel documents:** The issuance procedures are standardized to manage various travel documents, such as visa, permit, pass, temporary travel document, in an integrated way, to enable various types of issuance including booklet, sticker, and paper take place. Travel document is standardized on an ICAO standard basis, and is improved with a machine readable travel document.

· **Automation process of travel documents:** The travel documents are manually processed, but an automated issuance process of travel document implements automated data transfer. Application forms and attachments are digitalized and saved into integrated database and enables the system to allow examination, issuance, delivery, and use.

· **Information integration of travel document issuances**: Applications for travel documents are available at local offices, central office, and embassies, but the issuance is conducted only at the local or central office. The local issuance information is transmitted to the central office, integrated and managed. The integrated management information is used for immigration examination and clearance, and basically prevents forged and falsified the travel document.

B. **Approach to Development**

The integrated management system can solve the problems associated with manual issuance of travel documents in the Partner States.

The issuance book managed by each issuing agency will be substituted with the integrated system. The system, checks for double issuance and reinforces a watch list. The connection with e-Border system enables authenticity of travel document to be checked by comparing with the issuance information. Through biometric information, central office's issuance information, and machine readable T/D scanner, the travel document can quickly and precisely be managed..
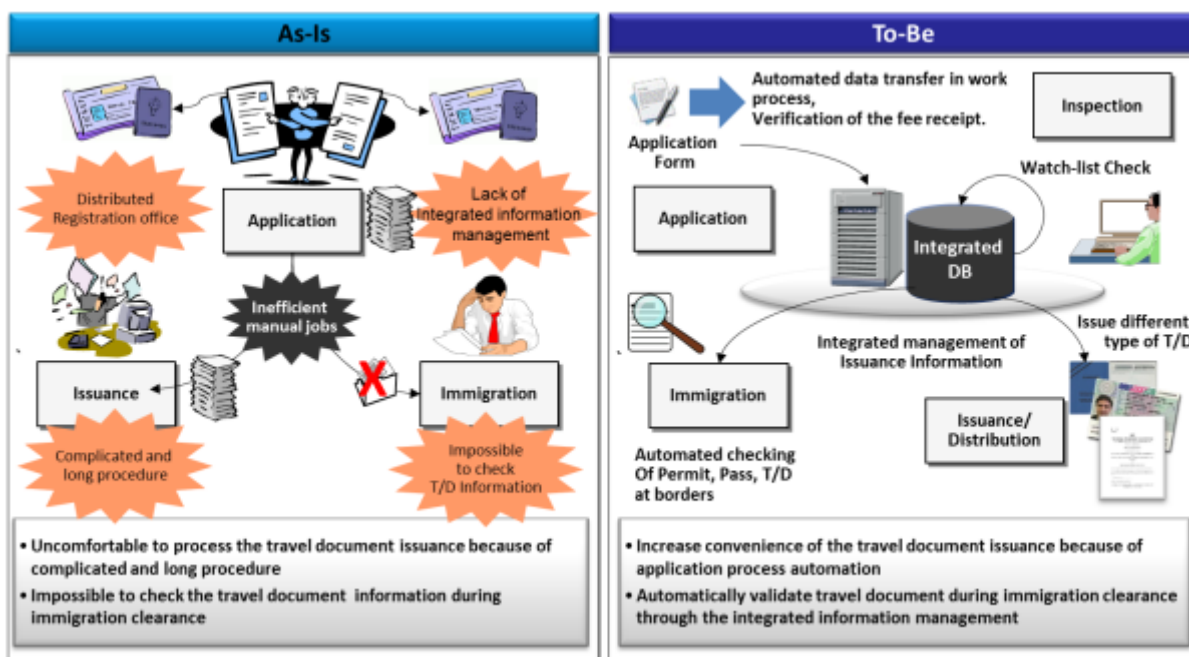

Figure 62. Comparison between As-IS and To-Be

C. **System configuration**

Travel Document Management System is a management system that supports the process of issuing travel documents, and immigration clearance by connection with e-border management system. The system consists of the functions for managing reception, examination, issuance, delivery, and administration.

・ Local office and embassy scan application forms for travel documents, and submit the application information. If fee payment is confirmed, the received information is transmitted to the person-in-charge of examination management.

・ In the process of examination management, the images of application forms and attached documents are confirmed, and the non-permission information is checked, and the examination result is registered.

・ The examined travel document is printed and verified. The issued T/D is registered as the issued, and the applicant is notified of the issuance information.

・ The issued travel document is delivered to local offices or an applicant, and the information on delivery and acceptance is managed.
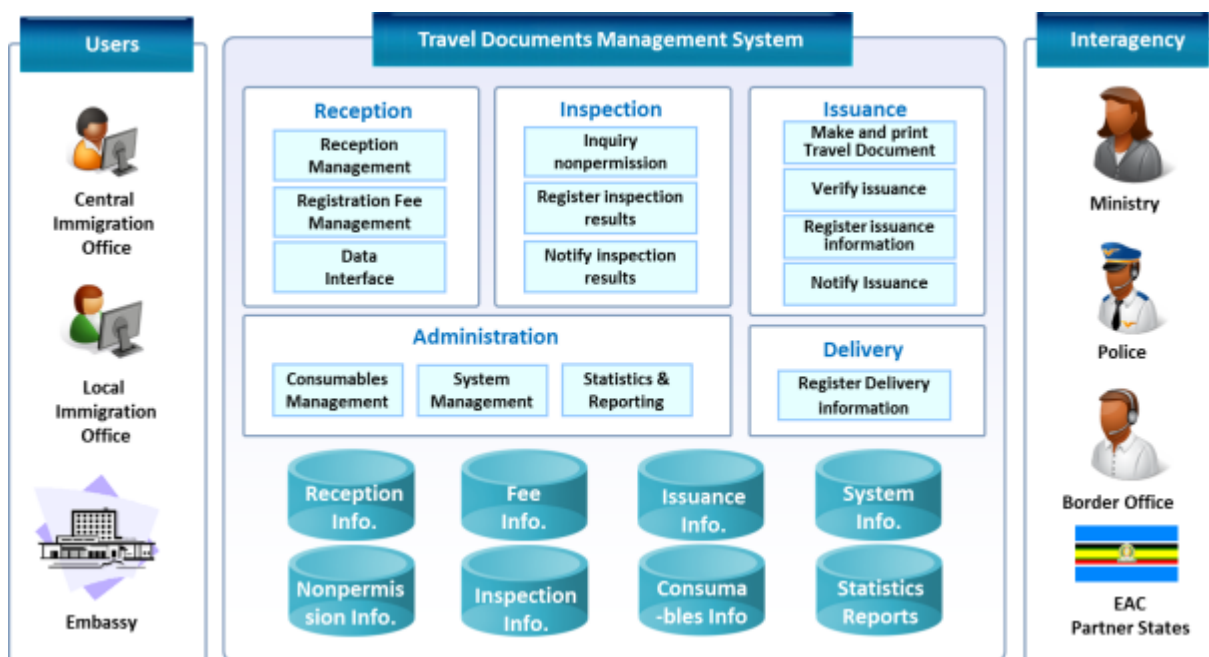
Figure 63. Travel Document System Architecture

D. **System Functions**

Travel Documents Management System takes care of a T/D issuance lifecycle and provides consumables and statistical information for business support.

Type	Functions	Description
Reception	Reception management	・ A visa application form is filed for examination. ・ The reception information, picture, signature and scanned application form are stored and managed.

	Registration fee management	・ The number of fee receipts is stored and managed.
	Data Interface	・ Information connection with embassy, immigration office, and police
Examination	Non-permission inquiry	・ Inquiring applicant's non-permission status by using the policy agency interface
	Registration and examination	・ Registering the result of examination, including inspector's comments, pass, or fail etc.
	Notice of examination result	・ Notifying an applicant of the examination result via e-mail
Issuance	Making and printing a travel document	・ Using the information on reception, picture, signature etc. to make and print travel documents.
	Issuance verification	・ The printed travel document is verified by using T/D reader.
	Registration of issuance information	・ The issuance information is stored and managed
	Issuance notice	・ Notifying an applicant of the issuance via e-mail
Delivery	Registration of delivery information	・ The information on delivery result is recorded and managed
Administration	Management of consumables	・ Blank visa sticker, travel document paper, and ink management
	Statistics / report	・ Providing statistics on issuance information, such as the total number of issuance, the total amount of fee, etc.
	System management	・ Managing the basic information, user, menu, and authorization

Table 44. **Functions of e-T/D system**

E. **Expected Effect**

The introduction of Travel Document Management System is expected to have an effect on efficient administration affairs, increased reliability for the public and higher customer's higher satisfaction with travel document.

・ Efficiency of administration affairs

  - Computerization of manual work and improvement speed of work

  - Management of the precise statistics on travel document issuance

  - Cost reduction effect through effective management of issued travel document

・ Enhanced reliability for the public

  - Speedy passport issuance and more transparent public service

  - Monitoring the process status of travel document

・ Enhancing satisfaction with use of travel document

  - Providing simple and convenient service by standardization of visa, permit, and pass issuance system

  - Reducing the percentage of forged and falsified travel documents

5.1.6   e-Alien Management System

A.   Overview

e- Alien Management System supports foreigner identification when a foreigner desires to stay for a long time for the purpose of job, study, etc. The system manages the foreigner's stay information on person, address, abode, etc., and helps with the issuance of foreigner registration certificate and other identifications. The directions for Alien Management System to be implemented are shown as follows:

- **Integration and connection with foreigner information:** The system develops integrated foreigner DB through connection with the information on visa, permit, and illegal alien, and supports effective foreigner management through information sharing with the related agencies.

- **Management of stay and illegal alien:** The system collects and manages foreigner's entry permit, change in qualification, and the information including immigration examination, change of residential information, staying period, and illegal alien, and supports residence management and illegal immigrant control.

- **Support for issuance of foreigner registration:** The system collects and registers foreigner's biometric information, and supports the issuance of a foreigner registration of a resident alien that can verify the legality of stay.
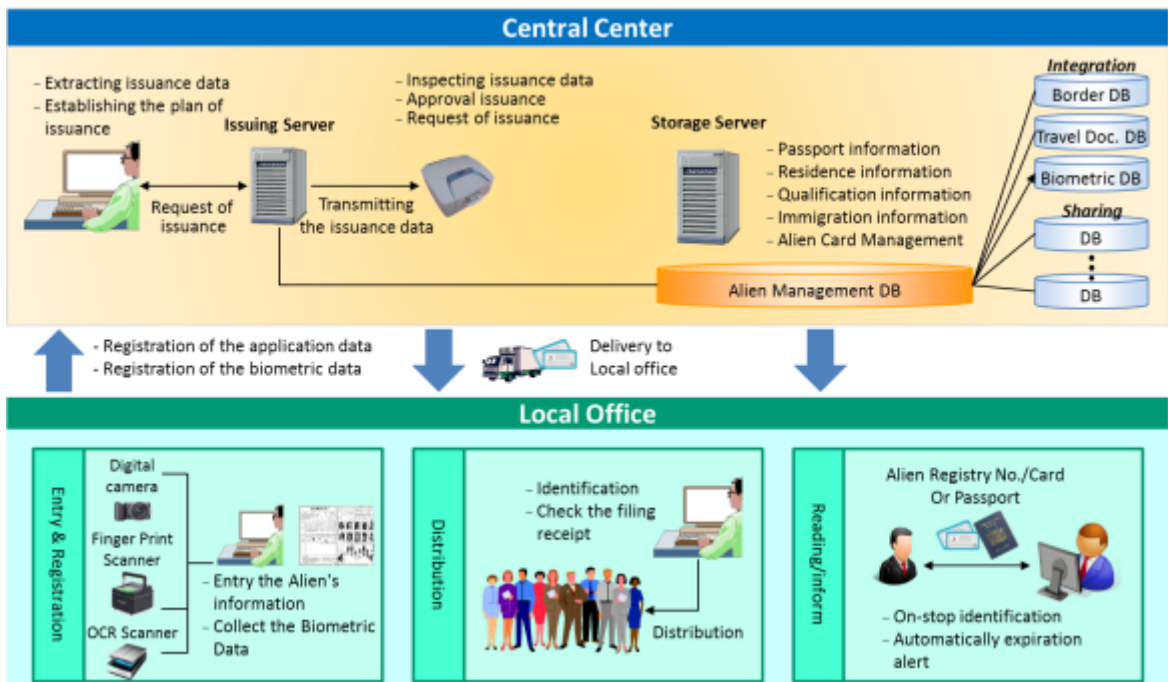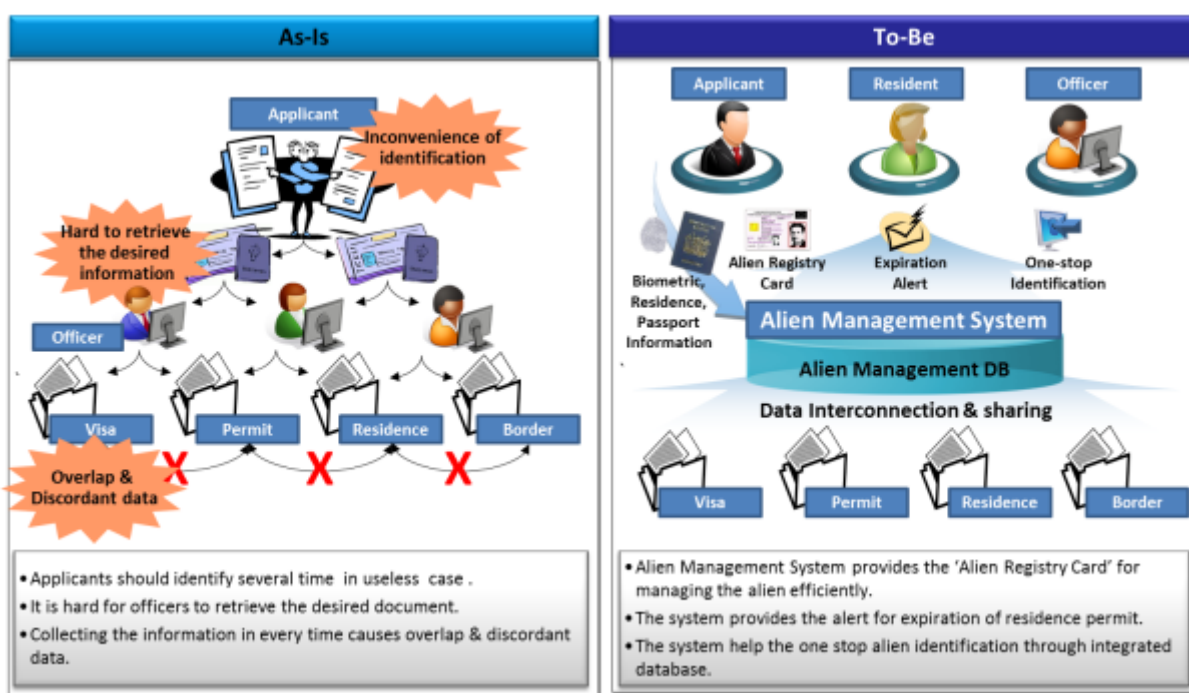

Figure 64.   Alien Management Process

B. **Approach of Development**

Alien Management System is a management system that guides legal registration of foreigners through foreigner information management, implements illegal alien control and labor statistics to support creation of healthy labor market. The system collects the information on foreigner bio, passport, and stay (address, period, qualification, etc.) to issue a foreigner registration. The foreigner's stay information is managed to support management and control of illegal stay, and provides appropriate information on foreigner labor statistics by integrated management of foreigner information and creation of statistical information. The rational immigration policy for the issuance of foreigner registration can reduce the number of illegal immigrants. Online access enables efficient foreigner management.

Figure 65. Comparison between As-IS and To-Be

C. **System configuration**

Alien Management System supports the process related to a foreigner registration, and manages foreigner's stay information. The system has the function of managing stay information, and is made up of the integrated foreigner management DB connected with several internal and external information systems.

Alien Management System collects foreigner's passport, biometric and stay information (a place of stay, period, qualification) and saves them in the foreigner integrated DB to allow the application and issuance of a foreigner registration at local and HQ offices.

The issuance is approved after a background check by connecting the collected information with the data in e-Travel Document System, integrated immigration DB, and the related

agencies' watch list. The information on both stay and the issuance of a foreign registration is shared with the related agencies.

The system manages change and update of stay information, and supports auto-creation of an illegal alien list through management of stay information to manage illegal aliens.

Through creation and management of statistical information, rational foreigner labor information is provided that can be the base for making a labor policy.

Figure 66. System Architecture

D. **System Functions**

Alien Management System manages the reception, examination, issuance, and delivery to issue a foreigner registration, administrates the information collected from the application together with the related agencies, and provides the information on consumables and statistics to support the affairs.

Type		Functions	Description
Management of a foreigner registration	Receipt	Reception management	· Handling new issuance and change in stated matters · Registering an application · Registering biometric and passport information · Management of return and lost articles
		Retrieval of reception information	· Retrieving the information on identification and reception · status
	Examina-tion	Examination management	· Handling the result of examination · Handling a transfer, supplementation, and rejection
		Connection management	· Linking with the foreigner information for identification

			(by the foreign country's request)
	Issuance	Issuance plan	・ Creating a waiting list and making a plan for issuance
		Issuance management	・ Issuance and history management
		Quality control	・ Quality control of the issued status
	Delivery	Delivery management of a registration	・ Management of the delivery status to the applied agency and applicant
		Reception management of a registration	・ Confirmation and lookup of foreigner registration delivery
Foreigner information management		Residence management	・ Personal information on application and passport ・ Information on period, place, and qualification of stay ・ Classification and alert service for expected illegal alien
		Illegal alien management	・ A list of illegal alien and a watch list
		Connection management	・ Connecting and sharing with the integrated immigration DB and the related agency's information
Administration		Consumables management	・ Consumable materials
		Statistics and report	・ Foreigner registration issuance, foreigner status, and target statistics
		System management	・ Management of the basic information, user, menu, and authorization

Table 45.　**Definition of System functions**

E. **Expected Effect**

The introduction of Alien Management System allows the issuance procedure at the HQ and local offices by managing foreigner's stay. And the integrated stay management can attain the affairs efficiency. In addition, introduction of a foreigner registration certificate and system will decrease the number of illegal aliens, and the statistical information provided can help a labor policy established.

・ **Strong measure for preventing illegal stay:** If a staying foreigner nears the expiration date of stay, advanced notice of such date is given to the foreigner, and leads him or her to legal stay. At the same time, a penalty and the disadvantage for reentry are imposed on illegal alien for management and sanctions.

・ **Better public (residence/stay) service:** The system supports efficient control and management of foreigners by integrating the stay history information on residing and staying foreigner by integrating internal e-immigration system and connecting and sharing with the related agencies.

・ **Efficiency of administration affairs:** The system issues a foreign registration to help foreigner identification simplified, and provides the basic materials for making a labor policy through statistical information.

5.1.7 e-Archiving System

A. **Overview**

The e-Archiving System converts the attachments collected with applications into electronic files, and overcomes shortcomings of loss, impairment, and storage, and provides one stop service whenever and wherever a customer can gain access. In addition, the system adopts OCR technology to provide the automation service that enters application information. The directions to be implemented by e-Archiving System are shown below.

- **e-Paper Documentation:** The system scans a paper document to convert into electronic documents (image files) and to save them in the document management DB. It will remove the limit of document filing to raise utility of document.

- **Easiness and extension of document retrieval:** By electronic document conversion and management, document search, lookup, and management get easier. In addition, e-Archiving System will provide the service that allows the attached documents confirmed at the local and border offices.

- **OCR technology-applied efficiency of affairs:** The system employs the OCR technology to automate the input of application information to make the data input efficient. In addition, the service provided can manage the unique information on document by automatic tagging and numbering upon document creation.
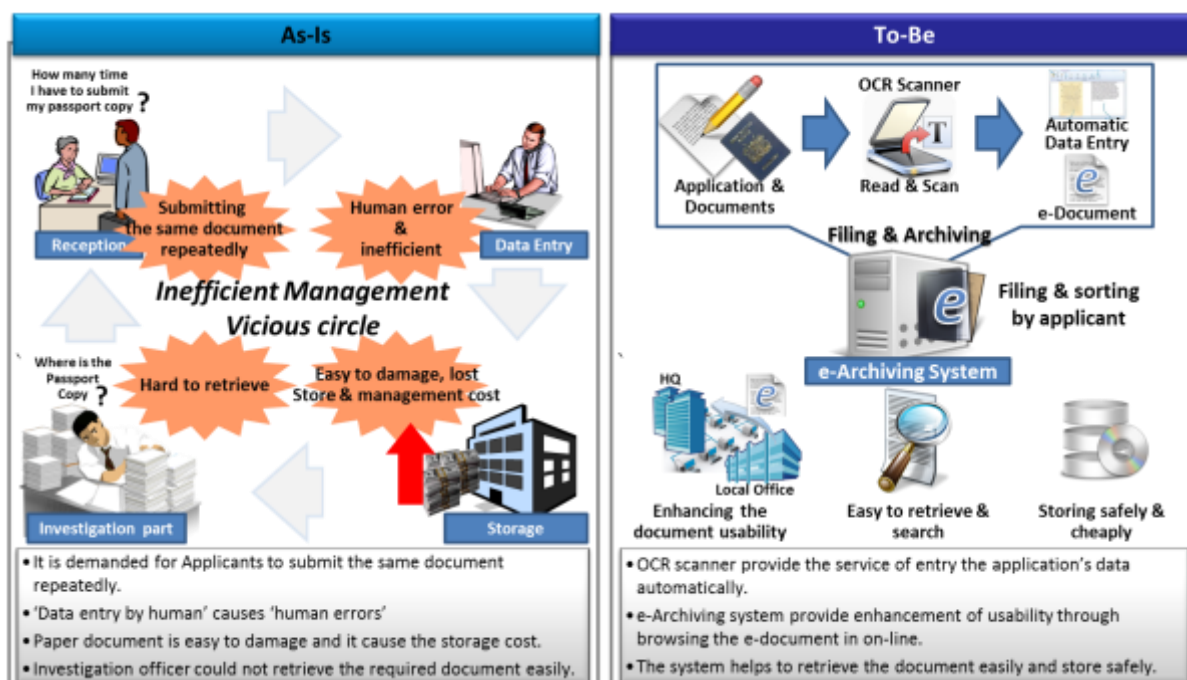
B. **Approach of Development**

Figure 67. Comparison between As-IS and To-Be

The e-Archiving System applies OCR technology to make an auto entry of application information, and prevents the human errors caused by manual entry, and aims to make the work efficient by saving time. And, e-Archiving System facilitates access to paper documents so that local and immigration offices can read the documents. It can prevent repeated submission of documents, etc. and make document storage and retrieval easy.

C. **System Configuration**

The e-Archiving System installed OCR program, and is a system that coverts documents converted into images. It saves application information and document images into document integrated DB. This e-Archiving system is made up of the administration functions of reception, data input, document imaging, lookup, and document management, statistics, security, transmission, etc.

- If an applicant prepares and submits an application, the reception no., applications, and attached documents are scanned and e-documented (image) and saved in the integrated DB, and an examination manager can check the received information and images.

- The document quality and size can be adjustable upon creation of a document, and the quality of document can vary with saving capacity and the importance of document.

- The application information automatically entered by OCR can be called back in the issuing system, and the issuance information and the attachments are managed by a single number.

- The local and border offices can easily read the application and document information issued on a remote basis via e-Archiving System.

- Administration functions include management of and image document data and user's access, and can provide statistical information on documents via document information management.
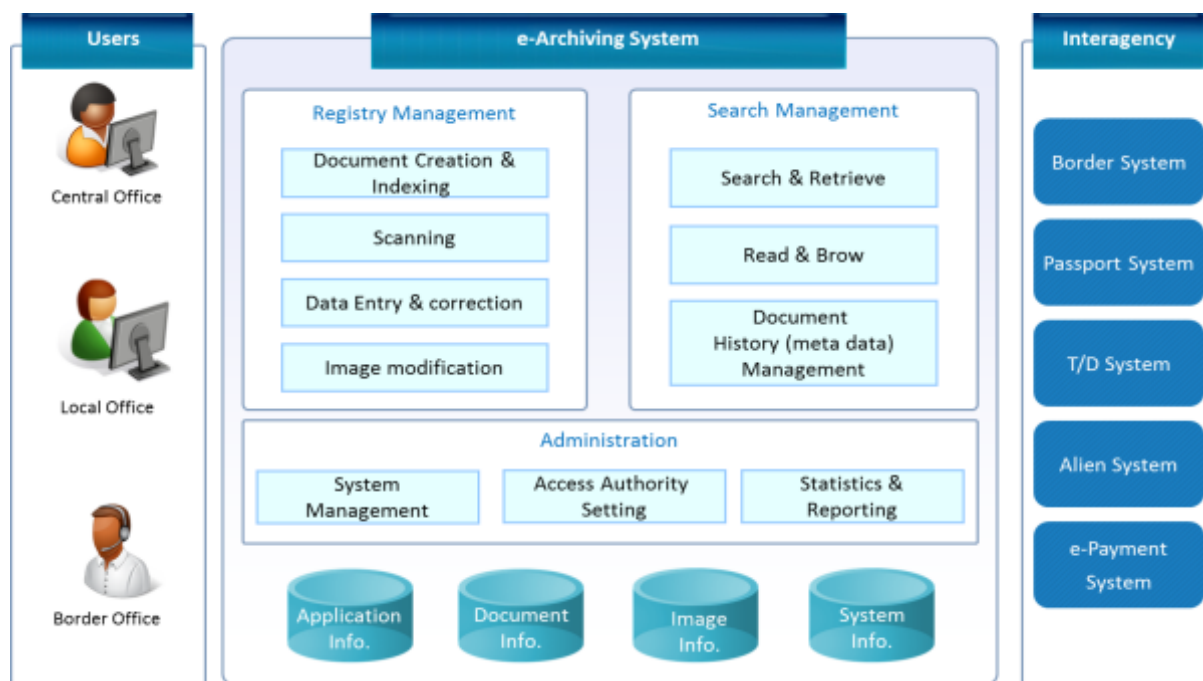
Figure 68. System Architecture

D. **System Functions**

The e-Archiving System is a solution for integrated document management and works, by imaging an application and paper document, the services including reception, auto-entry of information, document imaging, retrieval, and document management, Administration.

Type	Functions	Description
Document creation	Document creation	· Creating a document management no. by reception no. · Application scanning and document imaging · Saving and archiving by modifying images and defining quality level · Creating unique document information (document creation date, classification, etc.)
	Document input	· Checking and modifying the application information automatically entered by OCR
	Document modification	· Modifying and supplementing the document according to modification, renewal and change of information
Document retrieval and reading	Document Searching	· Retrieving the related document lookup by document no., passport no., name, etc.
	Document Browsing	· Reading document and its information
Administration	Setting authorized access to document	· Access authorization according to security level of document
	Statistics and report	· Statistics and reports on the status of document creation, the volumes of archived documents
	System management	· Management of the basic information, user, menu, and authorization

Table 46. **Details of Services**

E. **Expected Effect**

The e-Archiving System, if introduced, can make the affairs efficient by entering information by OCR, and can overcome the limit of paper document by e-document conversion and raise convenience of management. The remote access to the document is available, and can raise accessibility.

- **Efficient data entry:** OCR technology automates the entry of application information, saving time and costs with more work efficiency.

- **Strengthened management efficiency:** The system makes paper documents imaged, and saves the time for retrieval, and solves many problems, such as the damage, loss, and inventory cost due to the storage, and strengthens efficiency of the affairs.

- **More utility of information:** The system supports a remote access to necessary documents whenever and spontaneously at many places and strengthens the utility of information.

5.1.8   Biometric Information System

A. **Overview**

Biometric Information System integrates and manages the biometric information collected from e-Border Management System, e-Passport Management System, e-Travel Document Management System, and e-Alien Management System management, and is the system that allows the personal identification by matching biometric information. In the first stage, Biometric information system shall be focused on collecting biometric information, then extended to matching functions. The directions to be implemented by the Biometric Information System are shown below.

・ **Integrated management of biometric information:** The system enables repetition and errors to be verified, and allows data quality management by integrated management of the biometric information collected by information system. It supports the verification of the personal information saved in the immigration integrated DB by setting bio-metric information as the basic information.

・ **Personal Identification by biometric information:** Through connection with e-Border Management System, Passport Management System, e-Travel Document Management System, and Alien Management System, the system compares new input biometric information with the existing biometric DB, and then provides the identification service based on the previous comparison. In addition, criminal's fingerprint information enables an alien criminal identified.
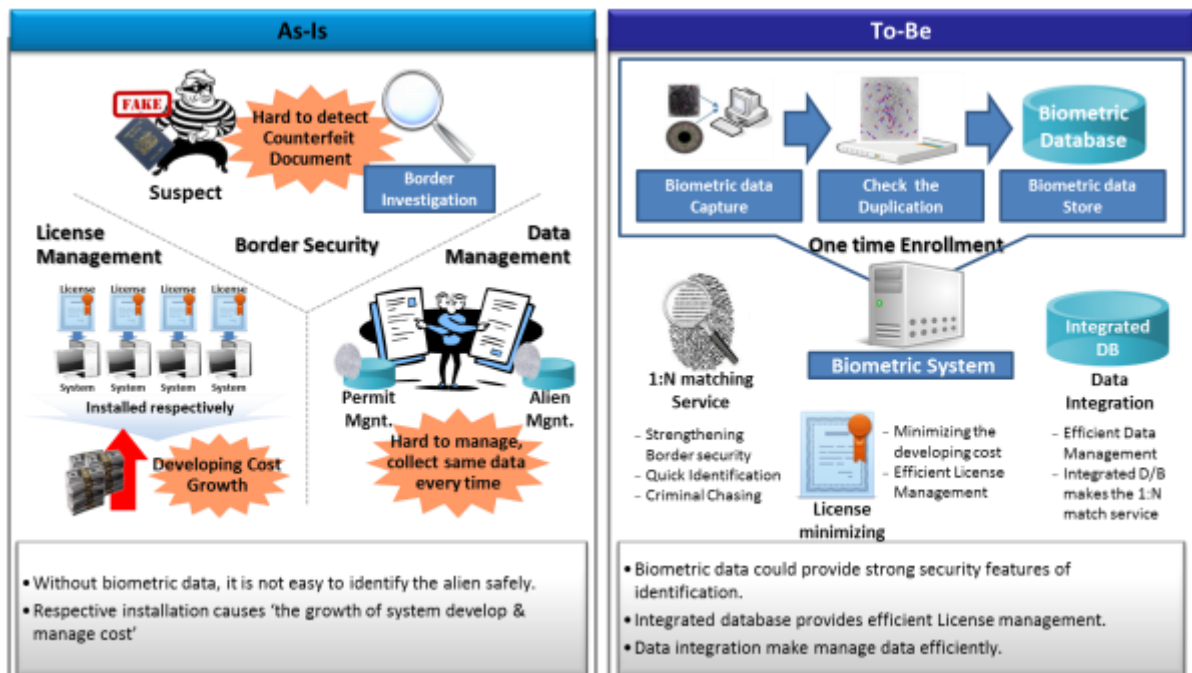
B. **Approach of Development**

Figure 69.   Comparison between As-IS and To-Be

Biometric Information System integrates and manages the biometric information collected by various information systems, and enhances the efficiency of information management by quality control. The system uses the biometric information as the basic information to minimize input and lookup errors so that the precision and compatibility of integrated DB can be achieved. In addition, matching service allows the identification by using biometric information.

C. **System Configuration**

Biometric Management System is the system that integrates and manages the biometric information collected from each system, and has the functions of 1:N matching and quality management, and consists of the biometric integrated DB networked with many external and internal information systems.
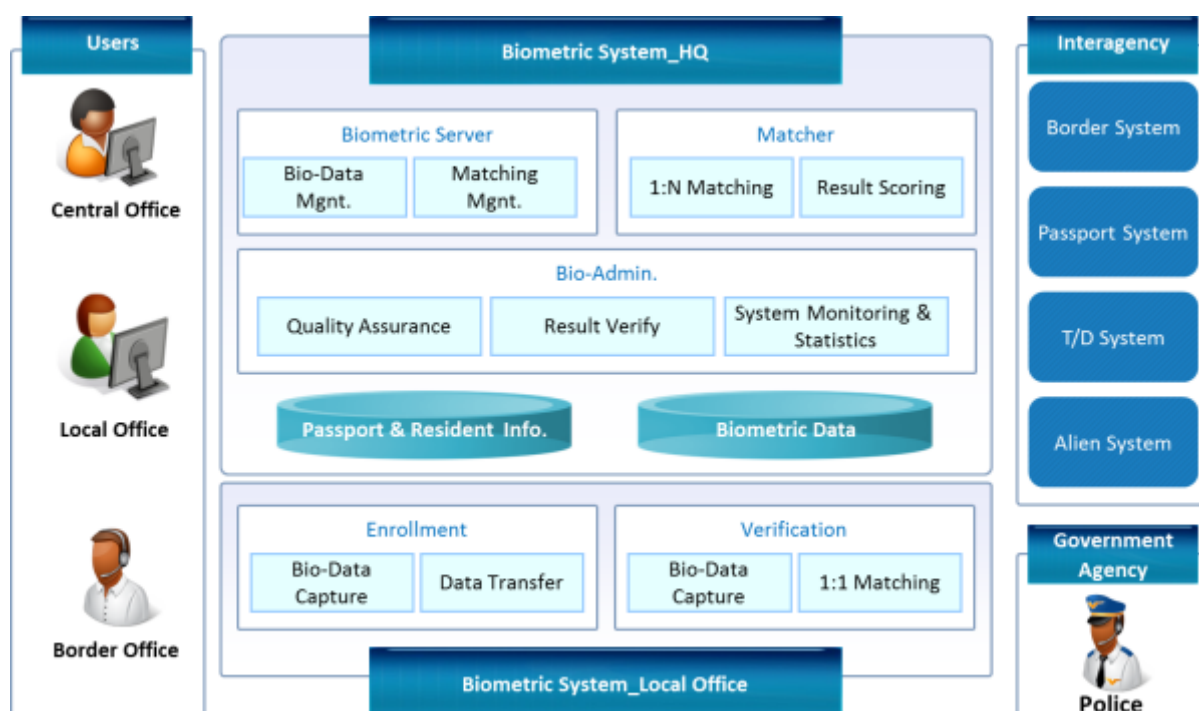
Figure 70. Scope of Development

D. **System Functions**

Biometric Management System collects information for integrated management of biometric information by networking with each system and the related agencies, and manages biometric information quality and unique information, and has the function of the background check by 1:N matching.

Type	Functions	Description
Biometric information management	Collecting biometric and personal information	・Collecting biometric information from the linked information system ・Gathering biometric and personal information by matching

	Change of biometric information	・Updating and modifying matched personal information ・Management of unique information, such as the history of biometric information, etc.
	Quality Control	・Adapting for improving the quality of collected biometric information
Biometric information retrieval	Retrieving and matching biometric information	・Retrieving biometric information by matching algorithm ・Management of matching algorithm
Connection management	Connection management of Biometric information-linked management	・Management of the connection with integrated DB and information systems for using the biometric information as the basic data
Administration	Security management	・Encryption of transmission information and management of DB access security
	Statistics and reporting	・Preparing statistics of information management and a report
	System management	・Management of user, menu, and authorization

Table 47. **Details of Services**

E. **Expected Effect**

Biometric Management System enhances data reliability through integrated management of biometric information. The system provides a background check service through matching to enable safe border management and identification.

・**Efficiency of information management:** Physical integration makes efficient operation and quality control of information resources. In addition, the reliability of immigration integrity DB is also enhanced through the basic information management.

・**Secure identification**: The safe border management and issuance affairs are possible by the background check through the biometric information not allowing forge and falsification. In addition, other support affairs than immigration are possible, including tracking a foreigner criminal.

5.1.9 Web Service Portal System

A. **Overview**

This is the system that provides immigration information by connecting the e-immigration systems for immigration service to the public. The system provides detailed information services of the Immigration Office, guidelines, and other related information. The system stores information in a database, and supports the management function, and simplifies retrieval and enhances information access.

B. **Approach to Development**

The web portal system is an interactive system that provides application online services, status tracking, alert, etc. Easy and quick online service to the public can improve the efficiency of handling civil affairs by Immigration Office, and enhance customer satisfaction.
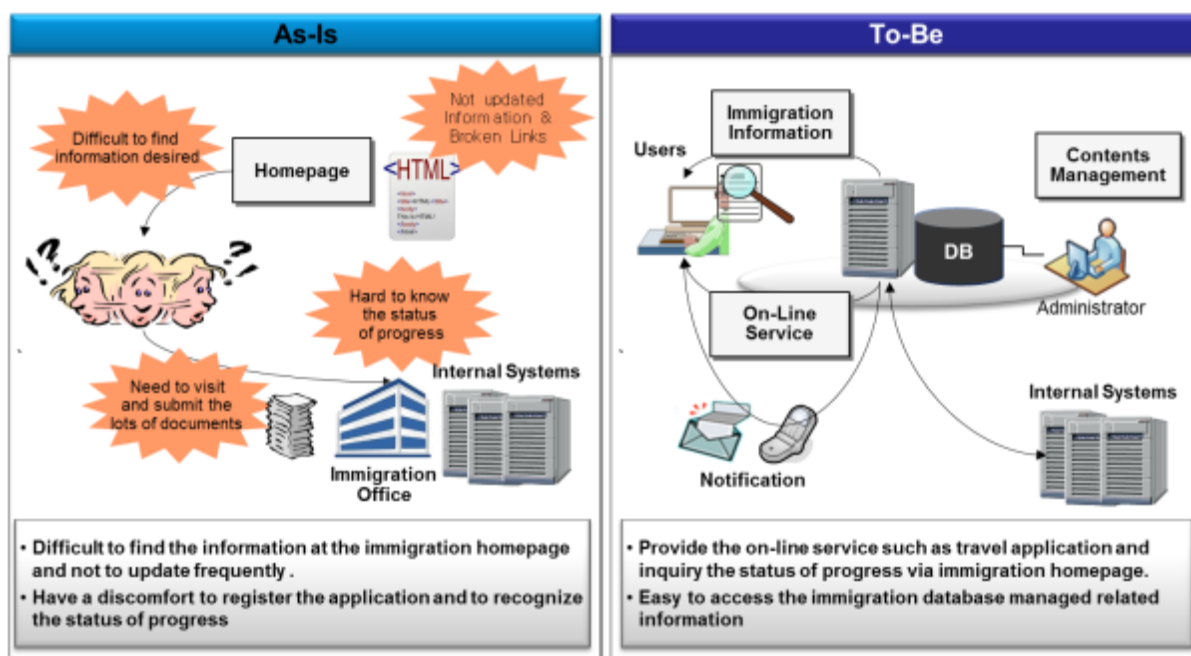

Figure 71. Comparison between As-IS and To-Be

C. **System Configuration**

Web Service Portal System comprises information fields such as 'About us', 'Passport', 'Travel Document', and 'Alien Management'. It further provides the functions for entry points, statistics, search, e-mail, and satisfaction survey among other services. System administration provides the functions of managing content, users, and menus.
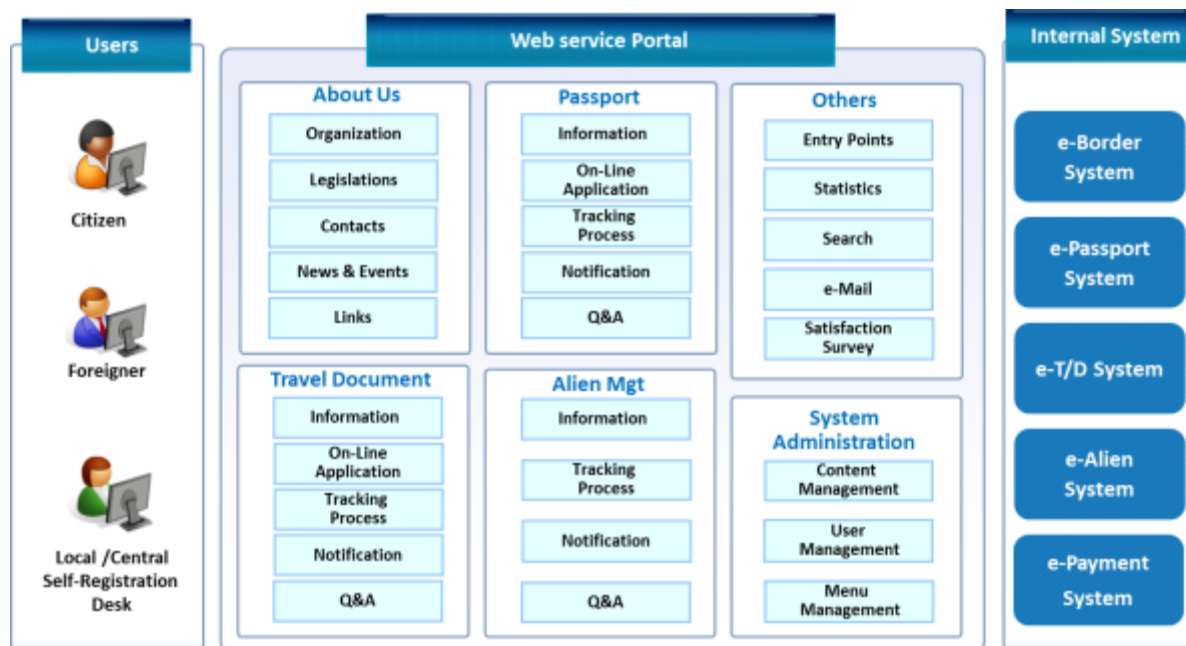
Figure 72. Web service portal system architecture

D. **System Functions**

Type	Functions	Description
About Us	Organization	・ Vision, mission, and functions
	Legislations	・ Information on the related laws and regulations
	Contacts	・ Contact number, and location
	News &events	・ News and events on immigration office
	Links	・ The related site links
Passport Management	Information	・ Requirement, procedures, an application form, and free
	Online application	・ On-line application for passport
	Tracking process	・ Tracking status of applied passport
	Notification	・ A notification for applied passport
	Q&A	・ Questions and answers
Travel Document	Information	・ Requirement, procedures, an application form, and free
	Online application	・ On-line application for travel document
	Tracking process	・ Tracking status of applied travel document
	Notification	・ A notification for applied travel document
	Q&A	・ Questions and answers
Alien Management	Information	・ Requirement, procedures, an application form, and free
	Tracking process	・ Tracking status of alien's application
	Notification	・ A notification for alien's application
	Q&A	・ Questions and answers
Other Services	Entry points	・ Border map indicating all countries entry points
	Statistics	・ Immigration statistics
	Search	・ Search engine
	e-Mail	・ Internal / external e-mail service
	Satisfaction survey	・ Survey on customer satisfaction with immigration service
System	Content management	・ Web page and content management tool

| Administration | User management | ・User management tool |
| | Menu management | ・Menu management tool |

Table 48. **Functions of system**

E. **Expected Effect**

Web portal system is expected to make the administration efficient, raising the reliability to the public, and enhancing satisfaction with use of travel document.

・ Efficiency of administration affairs

  ‐ Arranging a variety of integrated management systems to handle diverse complaints, such as Q&A, information request, etc.

  ‐ Cost reduction effect by online application

・ Enhancing satisfaction of immigration affairs

  ‐ Solving customer's complaints by timely service of the related materials

  ‐ Enhancing reliability by service of immigration status.

  ‐ Providing convenience by online application

5.1.10 Interconnection System

A. Overview

Interconnection System is a solution that provides efficient information connection with various internal and external systems, applications and data in immigration departments. In addition, the system provides integrated interface functions that can manage data flows for various systems in a diverse way. The system can easily connect data with desired system and database according to the processes through an integrated connection system. It ensures data reliability and integrity of the connected data.

B. Approach of Development

Information connection can be made with internal or external agencies, and can be linked with all the systems using a stand-alone adapter for database, communication protocol, and a specific package system.
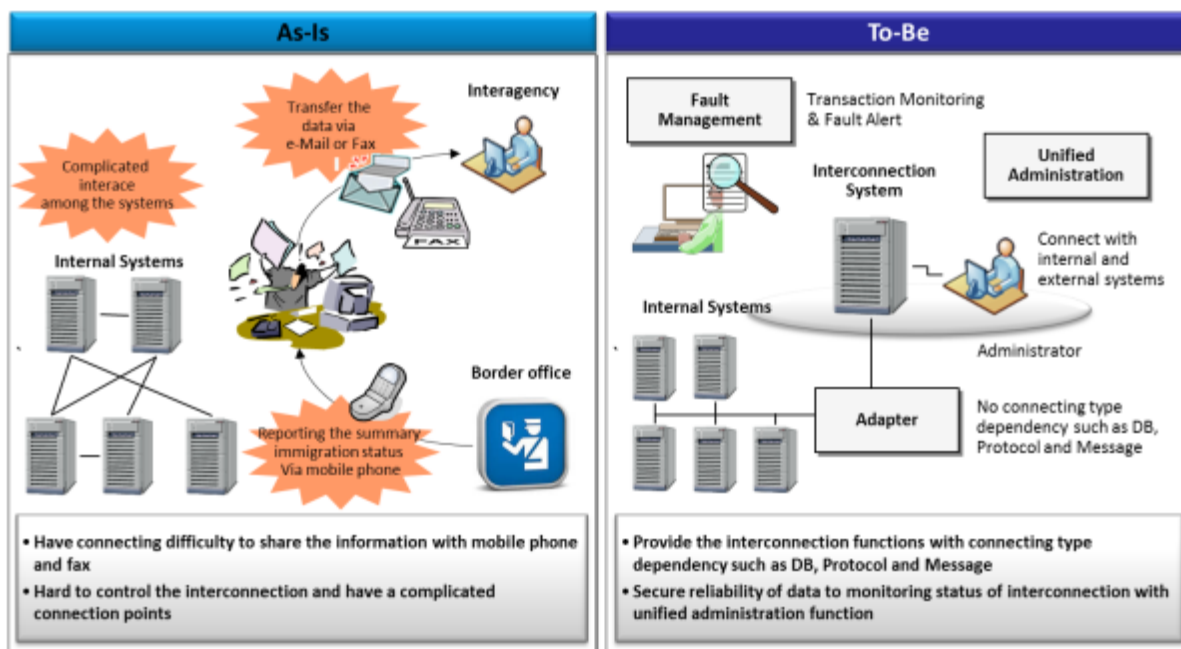

Figure 73. Comparison between As-IS and To-Be

C. System Configuration

Interconnection system consists of the adapters that automate the intersystem connection and communication, the runtime engine that manages and controls each type of resource, and the administration in charge of the resource monitoring needed for operation, the statistics, and control.
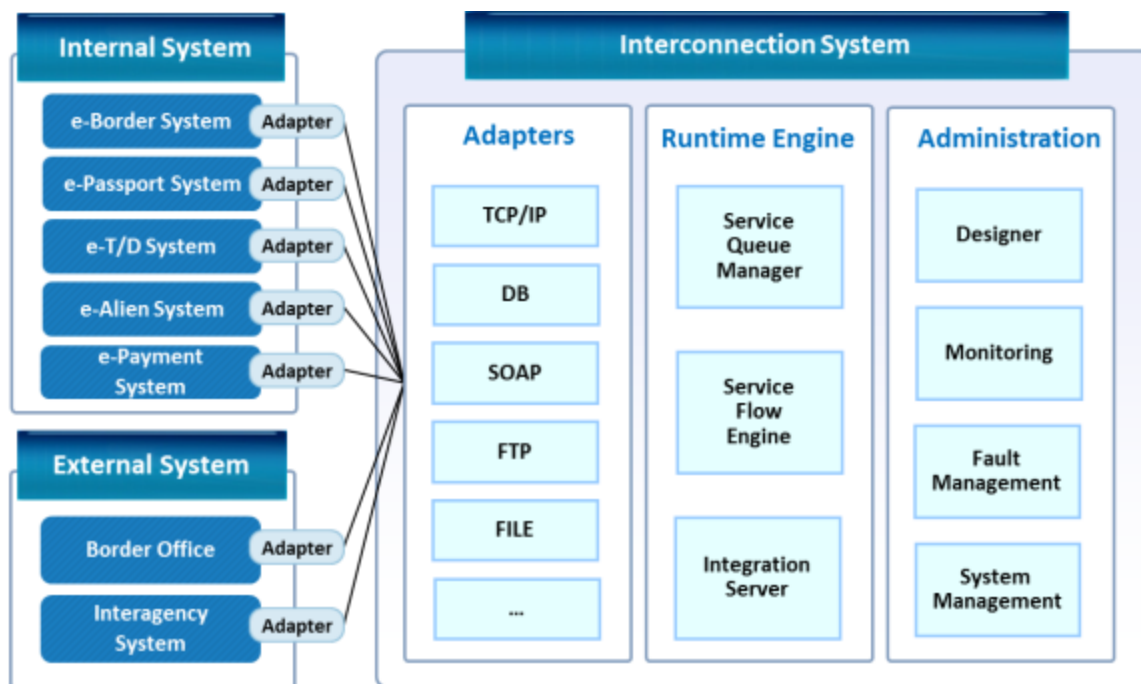
Figure 74.   Interconnection system architecture

D. System Functions

Type	Functions	Description
Adapters	Adapters (TCP/IP, DB, SOAP, FTP, FILE…)	・ Providing a resource adapter that automates connection and communication with various systems and protocols ・ Selecting and applying an adapter according to the environment
Runtime Engine	Service queue manager	・ Managing a waiting queue of message transmission, such as adapter, service, service end point, etc.
	Service flow engine	・ Handling a service flow to perform the role of the core engine of data interface
	Integration server	・ Resource management, deploy engine, web service publishing, and an interface between tool and server
Administration	Designer	・ Registering an intersystem interface class ・ Registering a conditional branch in connection flow and an event
	Monitoring	・ The number of requests/service responding time/queue count/active service/TPS monitoring
	Fault management	・ Setting a critical value, generating an alert, retrieving detailed information, inquiring, and taking measure for problems
	System management	・ Management of an account and an authorization

Table 49.   **Functions of system**

E. Expected Effect

Interconnection System can increase administration efficiency, reliability to the public, and enhance customer satisfaction.

・ Efficiency of administration affairs

　‐ Automated information connection prevents unnecessary delay.

- Guaranteeing data transmission through system and enhancing business efficiency by routing

- Minimizing human errors to attain data reliability

· Saving expenses for operation and management

  - Efficiency is enhanced by the standardization and simplification of information connection

  - Management expense is reduced due to the decrease in the number of management points.

5.1.11 ICT Infrastructure

A. **Hardware**

It is configured as a centralized method to manage and control H/W configuring e-Immigration Information System at the server room. Major servers are configured to be divided into e-Border system Server, e-Passport System Server, e-T/D System Server, e-Alien System Server , Database Server, etc. and all servers operate in redundant configuration through clustering. Servers are configured UNIX server or x86 server depending on their purpose. Database is composed the unified database.
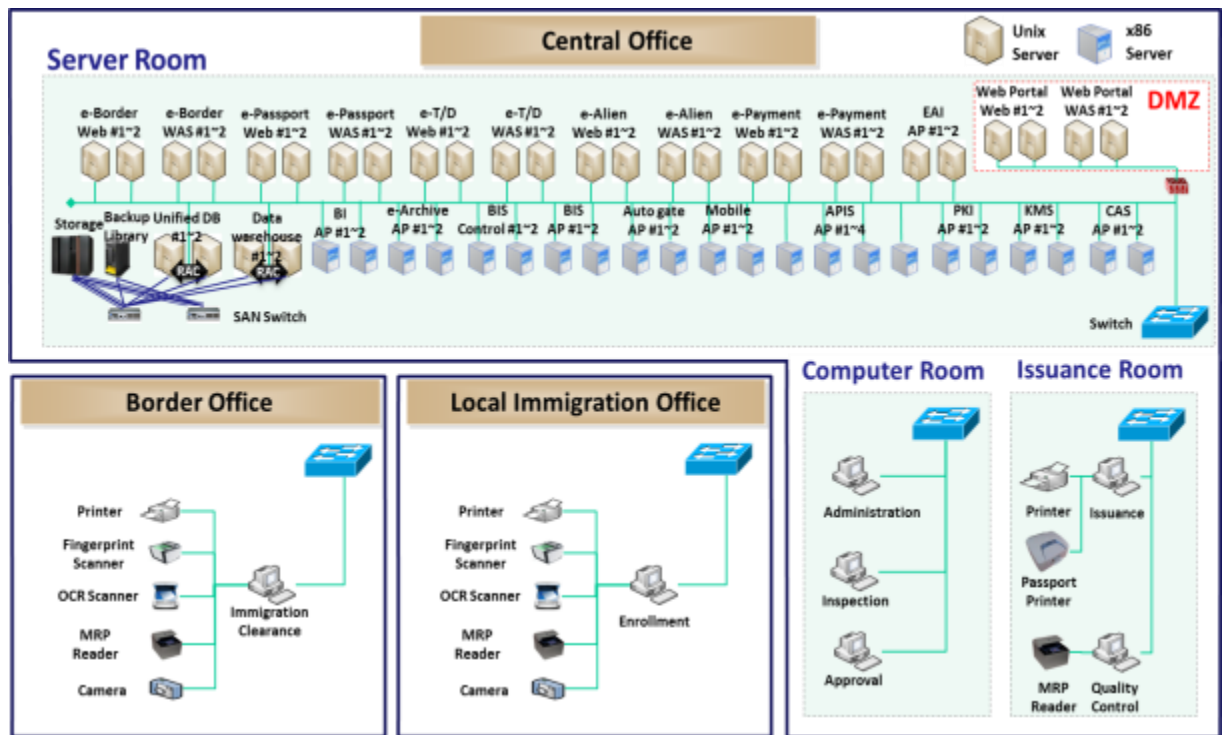

Figure 75. Hardware configuration diagram

· **Hardware Configuration Direction**

- Centralized server configuration allows the server operator in the Immigration headquarter to easily respond against failure and to maintain.

- All servers are configured in redundant mode using clustering to allow stable and constant service.

- Introduction of large capacity SAN storage physically separated from the servers facilitates configuration change on replacement of server or expansion of storage equipment.

· **Hardware Features**

In order to ensure system performance and high availability, server, storage and backup system architectures will be configured as the optimal system architecture from which the users can be provided with unified and constant services.

- Clustering Function: In order to provide the servers with stable and constant services, clustering function is applied to provide high availability services on server failure through Fail-Over by applying clustering function.

- Minimization of Mutual Interference: It minimizes mutual interference of DB, WEB, Border, Passport, Travel document, Alien management, etc. to provide stable services.

- Compatibility with the Existing Equipment: All of H/W and network equipment ensure compatibility and connectivity with the existing equipment.

- Physical Separation of Server Layer and Storage Layer: Introduction of SAN storage to physically separate server layer and storage layer to facilitate expansion or modification of configuration of server or storage parts.

- Backup with minimized effect on the systems in operation: It carries out backup with minimized effect on the systems in operation by configuring separate backup networks and backup servers

B. **Network**

N/W Configuration Method of the e-Immigration Information System is described below. Existing networks are mainly built in airport immigration offices, and there is no infrastructure for border offices and local immigration offices. Future infrastructure shall include local immigration offices with government common core network and border offices with government common core network or satellite communication. Local immigration office network is characterized to keep consistent service on system failure through doubled structure in order to secure stable operation.
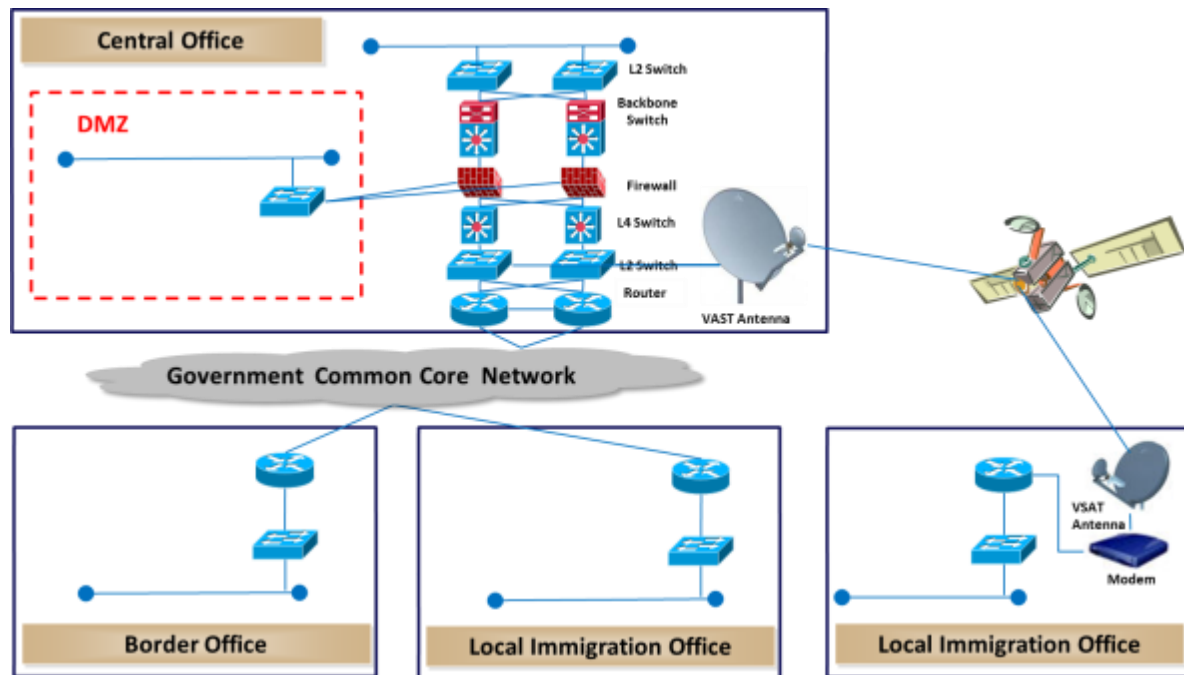

Figure 76. Network configuration diagram

・ **Network Configuration Direction**

- As it connects to the entire local immigration offices operated by government with high speed network lines, smooth data communication with local immigration offices is available and operation can be carried out using backup network of redundancy configuration even on line failure.

- With redundant configuration of internal backbone switch, backup backbone switch operates automatically upon network failure and online works can be constantly carried out on failure.

- It reinforces network security function by applying technologies such as duplicated firewall, router packet filtering, etc.

· **Network Features**

In order to ensure constant operation under network infrastructure and failure, it duplicates network lines and architecture configuration for optimal network architecture to get constant services provided against system failure.

- Introduction of Expanded Network Infrastructure: To introduce high speed network infrastructure in the entire local immigration offices and some of border offices operated by government to allow all works to be carried out online.

- Satellite communications network: To configure some of the border offices those are not connected with local area network and sustain the business by establishing a VSAT.

- Duplicated Network Line Configuration: To configure duplicated network lines for local immigration offices connected to the immigration headquarters to allow works to be carried out constantly using backup lines against system failure.

- Backbone Switch Duplication: To minimize operation delay due to network infrastructure failure by duplicating Backbone Switch of immigration headquarters to recover services automatically from backbone switch down.

Type	Active Line	Backup Line	Remarks
Immigration Headquarters	5 Mbps	1.5 Mbps	Government Line 1.5 Mbps Internet line
Local Immigration Office	3 Mbps	1.5 Mbps	
Border Post	512Kbps	ADSL	Ordinary ADSL Upload 256Kbps, Download 600Kbps

Table 50. **Network recommendation by immigration offices**

C. **Electricity**

Many African regions are suffering from power shortages which are a challenge to effective operation the information system. The rate of power supply in Africa is 14% by average and less than 10% in some areas.

Most of local offices have relatively stable power supply, but most of border offices have power shortages due to aging and absence of electrical grid. But constructing a local electric generation plant only for Immigration Office is costly and unrealistic. Therefore, it is feasible to take a national approach to construct the national power plant and grid network. However, in terms of timely project execution, other solutions such renewable energy sources must be explored.

The power supply solution that can provide economic operation and stable power supply for border offices shall be explained in the three following energy sources.

Figure 77. Comparison among the renewal power generators

· **Solar-light power generation System**

Solar-light power generation is a generation that uses solar cells converting solar-light energy into electricity. Solar-light power generation system is made up of a module of solar cells, a storage battery, and a power converter. The geographical location of the East African region, the equator near is advantageous for solar-light generation. It is easy to work with, maintain and has 20 years or more of durability life, and the penetration rate is relatively high. But energy density is low, so large area is required. The amount of initial investment is higher than gasoline generator.

· **Wind power generation**

Wind power generation is made by converting wind energy into electric energy. The wind power system consists of the mechanical part including a blade, the electric part for power stability and generator, and the control part that allows unmanned operation. It has locally significant deviation, and it's difficult to get stable capacity of electricity. The facility expense is relatively low, maintenance is easy, and the cost is low.

· **Fuel cell generation**

Fuel cell generation is a method that directly converts the chemical energy generated by chemical reaction of hydrogen and oxygen into electric energy. It has adapted to the notebook and vehicle power system, and is being developed for home and industrial usage. Full cell is made up of a reformer that generates hydrogen from chemical fuel (natural gas, gasoline, etc.), and the stack and inverter for stable electrical output, etc. Chemical fuel is used as in gasoline power generation, but has more excellent efficiency than electricity. However, it is hard to maintain the system because of short commercialization history and technical difficulty.

5.2 Extension of Immigration Information System (Phase II)

5.2.1 Overview

Phase II 'extends' the service of 'Core' Immigration Information System.

In phase II, the 'e-Payment System' shall be built to allow one stop online service from application to approval at the e-Immigration web service portal. The 'Mobile Service Portal' to be built will provide a tracking service for immigration information and application status by cell phone. The 'Business Intelligence' will be introduced for efficient management and analysis of the information gathered since completion of Phase I.
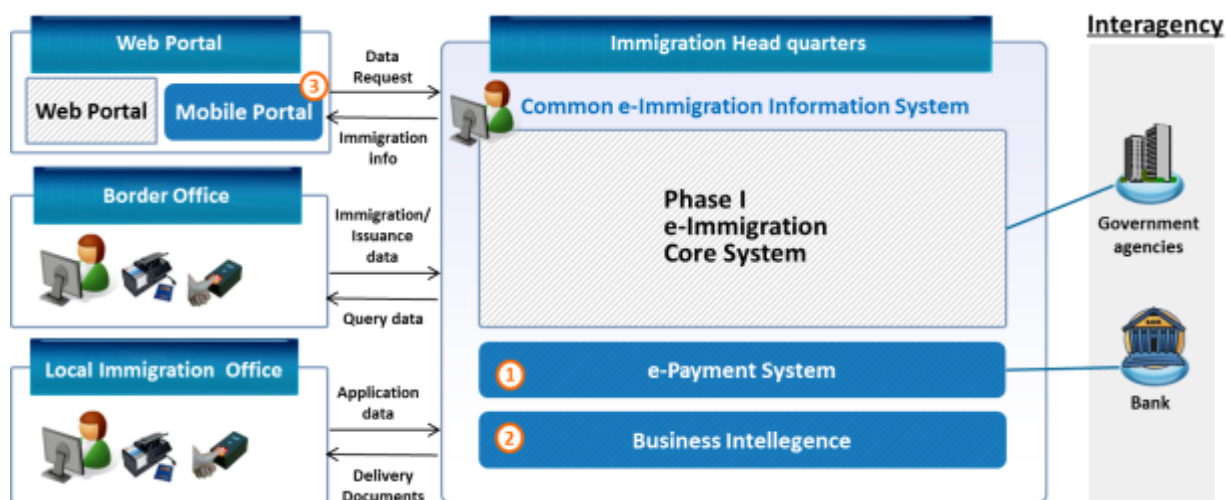

Figure 78. Extension e-Immigration Information System Conceptual Image

5.2.2 e-Payment System

The e-Payment System provides the service that allows an applicant to pay the fee by electronic method via information system. Namely, the customer can make online payment by credit card in e-Payment system.

The e-Payment system informs an applicant of the payment and result, and has the functions to connect the collection information with VAN and banks via national and international payment gateway, to approve and settle (module) transaction, to manage the payment result, to strengthen security, to encode transmission, etc.

The introduction of e-Payment system enables online processes from application to payment. It increases efficiency and improves service delivery to the public. The financial operations are more transparent.
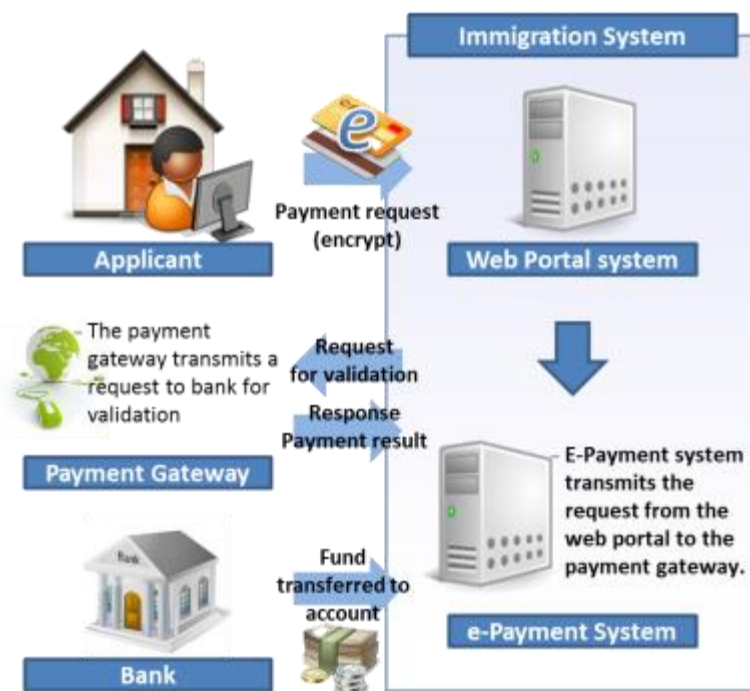
Figure 79. e-Payment System

5.2.3 Business Intelligence System

Business Intelligence System is a solution that provides the valuable information that can be used for strategic decision-making on policy-making and for achieving enhanced productivity, improved affairs, customer satisfaction, etc. It is made up of not only the data archive, which is the analytic database integrating the data dispersed in e-Immigration system, but also the Executive Information System that designs and offers screens of statistics and reports

The purpose of BIS is to immediately obtain the information appropriate for policy-making and decision-making. This can enhance the reliability and effectiveness for the information that is provided for a policy-maker.

Data, through a connection with operating system, is saved in the easy-to-analyze multidimensional forms after extraction, transformation, and loading. Based on collected information, the interface of the information displayed is built in the user demand types of dash board and immigration statistics. But BIS system is used for comprehensive analysis of the information of multiple systems in Immigration Office and for speedy and accurate data-centered analysis. AD-Hoc report can be prepared speedily by using the report builder, based on integrated data sources.
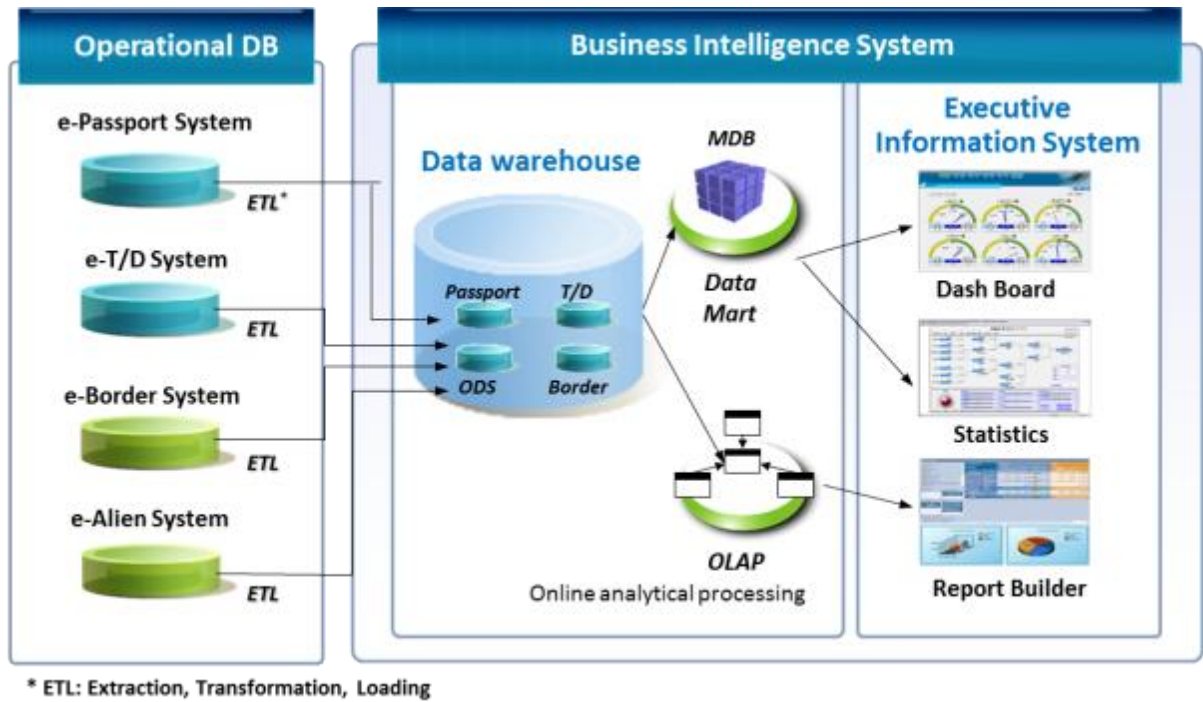
Figure 80. Business Intelligence System Model

5.2.4 Mobile Service Portal System

With the epoch-making increase of cell phone penetration in Africa, a population of mobile internet users is also increasing. The number of fixed-line internet user is about 1 million (0.2% of penetration rate), but mobile internet users are 29 million (3.6% of penetration). This is not the full browsing internet access by smartphone as in the advanced countries, but most of users gain access to mobile internet service by the WAP browser for a feature phone.

WAP browser can hardly support an application service and other civil affairs requiring several many data entries. However, a Mobile Web Portal provides the information on required documents, process period, a place of application, working hours, and fee, relating to the issuance of a passport, permit, etc. Second, it offers a tracking service by which an applicant confirms the status of reception and the estimated date of issuance by entering application no. and the applicant's name.

With wider extension and service of smartphone, Mobile Web Portal gets more extended and advanced, and can provide all the customer services as Web Portal does. Mobile Web Portal if developed and customized to the smart devices and can provide user-friendly service.

In addition, at a more advanced level, the mobile web portal can enable an Immigration Officer to have access to internal information system for the affairs. Through virtual and security technology, external access to internal information system is allowed for the affairs.
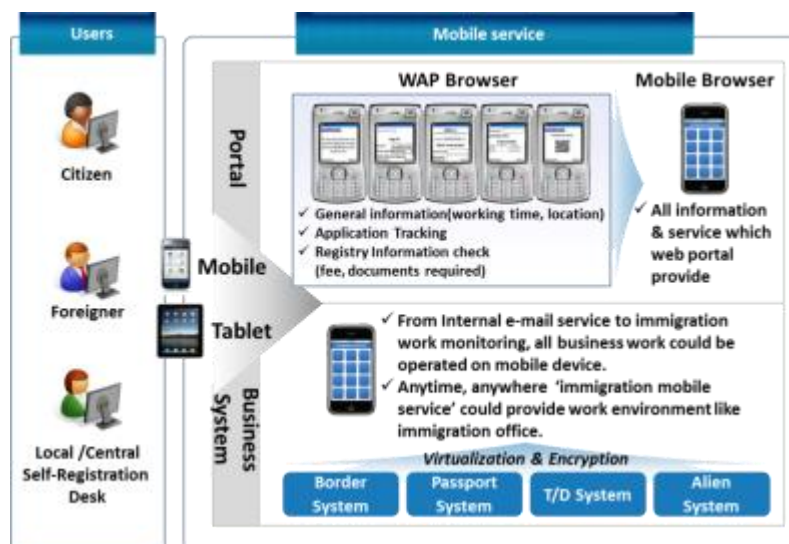

Figure 81. Mobile Web Portal

5.3 Advanced Immigration Information System (Phase III)

5.3.1 Overview

Phase III employs the newest technology and develops a system that provides 'Advanced' services, and finally aims to build the 'Common Immigration Information System'.

Phase III aims to provide the 'Advanced' Immigration Service that uses 'the newest' and 'advanced' technology. Introduced are the 'Auto-Gate' that allows unmanned auto-immigration examination with biometric information, 'e-Passport (Bio-Passport)' that prevents biometric and general information forged and falsified, and the 'Advanced Passenger Information System (APIS)' that a passenger can check the information in advance before entry.
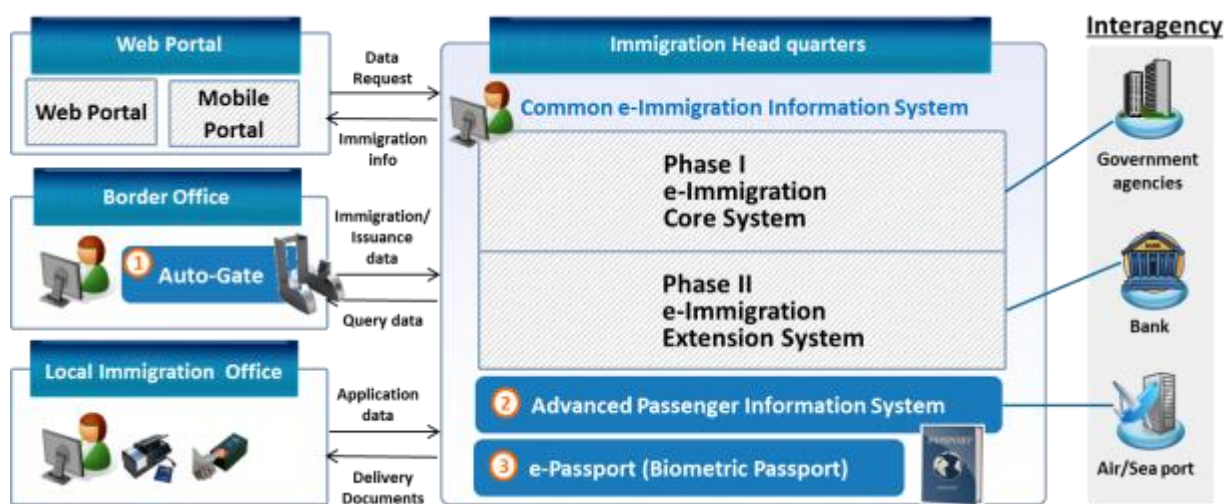

Figure 82. Advanced e-Immigration Information System Conceptual Image

5.3.2 Immigration Auto-Gate

The immigration-automated system uses the automated systems, such as e-passport, MRP, fingerprint scanning device, Auto Gate, and other systems to automatically gather the information on passenger and immigration, and is the automated service for immigration examination. The goal is to enhance efficiency of EAC Partner States' immigration, and to raise the convenience of the passengers traveling EAC Partner States.

Figure 83. Immigration Auto-Gate System

Upgrade of departure examination by using immigration-automated equipment: The automated immigration, such as recognition of immigrant's passport information and fingerprint, can reduce the immigration waiting time, and enhance the efficiency of immigration affairs. In addition, automated identification leads to precise record saving so that the illegal acts (double check-in, those not on board, and wrong passport) inside the airport can be detected early.

Predictability of immigration process: The system can monitor each departure process from check-in to boarding and the entry process from alight to immigration in terms of passenger's flow. If a person on the watch list appears, a carrier and the related agencies can collaborate to cope with this situation.

Immigration automation system consists of the passenger authentication that requires prior registration of fingerprint information for personal identification, the departure automation connecting the immigration automation system with the departure authentication information (fingerprint, passport, and visa information), and the entry automation service linking the entry authentication information with the equipment.

· **Main equipment of immigration automation**

‐ The main automated equipment includes Auto Gate, Kiosk, MRP, and the scanners for iris, face, and fingerprint, etc.

‐ The iris recognition technology used in advanced countries stays at the early stage, is not widespread, and is expensive. If a passenger wears circle lenses, the system can read the iris.

‐ In addition, a face scanner is being used for automated immigration in Korea, but can hardly recognize the passenger after plastic surgery. Its recognition rate is low, so it is not used effectively.

‐ Accordingly, EAC introduces Auto-Gate, MRP, and fingerprint scanner that adopts advanced technology and are the most generalized immigration automation devices.

· **Auto-Gate**

‐ Auto-Gate is the service equipment that enables a passenger to perform immigration processes by himself. It is installed in the form of an automatic door in order to automate passenger identification at the entry and departure lounges.

‐ The Auto Gate is installed and operated at the aisles of exclusive immigration checkpoints to provide convenient and speedy immigration process. In addition, it minimizes passenger's traffic line.

· **MRP**

‐ MRP is used to collect the information on a passenger with a passport among the persons who use EAC members' immigration lounges.

‐ MRP is installed at Auto-Gate, and at the checkpoints of the airport, harbor, land route, etc. to provide more accurate and speedier immigration service.

· **Fingerprint Scanner**

‐ Fingerprint scanner is the equipment that acquires all immigrants' fingerprint information, and first registers 2 fingerprint information and features into the immigration management system to execute EAC immigration examination.

‐ Fingerprint scanner is installed at the Immigration HQ and each immigration office, and used for examination by automated passenger authentication of departure information and for examination of foreigner's long stay.

5.3.3 e-Passport (Biometric Passport)

The e-Passport is a passport with integrated circuit (IC) chip implanted. It is an upgrade of the existing Machine Readable Passport with additional bio information and applying additional security technology.

The purpose for introducing e-Passport is to prevent forged and falsified passports in order to facilitate citizen's convenience while travelling abroad. To strengthen security against international crimes and terrorism threats. About 80 countries has so far introduced e-Passport system.

The IC chip, including the photo (required), fingerprint (option), and other bio information under ICAO Standard Recommendation, is mounted on the e- Passport (Biometric Passport).

Type	Functions
ICAO Standard Recommendation	・ Non-contact chip (contactless chip) is used to save information into passport. ・ Bio information basically requires facial information, with an option of fingerprint and iris. ・ The data is saved in accordance with the standardized LDS (Logical Data Structure). ・ Data integrity guarantees the encoding and authentication based on PKI (Public Key Infrastructure).
Status of EU Standard	・ The standard was established in Dec. 13, 2004. ・ The fingerprints and additional bio information are imprinted in EAC members' passports till the end of 2009. ・ EU bio information protection supports both chip and terminal authentication system.

Table 51. **e-Passport Standard**

The e-Passport is a new system that can solve problems about forged and falsified passports and identification that EAC member countries are facing. The perfect advanced security technology applies to e-Passport in order to prevent a third party from illegally scanning and misusing the personal information of electronic passport. Currently, Burundi adopted this first to reinforce security for citizen's traveling abroad. The following technologies apply to e-Passport, including security technology to prevent data falsification and copy.

・ PA(Passive Authentication): To prevent data falsified

・ AA(Active Authentication): To prevent a chip copied

・ BAC(Basic Access Control): To block an attempt to take the date in a chip

・ EAC(Extended Access Control): To allow only the authorized user to have access to the important information like biometric information
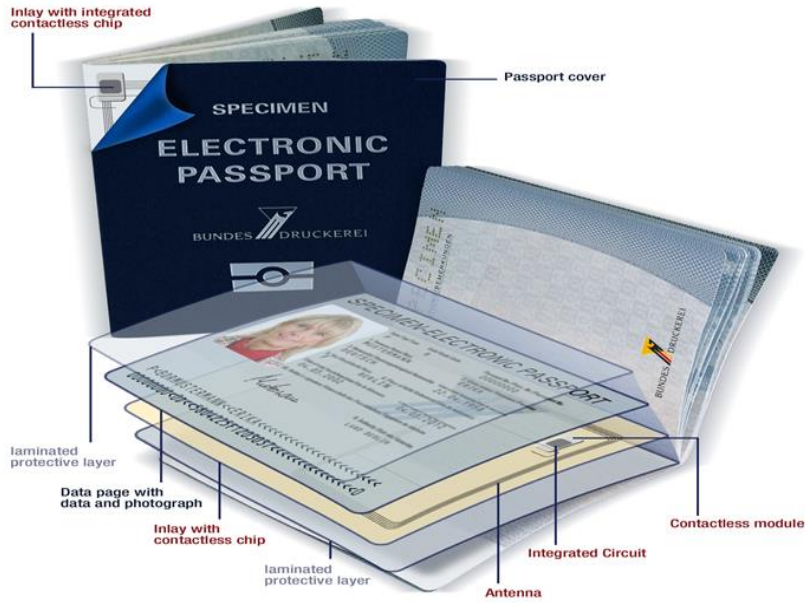
Figure 84. e-Passport features

5.3.4 Advanced Passenger Information System

The Advanced Passenger Information System (APIS) gathers information from carriers, before they arrive. The prior passenger information consists of 'place of departure/arrival', 'departure/arrival time', 'passenger/crew information'.

When buying an air ticket, a traveller provides his personal information such as passport no. to an airline. The information is transmitted to the APIS of Immigration Office linked with airline's information system in the various methods. The system checks the formality prescribed in the travel information system with the messages received from the airline, classifies standardizes the received message in the APIS and compares the commonalities. The information at that time is received in the form of UN/EDIFACT and US/EDIFACT because carriers have different standards for making a message. The standardized data is extracted and converted, and then saved in immigration integrated DB.

APIS enables the Immigration Office to receive, in advance, the passenger information from a carrier and to detect a person on a watch list for further examination, and reduces general passenger's examination time.
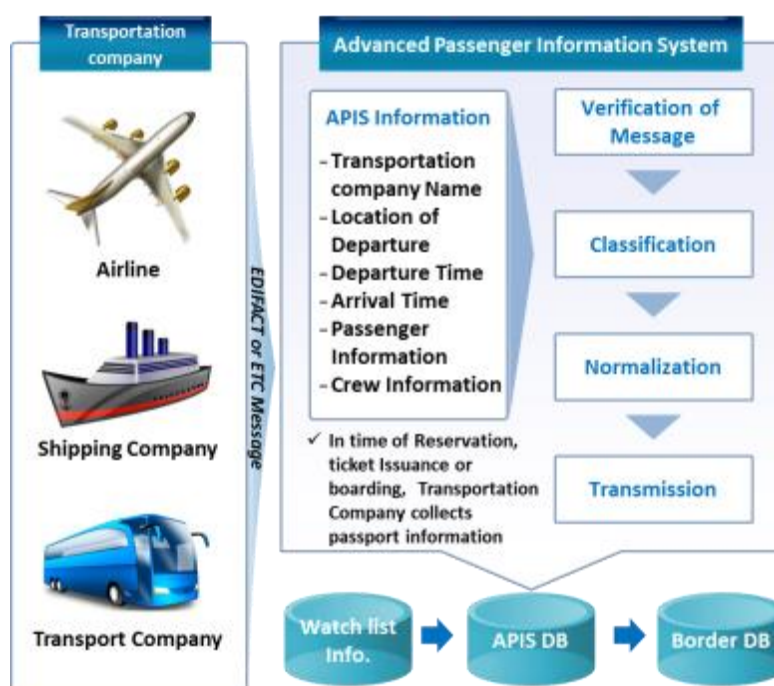

Figure 85. Advances Passenger Information System

Type	Functions	Description
Message check and classification	Message item check	・ Checking the message item of the prior passenger information received from a carrier (air, harbor, land)
	Message classification	・ Classifying UN/EDIFACT, US/EDIFACT, and other types of messages by sender carrier.
Data standardizatio	Standardization of flight schedule	・ Managing carrier's place and time of departure

n	Standardization of passenger information	・ Managing the information on a passenger and those on board
	Standardization of passenger information	・ Managing crew information
Administration	Transmission of integrated DB data	・ Transmitting into integrated DB of immigration management system
	API data monitoring	・ Monitoring a special watch list (criminal, and the person under watch)
	API statistics/analysis	・ Statistics and analysis by using the history of the prior passenger ・ Information

Table 52. **System Functions of APIS**

6 Implementation Schedule

EAC Partner States shall have a different implementation schedule to apply e-Immigration information system to each country. This study report is recommending an implementation schedule for common e-Immigration information system, and not a national level implementation schedule. The schedule plan was established on the following assumption.

6.1 Structure of schedule system

Common e-Immigration information system was developed on the assumption that all the subsystems are newly built. A plan for each nation will be defined in the national level of recommendation. It is pre supposed that the number of local offices and borders to which the system applies is 35 by average of 5 countries. This is to consider the schedule for rolling out the system to the local and border offices after the main system is constructed.

A schedule for developing common e-Immigration information system consists of three stages, preparation, service, and infrastructure.

The **preparation stage** is a schedule for performing a preliminary works, such as compilation of the related laws and systems, consultations on process improvement, and preparing project bid. After the preparation stage, the e-Immigration service will be implemented.

Service stage includes a schedule for developing the subsystems of e-Immigration information system in 3 phases. The entire development schedule is 5 years, and there's a bidding process requiring the next project to be prepared between the respective stages of the development schedule.

Infrastructure stage is a schedule for developing hardware and software systems. An introduction schedule is defined for each phase, and the network infrastructure of border offices should be set to develop in Phase I.
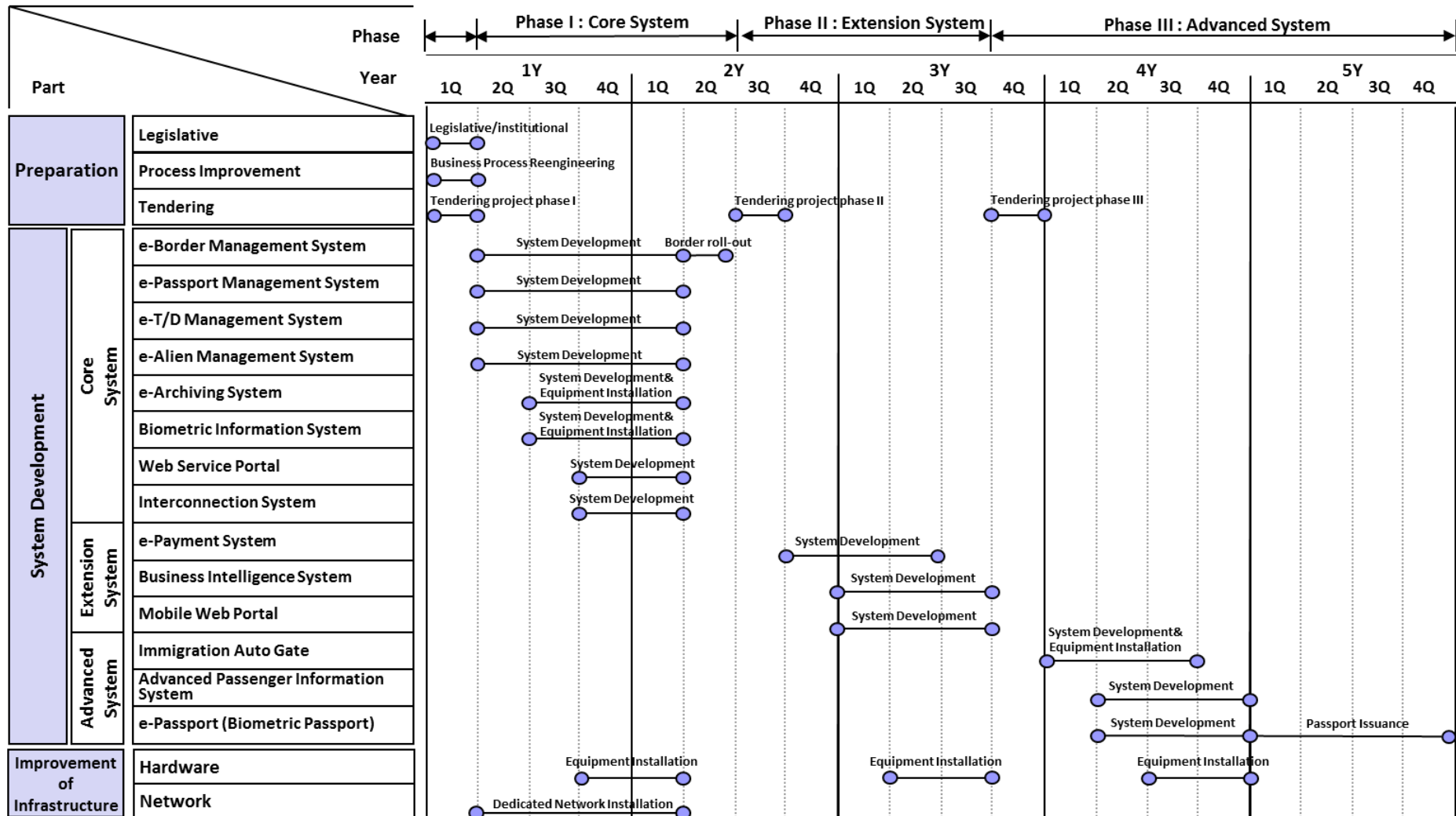
6.1 Implementation Schedule

Figure 86. Implementation Schedule

7 Estimation of Cost

7.1 Expected Total Cost

Total cost for the project totals to US$23,308,941. Total cost shall include 92% in system development (including network device), 2% in consulting service, 3% in training and 3% in operation.

Unit: US dollar

Type	Amount
1. System Development	**21,557,785**
e-Border Management System	2,923,789
e-Passport Management System	2,382,439
e-Travel Document Management System	2,366,464
e-Alien Management System	2,218,864
e-Archive System	722,582
Biometric Information System	1,045,164
Web Service Portal	688,864
Interconnection System	299,432
e-Payment System	1,768,864
Business Intelligence System	750,164
Immigration Auto-gate	1,933,731
Mobile Service Portal	450,164
Advanced Passenger Information System	427,609
e-Passport (Biometric Passport)	2,322,836
Integrated Database	769,499
Network Device	487,320
2. Consulting	**420,000**
3. Training	**611,156**
4. Operation	**720,000**
Total Cost	**23,308,941**

Table 53. **Total Cost**

7.2 Detailed total cost

7.2.1 System development cost

System development costs are divided into hardware costs and software costs based on scope of project and details are described below. Hardware required to develop the system consists of Server, network device and equipment of immigration office. Device and equipment for registration such as PC, Printer, Finger printer scanner, MRP reader are calculated by the unit cost and estimated number of units. The number of the devices and equipment are estimated on the assumption that there is 1 central centre, 5 regional centres and 35 border offices as average of EAC Partner States.

Unit: US dollar

Type	HW	SW	Total Amount
e-Border Management System	775,189	2,148,600	2,923,789
e-Passport Management System	362,939	2,019,500	2,382,439
e-Travel Document Management System	346,964	2,019,500	2,366,464
e-Alien Management System	218,864	2,000,000	2,218,864
e-Archive System	17,462	705,120	722,582
Biometric Information System	34,924	1,010,240	1,045,164
Web Service Portal	218,864	470,000	688,864
Interconnection System	109,432	190,000	299,432
e-Payment System	1,568,864	200,000	1,768,864
Business Intelligence System	34,924	715,240	750,164
Immigration Auto-gate	1,526,171	407,560	1,933,731
Mobile Service Portal	34,924	415,240	450,164
Advanced Passenger Information System	17,462	410,147	427,609
e-Passport (Biometric Passport)	52,386	2,270,450	2,322,836
Integrated Database	469,499	300,000	769,499
Network Device	487,320		487,320
Sub Total	**6,276,188**	**15,281,597**	**21,557,785**

Table 54. **System development cost**

7.2.2 Consulting cost

Consulting service is divided into "Law & Regulation", "Business Process Reengineering" and "Information Strategic Planning" to be carried out during the Phase I.

Unit: US dollar

Task	Personnel	Amount
Law & Regulation	1, 3MM	60,000
Business Process Reengineering	4, 12MM	240,000
Information Strategic Planning	2, 6MM	120,000
Sub Total		**420,000**

Table 55.   **Consulting cost**

7.2.3 Training cost

Education and training cost has been estimated for conducting basic computer education and e-Immigration system education. Training cost has been estimated for conducting basic computer education (Windows, MS-Office, etc.) and e-Immigration System education (IT professional, H/W and S/W professional).

Unit: US dollar

Type	Period and No. of trainees	Amount
Basic Computer Education	For 100 people, 2 times every week in 8 groups	180,000
e-Immigration System Education	Collective education, site education, etc.	431,156
Sub Total		**611,156**

Table 56.   **Training cost**

7.2.4 Operation cost

System maintenance support activities will be provided by 2 developers who will be based in Immigration office for 2 years. Operation costs of the activities have been calculated together with labor costs for the maintenance manpower.

Unit: US dollar

Type	Period and Manpower	Amount
Maintenance Service Cost	24 month * 2 persons	720,000

Table 57.   **Operation cost**

7.3 Required Cost by Year

According to the project implementation schedule, required cost by phase is calculated as follows:

Unit: US dollar

Type	Phase I	Phase II	Phase III	Total
1. System Development	13,904,417	4,452,759	3,200,609	21,557,785
e-Border Management System	2,923,789			2,923,789
e-Passport Management System	2,382,439			2,382,439
e-Travel Document Management System	2,366,464			2,366,464
e-Alien Management System	2,218,864			2,218,864
e-Archive System	722,582			722,582
Biometric Information System	1,045,164			1,045,164
Web Service Portal	688,864			688,864
Interconnection System	299,432			299,432
e-Payment System		1,768,864		1,768,864
Business Intelligence System		750,164		750,164
Immigration Auto-gate		1,933,731		1,933,731
Mobile Service Portal			450,164	450,164
Advanced Passenger Information System			427,609	427,609
e-Passport (Biometric Passport)			2,322,836	2,322,836
Integrated Database	769,499			769,499
Network Device	487,320			487,320
2. Consulting	420,000			420,000
3. Training	458,088	89,055	64,012	611,156
4. Operation		360,000	360,000	720,000
Total	14,782,505	4,901,814	3,624,621	23,308,941

Table 58.   **Cost by Year**

8   Proposed Funding Sources

There are several methods/sources for funding the project, including among others, AfDB, World Bank and developed countries such as ODA, securing capital through tax collection fund raising, and financing through financial companies.

Resource mobilization Methods for EAC Partner States to secure budget are proposed below, and the appropriate measures can be selected depending on the characteristics and period of the project for establishing e-Immigration information system:

8.1   Domestic Efforts

Some of Immigration Departments of Partner States are financially dependent on the parent Ministries. In that case, the ministry level or perhaps the office of president or other central government might provide or support the Immigration Department in terms of financial resources (e-Government fund). But, other Immigration Departments are autonomous administration agencies relying on their own revenues including application fee. The Immigration Department needs to raise the funds or it has to allocate the funds to initiate its own e-Immigration project.

8.2   ODA (Official Development Assistance)

The Immigration Department may search for external ICT fund through ODA (Official Development Assistance). OECD Development Assistance Committee (DAC), formed by central/regional government, government agency or public organization of granting countries, grants loans, donations and technology support to developing countries or international organization for economic development and improved welfare known as ODA.

8.2.1   Bilateral ODA

Assisting country supports beneficiary country (developing country) directly by providing assistance fund or commodity goods free of charge or with compensation.

- Free grant: beneficiary country is granted with cash or goods without any financial obligation. In other words, developing country does not have the obligation to pay back.

- Grant with compensation: beneficiary country is granted with cash or goods with financial obligation. In other words, developing countries must fulfill their obligation to pay back the granted fund.

A.   Grant aid and Technical Cooperation from KOICA

The government of Korea provides bilateral and multilateral aid. Korea International Cooperation Agency (KOICA) is an umbrella agency of the Ministry of Foreign Affairs and Trade. It provides grant aid and technical cooperation. KOICA offices are located in each

Partner State of EAC. KOICA's grant aid and technical cooperation is a good source for IT project funding.

A survey request is required, and to initiate this process, it is necessary to fill out the KOICA's "project request form." It is recommended starting in next March; States who intend to join should start to make the request proposal. This F/S report contains most information that is required for the request form. In addition, step-by-step guidance will be provided from the F/S consultants.

B. EDCF (Economic Development Cooperation Fund from KEXIM bank)

EDCF is a bilateral ODA loan program to help developing countries spurt industrial growth and improve economic stability, as well as to encourage development of a sound economic relationship between Korea and other countries.

In terms of economic infrastructure assistance, among other fields, EDCF has emphasized the importance of reducing the "digital divide" by seeking ways to assist developing countries in their development of the information technology (IT) industry.

Loans to foreign governments are implemented in accordance with a standard procedure, which starts with project identification then proceeds to preparation, appraisal, loan negotiation, loan agreement, project implementation and supervision, and ends with the evaluation of completed projects.

- ・ Terms and Conditions for EDCF Loans

    - Loan Amount : Up to 80% of the total project cost

    - Interest Rate : 0.5% ~ 3.0%

    - Repayment Period : Up to 30 years, including a maximum 10 year grace period

    - Denomination : Korean Won

8.2.2 Multilateral ODA

Assisting countries indirectly support the beneficiary countries through financing or donations (contributions) from international development organization such as the World Bank, AfDB, UNDP etc. or through confessional loans of international bodies.

A. AfDB

AfDB provides financing for projects that will effectively contribute to the economic and social development of the country concerned and have the strongest poverty reduction impact in conformity with the country and AfDB strategies.

As one of participant in this project, AfDB would support to guide financial plan after study. They are involved this project from initial development. The integration of immigration information system in EAC region is one of project which AfDB has interested in. The

project for regional bloc like EAC has priority to receive the board approval. Because project purpose pursuits AfDB's strategy which include 'regional integration'.

Loan to partner government is implemented in accordance with a standard procedure, which starts with project identification then proceeds to project preparation, appraisal, loan negotiation, board approval, loan signing, Loan effectiveness, implementation and post evaluation.

B. **World Bank**

The World Bank is a vital source of financial and technical assistance to developing countries around the world. It is made up of two unique development institutions owned by 184 member countries—the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). Each institution plays a different but supportive role in our mission of global poverty reduction and the improvement of living standards. The IBRD focuses on middle income and creditworthy poor countries, while IDA focuses on the poorest countries in the world. Together they provide low-interest loans, interest free credit and grants to developing countries for education, health, infrastructure, communications and many other purposes.

9 Recommendations for implementation

Through EAC environmental analysis and the immigration status analysis, a model for common e-Immigration information system and an implementation plan are established. Next is to construct EAC common e-Immigration information system. EAC common and national levels of recommendations are presented to successfully construct system.

9.1 Common Recommendations

To systematically introduce e-Immigration information system into EAC 5 countries, EAC common recommendations are shown as follows:

o Common e-Immigration information system consists of the core systems, such as passport, travel document, alien management, and border management. The core system shall be developed initially, consideration will be made to introduce extension and advanced systems.

o Information sharing mechanism including common system, similar data structure, and form standardization should be developed for sharing among the Partner States.

o The border management system with a mix of PISCE and PIRS and others should be integrated into Border Management System for integrated management.

o Alien management function for offering convenience to foreigners and the information system for foreigner registration and residence management should be added.

o The working process should be redesigned in terms of work flow efficiency. Based on this, To-Be system should be developed.

o Application form and E/D Card should be developed into a document that is usable by OCR , and the data is captured through OCR without personal input into system.

o All types of paper used in the immigration processes should be digitalized, archived, and managed, and the physical document could only use for evidence.

o The immigration service for citizens should be linked with National ID, and the information on application form and attached documents should be minimized.

o The system should be connected to local offices and central offices, automate the processes, and minimize the number of documents.

o Personal identification should be executed by using biometric information, and not identification number.

o Power and networking systems should be provided in advance at over the border offices. The central office should be linked with border offices, and all immigration information

should be used for immigration clearance.

○ Immigration Office should put in place a separate ICT department, and reinforce organizational capability for planning, developing, service operation, and maintenance to develop a systematic plan and investment for ICT.

○ Implementation of project should focus on applying a common system framework and adapting open source software to reduce implementation cost and secure own technology.

9.2   National level Recommendations

The government should evaluate and determine necessity for introducing the common e-Immigration system presented in this report. Further, priority should be determined in consideration of the scope for introduction and cost, and develop a national level of implementation plan.

In view of the above, national level recommendations are given for each nation's introduction of common e-Immigration information system.

9.2.1   Recommendation for Uganda e-Immigration

The recommendation for e-Immigration for Uganda is that the government should lay emphasis on adopting the system for improving the working environment and applying a paperless system. Therefore, it is recommended in Phase I that common e-Immigration information system be introduced generally. Then, with the introduction of National ID and e-Passport, personal identification system should be strengthened.

○ First of all, OCR-based e-Archiving system should be adopted, and digitalize the existing data by data migration, and make the existing physical files. The Immigration and Passport Registries should be integrated and OCR-based e-Archiving System should be adopted.

○ National ID project should be revitalized to capture bio data and vital statistics of all citizens of Uganda. This should be linked to Passport Issuing Information System to ensure data integrity.

○ Immigration Database System should be transformed into a travel document management system linked with e-Archiving system.

○ Passport information system is a passport personalization system, and should be employed and connected. Establish e-Visa Information Issuing System and avail visa application procedures online.

o Border Information Management Systems should be Installed at the borders that still lack electronic border control tools.

o National immigration website is well-built to provide information, but should offer online service in connection with newly introduced e-Immigration system.

o Establish a fully-fledged ICT Section in the hierarchy of the Directorate of Citizenship and Immigration Control and mainstream ICT activities in the overall budgetary framework.

9.2.2   Recommendation for Rwanda e-Immigration

The existing system in Rwanda is well-built and works well, so a selective application is better than general introduction of new system. It's good to employ interconnection system and to guarantee the connectivity between the existing and new systems. It is recommended that Phase I shall add the alien management system and that Phase II will introduce e-Passport system and business intelligence system.

o Rwanda is upgrading biometric-based border management system, which will allow integrated personal identification that could be applied to citizens and foreigners in case of travel document.

o The Interconnection system should be introduced to connect data among internal and external systems.

o The introduction of passenger information system should be reviewed to reinforce the immigration security at the airport.

o Passport issuing system should be integrated with Laissez-passer Issuing System, and a single travel document management system is required.

9.2.3   Recommendation for Burundi e-Immigration

Burundi Immigration Office executes the processes with the system, but needs a connection with borders and external systems. The infrastructure of border offices without/limited power and networking should be improved first.

The existing Burundi immigration system needs improvement, excluding the passport issuing system. Accordingly, it is recommended that Phase I shall afresh and generally introduce common e-Immigration information system. It is desirable to consider adopting the immigration Auto-Gate linked with e-Passport.

o Passport issuing system is a passport personalization system, so passport management system shall be adopted and linked afresh.

  o PIRS is not used, and the Check 121 is the system to verify e-Passport. So, it's necessary to introduce new border management system.

  o Visa issuing system is used only for sticker printing, and the travel document management system should be constructed to systematically administer visa issuance information.

  o Laissez-Passes shall be issued in the same form as passports, and it should be integrated with the passport issuing system as a single management system.

  o The website of Immigration Office is not made, so the services for immigration policy and other useful information are urgent.

  o All the systems and hardware of the immigration offices depend on a private company. It's necessary for the ICT department to develop its capability of management.

9.2.4 Recommendation for Kenya e-Immigration

Kenya should put emphasis on modernizing borders and improving the work flow of Immigration Office in order to control broad and long borders. Phase I should improve working process first, and it is recommended that common e-Immigration information system shall be adopted. Under Phase II introduction of a stronger border security system like e-Passport and advanced passenger system it is recommended.

  o First, the workflow procedures should be improved, and the reengineering process for a paperless system should be put in place then, it's desirable that process of automation and integration should proceed.

  o File movement system is used to archive and distribute documents; therefore, the automation process should be improved through introduction of OCR-based e-Archiving system based on workflow.

  o Permit management system is aged, so the travel document management system should be developed to allow integrated management issuance of visa and permit.

  o Passport issuance system is well-used, but inefficiently linked with file movement system. So, the passport management system should be improved and linked with e-Archiving.

  o The information needed for developing an immigration policy should be extracted by developing the management system of travel document and alien and by systematically managing foreigner's skill inventory.

  o The improvement of border infrastructure should be put in place because most of borders are not equipped with power systems and not networked with other

systems.

- o The immigration clearance system should be reinforced at all the borders in order to address border control and security issues by developing biometric-based border management system.

9.2.5 Recommendation for Tanzania e-Immigration

Tanzania shall focus on modernizing borders and improving the workflows of Immigration Office to control broad and long borders. Phase I should first improve the work processes, and then implement a common e-Immigration information system. Under Phase II introduction of the Auto-Gate is recommended for better convenience at the airport and adoption of stronger border security system like e-Passport and advanced passenger system.

- o It's desirable that improvement of paperless processes should be put in place because manual work is mixed with various systems, followed by process automation process and system integration.

- o The integrated management system for issuance information should be developed and installed in Dar es salaam and Zanzibar.

- o Saperion is used to archive documents, but has no OCR function. So, a new e-Archiving system or extension of OCR function should be considered. In addition, a connection method with other systems should be put in place.

- o Passport Issuing System is a passport personalization system, so passport management system should be adopted and linked afresh.

- o Visa administration system and the upgrading permit management system should be integrated into the travel document management system for integrated management of issuance information.

- o Online immigration service should be put in place by connecting travel document management system with web portal service.

- o Serviceability on Airport immigration should be upgraded in consideration of intersystem connection by improving airport visa issuing and immigration processes.

- o Stable power supply and networking should be put in place for information connection between local offices and borders.

Part 5. Consideration

1 **Training Plan**

2 **Project Management**

3 **Implementation Organization**

4 **Operation & Maintenance Plan**

Part 5. Consideration

1   Training Plan: Training Subject and Content

The successful Informationization of the Immigration Department requires consensus of all stakeholders in the Immigration Department. Immigration There is need to build capacity of the IT department and the required skills for personnel to effectively support the planning and operationalization of the proposed immigration systems. Further, the e-Immigration Information system users should be training in relevant IT skills to support their work.

Immigration Departments should develop a training policy, and strategy to guide the capacity building process.

Course content for Administrators and Immigration Officers may include the following:

- Basic computer and IT application skills
- e- Immigration Information system processes and implementation direction
- Roles of Immigration Officers and their participation during system implementation
- Components of the e- Immigration Information system and their usage
- IT project management plan

Course content for IT Personnel:

- Application S/W Area
- S/W engineering and System analysis and designing technique
- Programming language (development language)
- Server and Local Network Area (LAN)
- Fundamentals of System & Network
- System & Network Administration
- Troubleshooting & Performance Tuning
- System S/W Area
- Database Architecture & Administration
- Programming with DBMS
- Acquisition of Latest IT trend and technology
- Benchmark overseas best practices

2 Project Management

Successful design and implementation of the e- Immigration Information Project requires the application of an Integrated Projected Management Methodology in order to ensure a consistent process from system analysis design to the application test stage.

Figure 87. Project management area

Project Management should consist of a well-defined systematic process in order to plan, observe, monitor, and control inter-related tasks. The overall goal can be achieved with the provided budget, time, resources, and technical limitation through this process. The integrated project management consists of four stages: initiation, planning, execution & control, and completion.
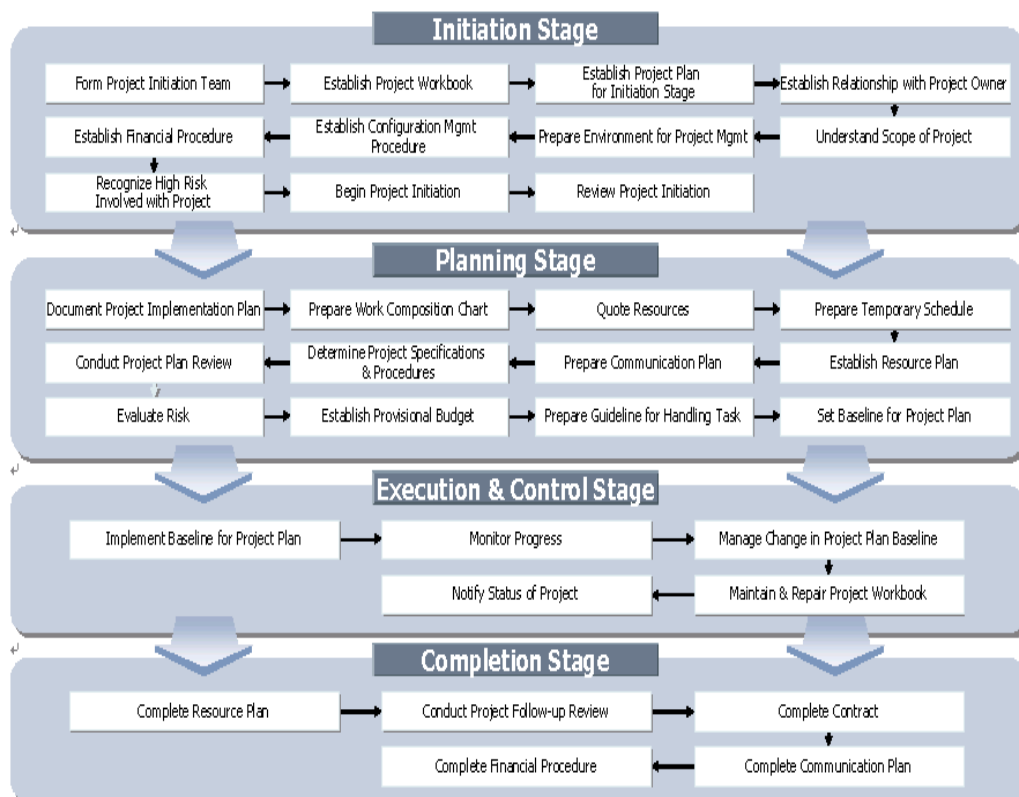
Figure 88. Project management methodology

3 Implementation Organization

Implementing the e-Immigration information system requires proper organisation by putting in place various Committees and spelling out their roles and responsibilities. Informationization of the Immigration department is a long-term big venture, which results in changes of the current work processes. Therefore, it is may be necessary to outsource professional expert services to develop part of the system.

A. **Roles and Responsibilities(R&R)**

Roles and responsibilities should be clearly spelt out from the initial stage.

- **Project Steering Committee**: a standing investigation committee, that coordinates various departments and handles issues as they arise, makes decisions on the way forward and manages the system integrator.

- **Advisory Committee**: providing advisory service in areas such as the revision of laws and regulations, establishment of information infrastructure, implementation of software and standardization, and strategies.

- **Legal Committee**: responsible for revision of laws and regulations, and systems improvement

- **Systems Committee**: Responsible for system establishment and operation in liaison

    With the system Coordinator

- **Education and Publicity**: responsible planning, developing and executing the training strategy.

- **Systems Coordinator**: Overall in charge of the implementation of e- Immigration Information systems.

4 Operation and Maintenance Plan

A technology transfer plan that guarantees reliable and stable operation of the newly established computerized system (server, system software and network equipment), should be put in place. This will entail among others for the outsourced developer and the internal develop working together as well as train key staff in the operation and maintenance of the system.

A. **System Control and Management**

Continuous control & management will be required to ensure that the new system operates smoothly, by promptly coping with abrupt errors as well as preventing excessive network traffic.

- ・ Server Control & Management will include
    - ⁻ Monitoring the performance and error status of all servers by establishing management server at data center
    - ⁻ Collecting CPU performance, memory usage and various event messages
    - ⁻ Detecting an error on real-time basis and take measures against the error
- ・ Network Control & Management: NMS (Network Management System) system
    - ⁻ Monitor the status of the line and equipment operation on a real-time basis
    - ⁻ Detect an error on real-time basis and take measures against the error

B. **Maintenance Plan**

A maintenance plan is required to guide the maintenance of the whole system. Quality standards should be developed and agreed upon in the early stages of developing the system.

- ・ Maintenance activities
    - ⁻ Set up maintenance system to efficiently manage a variety of application software, computing equipmentsnetworks and system software.
    - ⁻ The developer should support the operation and maintenance of the system for a certain period of time
    - ⁻ To secure prompt maintenance and repair of the system

C. **Disaster Recovery Plan (DRP)**

In preparation for unexpected disasters, a backup and recovery plan should be put in place. Pilot and mock tests should be continuously conducted to verify the appropriateness of the plan thus securing fast recovery.

- ・ Backup recovery plan

- Prepare for the materials and computing resources required for backup and recovery

- Appoint a master manager responsible for backup and recovery

- Set up priorities and then effective backup & recovery procedure

· Pilot Test

- Prepare for the pilot test in preparation for possible disaster

- Verify the appropriateness of the plan and, if required, correct the plan

D. **Risk Factors**

○ **Resistance factors**

· Resistance against the Informatization

- Some of the employees may be resistant changes such the automated work processing;

- No-paper work may result in maladjustment to the new system thus leading to confusion and degrading the system effectiveness.

- The resistance may be strengthened by lack of information.

○ **Undertakings**

· Perform both existing and new work processes simultaneously for a certain period of time

- Develop friendly user interface and encourage the users to use the system

- A Manual to guide Work Processing should be developed

Appendix

Appendix

1 Terms of Reference

EAST AFRICAN COMMUNITY SECRETARIAT

DRAFT TERMS OF REFERENCE FOR DEVELOPMENT OF IMMIGRATION INFORMATION SYSTEMS

1. Background

1.1 EAC Treaty

The Treaty for the Establishment of the East African Community (EAC) was signed in November 1999 and entered into force in July 2000.The Treaty outlines the stages of our integration, with the Customs Union being the first entry, followed by a Common Market, closely followed by a Monetary Union and ultimately a Political Federation.

In accordance with the provisions of the Article 5(2) of the Treaty and more specifically from Article 76(1), the EAC negotiated and signed a protocol on Common Market on 20 November 2009. The Protocol provides for:

the free movement: of goods, persons, labour, services and capital. It also provides for the right of establishment and residence.

1.2 The EAC Development Strategy 2011-2016

The EAC Development Strategy 2011- 2016 - Section 4.2.2, has prioritized among others, the full implementation of the Common Market Protocol. Harmonization of systems of Partner States to conform to the Common Market Protocol is among the proposed interventions of the strategy.

1.3. EAC Regional e-Government Framework

E-Government is one of the priority areas of the EAC and its e-Government Framework **vision** is stated as:

"Quality and consistency in public service delivery, in order to satisfy citizens' expectations of new standards of service provision that allow greater regional integration and economic development".

The strategy identifies the following **priority action areas**; Customs and Immigration controls, e-Parliament, e-Health, e-Banking, e-Procurement, e-Commerce and e-Tourism, Meteorological and Tidal information.

1.4 The EAC Regional e-Immigration Initiative

The First EAC Regional e-Immigration Workshop that was held 3rd – 4th December 2007 is the commencement of the planning phase to embark on the implementation of the EAC Regional e-Immigration as one of the priority areas under the EAC Regional e-Government Strategy.

The main objective of the workshop was to examine, consolidate, share views, experiences and extend the existing consensus in East Africa regarding e-Immigration as one of the strategic priorities for the EAC Regional e-Government Strategy Framework.

The Workshop noted:
- EAC border posts are still primarily organized on a national basis, reflecting the legacy of controlling borders within Partner States. For information sharing to be efficient, there is a need to streamline and computerize data and information collection, processing, storage and sharing among stakeholders both at national and regional levels.

- Countries seem to be developing their own e-Immigrations systems and this has preceded the development of a framework and standards that would ensure harmonization of e-Immigrations systems within the EAC community

In view of the proposed establishment of the EAC Common Market, there is a need to adopt necessary accelerated border control information technology programs with the goal of creating a common security space.

This calls for a common visa policy, harmonization of polices to deter illegal migration and an automated Customs and Immigration Information System (CIIS) to coordinate actions among the concerned departments of EAC partner states.

The CIIS will manage data on illegal migrants, lost and false travel documents and wanted or missing persons and it will store digital images and biometric data and answer police requests more effectively.

2.0 Development of e-Immigration Information Systems

Development of e- Immigration Information Systems was identified as one of the five priority areas that will facilitate the Common market integration. Development of the systems would require a consultant to carry out a comprehensive systems situation analysis study on the existing information systems.

2.1 Strategic Interventions:

i)   Automated Immigration Information System (IIS) to coordinate actions among the concerned departments of EAC partner states. This to include data management on illegal migrants, lost and false travel documents and wanted or missing persons, storing digital images and biometric data and answering police requests more effectively

ii)   Information Sharing - need to streamline and computerize data and information collection, processing, storage and sharing among stakeholders both at national and regional levels Systems

iii)   Integration of existing systems such as customs, national identification, health, tourism, security, etc.

iv)   Computerization of national level Immigration Registries

3. DESCRIPTION OF THE ASSIGNMENT

3.1 Global Objective

The main objective is to develop harmonised e- immigration information systems for the East African Community (EAC) Region.

3.2 Specific Objectives

i)   To review the existing Immigration Information Systems in the EAC region-

ii)   To propose a solution for harmonizing and standardizing the existing Immigration information systems

iii)   To provide a framework for operationalization of the Information systems

3.3 Scope of Work

i)   Conduct a comprehensive situational analysis of existing information systems in Immigration Departments, including the hardware, software,
ii)   Review the existing systems, and make   recommendations on the appropriate systems, with the aim of harmonising the systems across the region
iii)   The assignment covers five Partner states; Uganda, Kenya, Tanzania, Rwanda and Burundi

3.4   Tasks

i)   Carry out a situational analysis of existing Immigration information systems in the 5 Partner sates;

ii)   Analyse and Review the existing Immigration information systems

iii) Identify key stakeholders and their respective roles in management of information systems

iv) Make recommendations for harmonization and implementation of the proposed Information systems

v) Review and make recommendations of how existing systems such as customs, health, tourism, etc could be integrated

vi) Propose technical solutions for the Information systems - hard and soft ware specifications as well as bandwidth requirements

vii) Propose a mechanism for effective coordination, management and maintenance of the Information systems

viii)   Facilitate a regional stakeholders workshop

4.0 Approach and Methodology

i. A participatory approach and consultative methodology to gather data from the Partner States
ii. Consult the EAC Secretariat
iii. Questionnaires to be used during study visits and consultative meetings to Partner States
iv. Be guided by the:
   - The Treaty for Establishment of the East African Community
   - EAC Development Strategy
   - EAC Regional e-Government Strategy
   - E- Immigration Stakeholders Workshop Report
   - Chiefs of Immigration/ Technical Working group Reports
   - Any other relevant information from international best practices;

v. desk research on background information including existing e-immigration initiatives among EAC Partners States and Regional and international best practices;

vi. Present a draft report to a Regional Stakeholders validation Workshop ;

vii. Present the Final draft Report to the EAC Secretariat

5.0 Deliverables

i) Inception Report
ii) Draft report
iii) Stakeholders Workshop Report
iv) Final report

6.0 Qualifications for the consultant(s)

The firm should have expertise in the following fields:

- Systems analysis and design
- Experience in e-government initiatives
- A proven track record

7.0 Time frame

The contract Period will run for **two months** from the date of signing the contract.

2 Site Activity Report

1. Uganda

1.1 Site Activity Report_27th Aug 2012_Kampala, Uganda

1.1.1 Greeting & organizing the brief meeting

Time	09:40 ~ 10:20	Location	Immigration office, Kampala
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Uganda)	Robert Muwazi (Senior Immigration Officer, a member of Technical working group for e-immigration)	
Activities	- Greeting & preliminary meeting - Immigration office of Uganda organized the official brief meeting. 		

1.1.2 Site survey_work permit office in immigration office

Time	10:20 ~ 11:00	Location	Immigration office, Kampala
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Uganda)	Robert Muwazi (Senior Immigration Officer, a member of Technical working group for e-immigration)	
Activities	- The NIPA consulting team & EAC with Immigration officers of Uganda surveyed the front office for registry and delivery of work permit. - The team conducted short-time interviews with immigration officers who have the charged of the work permit. 		

1.1.3 Briefing Meeting

Time	11:00 ~ 12:20	Location	Immigration office, Kampala
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Uganda)	Kahwa Kato R.(Principle Immigration Officer/Passport control), Robert Muwazi(Senior Immigration Officer/Passport control), Nankya Fatuma(Immigration Officer/Work Permit), Jacob Siminyu(Senior Immigration officer/Work permit), William Ngonde(Ass. Commissioner/Citizenship & passport), Kalyango Mark(Record official/Work Permit), Kisembo Eunice(Principle Immigration Officer/Legal & Public relations), Agnes Igoye(Senior Immigration officer/Training Coordinator), William Barigye(Immigration Officer/Legal & Public relations)	
Activities	- The NIPA consulting team & EAC with Immigration officers of Uganda held an official Briefing Meeting. - The NIPA consulting team did a presentation for the introduction of the feasibility study. - Immigration office of Uganda recommended designing the independent & practical To-Be Model of Immigration Information System. - The NIPA consulting team distributed the questionnaire and explained how to answer. - The NIPA consulting team & EAC with Immigration officers of Uganda discussed the schedule and location to visit. 		

1.1.4 Interview_Passport management

Time	12:20 ~ 13:00		Location	Immigration office, Kampala
Participant	EAC	Sarah Kagoda-Batuwa		
	NIPA	Jaesuk Lee, Gisoo Lee, Wookhwan Kim		
	Immigration office (Uganda)	William Ngonde(Ass. Commissioner/Citizenship & passport)		
Activities	- The NIPA consulting team conducted an interview with Immigration officer who charged of passport management. - The officer explained the process and issues of passport management. 			

1.1.5 Site survey_Border office in Entebbe International Airport
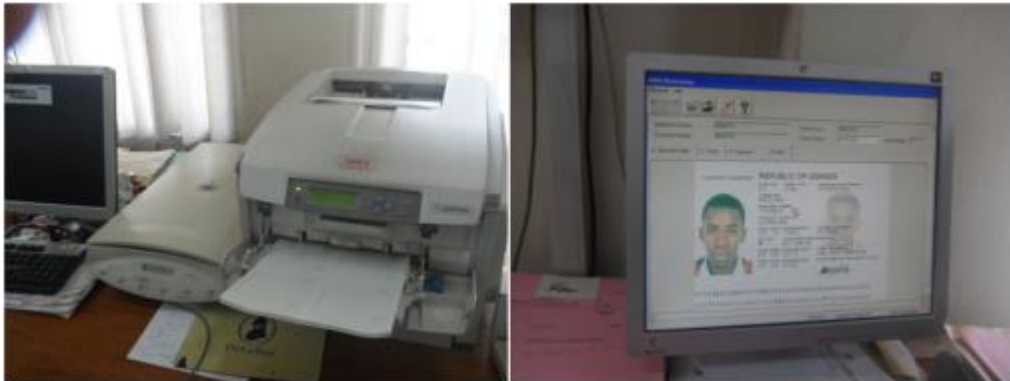
Time	16:20 ~ 18:00		Location	Entebbe International Airport, Entebbe
Participant	EAC	Sarah Kagoda-Batuwa		
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim		
	Immigration office (Uganda)	Mundeyi Simon Peter(Senior Immigration Officer/Entebbe border) Kahwa Kato R.(Principle Immigration Officer/Passport control), Agnes Igoye(Senior Immigration officer/Training Coodinator)		
Activities	- The NIPA consulting team & EAC with Immigration officers of Uganda surveyed the Kampala International Airport. - The officer who has charge of Airport border explained the process & information system of airport. - The NIPA consulting team collected the requirements & issues and visited the server room of PISCES system in Airport. 			

1.2 Site Activity Report_28th Aug 2012_Kampala, Uganda

1.2.1 Cooperative Meeting of NITA(National Information Technology Authority Uganda)

Time	09:00 ~ 10:10	Location	NITA office, Kampala
Participant	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Uganda)	Agnes Igoye(Senior Immigration officer/Training Coodinator)	
	NITA	Julian Rweju(Business Analyst/ julian.rweju@nita.go.ug), Dr. Fredrick Kitoogo(Director, Planning, Research & Development/ Fredrick.kitoogo@nita.go.ug), Samuel Muhanguzi(Manager portfolio/ Samuel.muhanguzi@nita.go.ug), Allan Kizito(Web solution Architect/ allan.kizito@nita.go.ug), Richard Obita(Standard Officer/ richard.obita@nita.go.ug)	
Activities	- The NIPA consulting team with Immigration officers of Uganda had a cooperative meeting with NITA officers. - NITA recommended reflecting and harmonizing the existing policy & system of Uganda. - NITA hoped to participate in the TFT or workshop of this project. 		

1.2.2 Site survey_the Strong Room(Passport manufacturing room)

Time	11:20 ~ 12:10	Location	Immigration office, Kampala
Participant	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Uganda)	William Ngonde(Ass. Commissioner/Citizenship & passport), Kahwa Kato R.(Principle Immigration Officer/Passport control), Agnes Igoye(Senior Immigration officer/Training Coodinator)	
Activities	- The NIPA consulting team with Immigration officers of Uganda surveyed the strong room of passport issuing. - The officer who has charge of passport issuing explained the process & information system. - The NIPA consultant team checked the provider of printer & booklet. 		

1.2.3 Interview_Work permit management

Time	12:10 ~ 12:50	**Location**	Immigration office, Kampala
Participant	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Uganda)	Ssali K. Harrison(Senior Immigration officer/Work Permit Issuing) Agnes Igoye(Senior Immigration officer/Training Coodinator)	
Activities	- The NIPA consulting team conducted an interview with Immigration officer who charged of work permit management. - The officer explained the process and issues of work management. - The officer also recommended designing the model to remove the hardcopy document. 		

1.2.4 Site survey_Port Bell

Time	14:10 ~ 15:20	**Location**	Immigration office, Port Bell
Participant	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Uganda)	Orom Tony(In charge of Port Bell,0772419039), Akello Joesephine (Senior Immigration Office/ akellojosephine84@gmail.com)	
Activities	- The NIPA consulting team & EAC with Immigration officers of Uganda surveyed the Port Bell. - The officer who has charge of Airport border explained the process of issuing the travel document & temporary document. - The NIPA consulting team collected the requirements & issues. 		

1.3 Site Activity Report_29th Aug 2012_Kampala, Uganda

1.3.1 Site survey_ Records Centre(Server Room)

Time	10:30 ~ 11:10	Location	Immigration office, Kampala
Participant	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Woohhwan Kim	
	Immigration office (Uganda)	Kahwa Kato R.(Principle Immigration Officer/Passport control)	
Activities	- The NIPA consulting team with Immigration officers of Uganda surveyed the Record Centre. - The NIPA consultant team checked the specification of server, Back-up & N/W devices. 		

2. Rwanda

2.1 Site Activity Report_30th Aug 2012_kigali, Rwanda

2.1.1 Greeting & the Cooperative meeting

Time	10:00 ~ 10:50	Location	Ministry of EAC, Kigali
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Woohhwan Kim	
	Ministry of EAC (Rwanda)	NDACYAYISENGA Jean de Dieu (Infrastructure Professional)	
Activities	- The NIPA consulting team & EAC had a cooperative meeting with Ministry of EAC. - EAC explained the introduction & purpose of the feasibility study. - MINEAC recommended reflecting and harmonizing the existing policy & system of Rwnada - The NIPA consulting team & EAC asked the active cooperatives for conducting the site study of Rwanda.		

2.1.2 The Brief Meeting

Time	11:10 ~ 12:30		Location	Immigration office, Kigali
Participant	EAC	Sarah Kagoda-Batuwa		
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Woohhwan Kim		
	Immigration office (Rwanda)	**Name**	**Title**	**e-Mail**
		Eric BYUKUSENGE	ICT Officer/SES	eric@migration.gov.rw
		Pascale MUGWANEZA	ICT Officer	pascale@migration.gov.rw
		Franco NKURIYINGOMA	Immigration Officer	franconk@migration.gov.rw
		Ange SEBUTEGE	CCC (Customer Care	Pro@migration.gov.rw

			Communication)	
		Jean Pierre NKUNZURWANDA	International Relation	peter@migration.gov.rw
Activities	- Greeting - The NIPA consulting team & EAC with Immigration officers of Rwanda held an official Briefing Meeting. - The NIPA consulting team & EAC did the presentation for the introduction, purpose of the feasibility study. - Immigration office of Rwanda explained the service, function and organization of the office. - The NIPA consulting team distributed the questionnaire and explained how to answer. - The NIPA consulting team & EAC with Immigration officers of Rwanda discussed the schedule and location to visit. 			

2.1.3 Interview_Visa/permit management

Time	12:30 ~ 13:20	**Location**	Immigration office, Kigali
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Rwanda)	Franco NKURIYINGOMA, Ange SEBUTEGE, Jean Pierre NKUNZURWANDA	
Activities	- Immigration office of Rwanda explained the type, process of visa/permit work. - Immigration office of Rwanda explained the information on webpage. 		

2.1.4 Site survey_Border office of Nemba(One Stop Borer Post)

Time	15:50 ~ 16:40	**Location**	Border post, Nemba
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office	Peter XXXXX(in charge of Nemba post), Eric BYUKUSENGE, Pascale	

	(Rwanda)	MUGWANEZA, Jean Pierre NKUNZURWANDA	
Activities	- The NIPA consulting team with Immigration officers of Rwanda surveyed Nemba border post. - Immigration officer who has charged in Nemba post explained the process of immigration and facilities & information system in Nemba post. - Immigration office of Rwanda recommended model would facilitate the OSBP. 		

2.2 Site Activity Report_31st Aug 2012_kigali, Rwanda

2.2.1 The site survey_ Visa/permit registration office

Time	09:00 ~ 09:40	**Location**	Ministry of EAC, Kigali
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Ministry of EAC (Rwanda)	Eric BYUKUSENGE, Pascale MUGWANEZA	
Activities	- The NIPA consulting team with Immigration officers of Rwanda surveyed the front office for registry of Visa/Permit. - Immigration officer explained the process & information system for registry of visa/permit. - Immigration officer explained the introduction of passport and issuance of Lassez-passer. 		

2.2.2 The interview_ Passport/Border management

Time	09:40 ~ 11:20	**Location**	Immigration office, Kigali
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Rwanda)	Eric BYUKUSENGE, Pascale MUGWANEZA, Ange SEBUTEGE	
Activities	- The NIPA consulting team conducted an interview with Immigration officer who charged of ICT.		

	- The officer explained the process of passport/permit/alien/border management. - The officer explained the application service provided on website and the information system of Passport Issuing System and Visa Issuing System.		

2.2.3 The interview_Director General

Time	15:30 ~ 16:20	Location	Immigration office, Kigali
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Rwanda)	Anaclet Kalibata(Director General), Eric BYUKUSENGE, Pascale MUGWANEZA, Ange SEBUTEGE	
Activities	- The NIPA consulting team & EAC explained the overview, purpose and schedule of this feasibility study. - The Director recommended the model would consider not only the harmonizing system but also policy. - The Director recommended the proposed system would consider the OSBP 		

2.3 Site Activity Report_1st Sep 2012_kigali, Rwanda

2.3.1 Site survey_ Kigali International Airport

Time	05:00 ~ 05:40	Location	Kigali International Airport, Kigali
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Ministry of EAC (Rwanda)	Utai Africa(Immigration Officer in Charge of Kigali Airport)	
Activities	- The NIPA consulting team with Immigration officers of Rwanda surveyed the border post in Kigali International Airport. - Immigration officer explained the immigration process in Airport - Immigration officer explained the e-Gate & Advanced Passenger Clearance System.		

3. Burundi

3.1 Site Activity Report_3rd Sep 2012_Bujumbura, Burundi

3.1.1 The Brief Meeting

Time	09:00 ~ 10:10	Location	National Police (La Police de l'Air, des Frontieres et des Etranger, PAFE) office, Bujumbura	
Participant	EAC	Sarah Kagoda-Batuwa		
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim		
	Immigration office (Burundi)	Jimmy HATUNGI MANA	Commissioner General	jihatung@yahoo.fr
		Canisius NIYOUNG OBO	Deputy Commissioner General	caniyongobo@gmail.com
		UIZIGAMA Sylvie	Commissioner in charge of foreigner	sylvieuizigama@yahoo.fr
		Salvator NKURUNZIZA	Commissioner in charge of Borders management & control	nkurusalvator@yahoo.fr
		NTACONA YIGIZE Pascal	Commissioner in charge of Traveling Document Production	ntacopas@yahoo.fr
		CIZANYE Diomède	Chief IT Migration HQ	cizanyediomede@yahoo.fr
Activities	- Greeting - The NIPA consulting team & EAC with Immigration officers of Burundi held an official Briefing Meeting. - Immigration officer of Burundi explained the service, organization and issue. - The NIPA consulting team & EAC did the presentation for the introduction, purpose of the feasibility study. - The NIPA consulting team & EAC with Immigration officers of Burundi discussed the schedule and location to visit.			

3.1.2 Site survey_Registration office/Issuing Room(passport, visa, leissez-passes)

Time	10:10 ~ 11:20	**Location**	PAFE office, Bujumbura
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Burundi)	Jimmy HATUNGIMANA, Canisius NIYOUNGOBO, UIZIGAMA Sylvie, Salvator NKURUNZIZA, NTACONAYIGIZE Pascal, CIZANYE Diomède	
Activities	- The NIPA consulting team with Immigration officers of Burundi surveyed from the front office to issuing room for Passport/Leissez-Passes/Visa. - Immigration officer explained the process & information system for Passport/Leissez-Passes/Visa. 		

3.1.3 Site survey_Bujumbura International Airport

Time	11:50 ~ 13:00	**Location**		Immigration office, Bujumbura
Participant	EAC	Sarah Kagoda-Batuwa		
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim		
	Immigration office (Burundi)	Javnier BIZINDAVYI	Commandant de l'Aeroport de Bujumbura	janvierbizindavyi@yahoo.com
		Salvator NKURUNZIZA	Commissioner in charge of Borders management & control	nkurusalvator@yahoo.fr
		CIZANYE Diomède	Chief IT Migration HQ	cizanyediomede@yahoo.fr
Activities	- The NIPA consulting team with Immigration officers of Burundi surveyed the border post in			

	Bujumbura International Airport. - Immigration officer explained the immigration process in Airport - Immigration officer explained the Check 121.

3.1.4 Interview_Questionnaire review

Time	18:10 ~ 19:40		Location	Immigration office, Bujumbura
Participant	EAC	Sarah Kagoda-Batuwa		
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim		
	Immigration office (Burundi)	CIZANYE Diomède (Chief IT Migration HQ)		
Activities	- The NIPA consulting team with Immigration officer of Burundi reviewed the questionnaire which has been written. - The NIPA consulting team collected requirements toward Immigration System. - The NIPA consulting team and Immigration officer of Burundi discussed the way forward.			

3.2 Site Activity Report_3rd Sep 2012_Kobero, Burundi

3.2.1 Site surveying_Kobero

Time	12:30 ~ 13:10		Location		Kobero border office, Burundi
Participant	EAC	Sarah Kagoda-Batuwa			
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim			
	Immigration office (Burundi)	EPIPODE Minani	Immigration officer in charge of Kobero border	minaniepipode@yahoo.in	
		CIZANYE Diomède	Chief IT Migration HQ	cizanyediomede@yahoo.fr	
Activities	- The NIPA consulting team with Immigration officers of Burundi surveyed the border post in Kobero - Immigration officer explained the immigration process in border post of Kobero. - Immigration officer explained issuing process of the Temporary Travel Document.				

3.2.2 Site surveying_ Kabanga border post of Tanzania

Time	13:20 ~ 13:50	Location		Kabanga border office, Tanzania
Participant	EAC	Sarah Kagoda-Batuwa		
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim		
	Immigration office (Burundi)	EPIPODE Minani, CIZANYE Diomède		
	Immigration office (Tanzania)	Hussein MSANGI (Chief officer in charge of Kabanga border), H. MWAIPYANA (Immigration officer)		
Activities	- The NIPA consulting team with Immigration officers of Burundi surveyed the border post in Kabanga of Tanzania - Immigration officer of Tanzania explained the immigration process in border post of Kabanga. - Immigration officer of Tanzania explained the PIRS. 			

4. Kenya

4.1 Site Activity Report_6th Sep 2012_Nairobi, Kenya

4.1.1 Site Surveying_ Server room (3rd floor of Immigration office)

Time	09:50 ~ 10:20	Location	Immigration office, Nairobi
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Nairobi)	Lucy kahonge (ICT Chief Officer, lucy.kahonge@kenya.go.ke) Paul Mwanfgi (ICT Officer, paul.mwangi@immigration.go.ke)	
Activities	- The NIPA consulting team with Immigration officers of Kenya surveyed the Server room in Head Quarter - The NIPA consultant team checked the specification of H/W, N/W devices. 		

4.1.2 Site Surveying_ Site Surveying_ Passport Registry & Issuing

Time	10:20 ~ 11:20	Location	Immigration office, Nairobi
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Nairobi)	Javan D. Bonaya(Senior Assistant Director of Immigration Services), P.K Machama (Director, Physical counter, machmapk_looq@yahoo.com) ELIAS Kimaru (Senior Immigration Officer, Passport Section, 0728 450 063), Paul Mwanfgi (ICT Officer, paul.mwangi@immigration.go.ke)	
Activities	- The NIPA consulting team with Immigration officers of Kenya surveyed from the front office for registry to issuing room for Passport. - Immigration officers explained the information system for Passport. 		

4.1.3 The Briefing Meeting

Time	11:30 ~ 12:50		Location	Immigration office, Nairobi
Participant	EAC	Sarah Kagoda-Batuwa		
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim		
	Immigration office (Nairobi)	Pamela Otenyo	Senior Assistant Diretor	Pamela.otenyo@immigration.go.ke, pamotenyo@yahoo.co.uk
		Lucy kahonge	ICT Chief Officer	lucy.kahonge@kenya.go.ke
		Charles Githinji	Administration Section	ciringjoki@gmail.com
		Edda Maritim	Passport Section	Tina_maritim@yahoo.com
		Topister Kweyu	Visa Section	toppykwe@yahoo.com
		Paul Mwanfgi	ICT Officer	paul.mwangi@immigration.go.ke, paul.mwangi@kenya.go.ke
Activities	- Greeting - The NIPA consulting team & EAC with Immigration officers of Kenya held an official Briefing Meeting. - Immigration officer of Kenya explained the service, legal structure, organization, on-going project and challenges. - The NIPA consulting team & EAC did the presentation for the introduction, purpose of the feasibility study. - The NIPA consulting team & EAC with Immigration officers of Kenya discussed the schedule and location to visit. 			

4.1.4 Interview_Passport/Visa/Permit Section & ICT Section

Time	12:50 ~ 14:00	Location	Immigration office, Nairobi
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Nairobi)	Pamela Otenyo (Senior Assistant Diretor), Charles Githinji (Administration Section), Edda Maritim (Passport Section), Topister Kweyu (Visa Section) Lucy kahonge (ICT Chief Officer), Paul Mwanfgi (ICT Officer)	
Activities	- The NIPA consulting team conducted an interview with Immigration officer who charged of Passport/Visa/Permit Section & ICT Section. - The officer explained the process & information system of Passport/Visa/Permit Section. - The officer explained the Existing Immigration Information System, H/W, N/W, Intra.(electricity), interconnection status and ICT organization status.		

4.1.5 Interview_ Directorate of e-Government Cabinet Office

Time	14:50 ~15:50	Location		Office of President, Nairobi	
Participant	EAC	Sarah Kagoda-Batuwa			
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim			
	Directorate of e-Government Cabinet Office, Office of President (Nairobi)	Dr. Katherine Getao	ICT Secretary	kgetao@kenya.go.ke	
		John Sergon, EBS	ICT Director	jsergon@kenya.go.ke	
Activities	- The NIPA consulting team had a cooperative meeting with Directorate of e-government cabinet office. - Directorate explained the role of Directorate of e-Government of office of President. - Directorate explained the e-government status of Kenya. - The NIPA consulting team and Directorate discussed the way forward of this project. - Directorate recommended establishing the Common Data Standard for EAC regions.				

4.2 Site Activity Report_7th Sep 2012_Nairobi, Kenya

4.2.1 Site Surveying_Jomo Kenyatta International Airport

Time	09:20 ~ 10:50	Location	JKIA, Nairobi
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	JKIA (Nairobi)	Peter Mose (Asst. Director, +254 717 788910), Robinson K. NGUMBAO (SIO, +254 473 320092, rok.ngumbao@yahoo.com) Nelson Obaria (ICT officer, +254 720 089079, nobaria@gmail.com)	
Activities	- The NIPA consulting team with Immigration officers of Kenya surveyed the border post in Jomo Kenyatta International Airport. - Immigration officer explained the immigration and Visa issuing process in Airport - Immigration officer explained the PISCES & server room in Airport. 		

4.2.2 Site Surveying_Namanga border post

Time	13:10 ~ 14:20	Location	Immigration office, Namanga
Participant	EAC	Sarah Kagoda-Batuwa	
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim	
	Immigration office (Namanga)	Hamisi A. SAIDI (In charge of Namanga post), James MUTUA(Immigration Officer), Nelson Obaria (ICT officer)	
Activities	- The NIPA consulting team with Immigration officers of Kenya surveyed the border post in Namanga - Immigration officer explained the immigration process, PISCES in border post. - The NIPA consulting team surveyed the PISCES server room in Namanga border post - Immigration officer explained issuing process of entry visa and Temporary Permit 		

5. Tanzania

5.1 Site Activity Report_10th Sep 2012_Dar es salaam, Tanzania
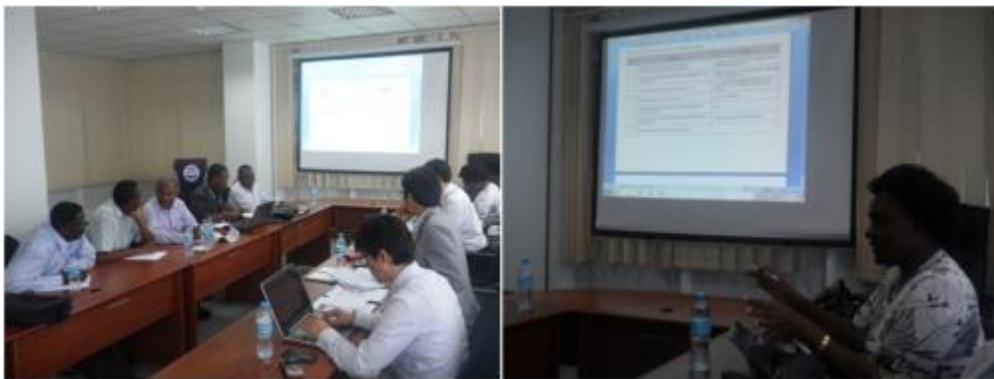
5.1.1 The Briefing Meeting

Time	09:20 ~ 11:30		Location	Immigration office, Dar es salaam	
Participant	EAC	Sarah Kagoda-Batuwa			
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim			
	Immigration HQ office(Dar es salaam)				
	Name	**Organization**	**Title**	**e-mail address**	
	P. O. Mgonja	Administration & Financial Division	CIS	pinielmgonja2008@live.com	
	Victoria Lembeli	Passports, Citizenship & Nationality division	Ag CIS	cis-cp@immigration.go.tz	
	Hannelore Manyanga	Legal service unit	Ag CIS	cisl@immigration.go.tz	
	J. N. Machura	Intelligence section	CIA	josephatsimon@yahoo.com	
	A. Kh. Abdullah	Border Management Section	Ag CIS	cisbmc@immigration.go.tz , okaaliba@yahoo.com	
	Dawson E.I.H Mongi	Visa, Passes & Permits Division	Ag CIS	mongideih@yahoo.com	
	Mary Stella Majula	Admin. & HR. MGT. Section	PHRO	marymajula@yahoo.com	
	Paul A. Kabale	Finance & Account Section (Account)	CA	kabale02@yahoo.com	
	F. Mshana	Visa, Passes & Permits Division	PSO	mshanafelis@gmail.com	
	M. A. Bakar	Passports, Citizenship & Nationality division (Permit)	SIS	mohadawesu@hotmail.com	
	J. H. Mtenga	Planning, Research & Statistics Section (Planning)	SIS	jmtenga400@hotmail.com	
	Ally M. Mtanda	Passports, Citizenship & Nationality division (Citizenship)	ASIS	mtandaally@yahoo.com	
	Rosemary N. Mkandala	Admin. & HR. MGT. Section (Public Relation)	IIS	karikwera_70@yahoo.com	
	Thomas P. Mollel	Planning, Research & Statistics Section	AIIS	thophil2010@yahoo.com	
	Juma J. Dau	Admin. & HR. MGT. Section Public Relation	AIIS	dauson_2001@yahoo.com	
	Justice Kusiluka	Planning, Research & Statistics Section (Planning)	IIS	jkusiluka@yahoo.com.uk	
	Christian F. Mndeme	Planning, Research & Statistics Section (Statistics)	IIS	mndeme2001@yahoo.com.uk	
	Peter G. Mbaku	Procurement & Logistics Section	SIS	peter_mbaku@yahoo.com	
	Peter J. Kundy	Admin. & HR. MGT. Section Public Relation (coordinator)	SACI	zabunipeter@yahoo.com	
	Mahafudh Nassoro	ICT Section	CSAI	mnassoro@yahoo.com	
	Sosthenes Lungome	ICT Section	SIS	lungome_sosthenes@yahoo.com	

	Pelio Malima	Legal service unit	SIS	pelio_malima@yahoo.co.uk
Activities	- Greeting - The NIPA consulting team & EAC with Immigration officers of Tanzania held an official Briefing Meeting. - Immigration officer of Tanzania explained the legal structure and organization structure. - The NIPA consulting team & EAC did the presentation for the introduction, purpose of the feasibility study. - The NIPA consulting team & EAC with Immigration officers of Tanzania discussed the schedule and location to visit. 			

5.1.2 Site Survey_Passport/Permit Section & Server room

Time	12:30 ~ 14:20		Location	Immigration office, Dar es salaam
Participant	EAC	Sarah Kagoda-Batuwa		
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim		
	Immigration HQ office (Dar es salaam)	Mahafudh Nassoro (ICT Section), M. A. Bakar (ICT Officer), Thomas P. Mollel (Planning, Research & Statistics Section)		
Activities	- The NIPA consulting team conducted an interview with Immigration officer who charged of Passport/Permit Section - The officer explained the whole process & information system of Passport/Permit Section. - The NIPA consulting team surveyed the Server room in Head Quarter - The NIPA consultant team checked the specification of H/W, N/W devices. 			

5.1.3 Site Survey_Passport/Permit Section & Server room

Time	16:30 ~ 19:00		Location	Immigration office, Dar es salaam
Participant	EAC	Sarah Kagoda-Batuwa		
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim		
	Immigration HQ office (Dar es salaam)	Mahafudh Nassoro (ICT Section), M. A. Bakar (ICT Officer), Thomas P. Mollel (Planning, Research & Statistics Section) Ally M. Mtanda (Passports, Citizenship & Nationality division) Pelio Malima (Legal service unit) Sosthenes Lungome (ICT Section)		
Activities	- The NIPA consulting team with Immigration officer of Tanzania reviewed the questionnaire which has been written. - The NIPA consulting team collected requirements toward Immigration System. - The NIPA consulting team and Immigration officer of Burundi discussed the way forward. 			

5.2 Site Activity Report_11th Sep 2012_Dar es salaam, Tanzania

5.2.1 Cooperative Meeting of President's Office, Public Service Management

Time	10:50 ~ 12:00		**Location**	President's Office, Public Service Management, Dar es Salaam	
Participant	EAC	Sarah Kagoda-Batuwa			
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim			
	Immigration office (Tanzania)	Mahafudh Nassoro (ICT Section), M. A. Bakar (ICT Officer)			
	Ministry of EAC	Agness B. Macha	Political Officer	agnessmacha@yahoo.com	
	President's Office, Public Service Management	Dr. J. K. Bakari	Chief Executive Officer	jabiri.bakari@ega.go.tz	
		Priscus Kiwango	Director of Information Communication and Technology System	priscuskiwango@estabs.go.tz	
		Suzan Mshakangoto	Information Education and Communication Officer	susan.mshakangoto@ega.go.tz	
		Michael Moshiro	Senior Computer Systems Analyst	michael.moshiro@ega.go.tz	

		Leopold Shayo	Assistant Director – ICT Department	leopoldshayo@estabs.go.tz
Activities		- The NIPA consulting team with officers from Immigration and Ministry of EAC had a cooperative meeting with e-government agency, Public Service Management of President's Office. - President's Office hoped to participate in the TFT or workshop of this project. - President's Office recommended that the team defines related organization and data for sharing. 		

5.2.2 Site Survey_JNIA

Time	13:10 ~ 14:00		**Location**	Immigration office, Dar es salaam	
Participant	EAC	Sarah Kagoda-Batuwa			
	NIPA	Jaesuk Lee, Youngbok Kim, Gisoo Lee, Wookhwan Kim			
	Immigration office (JNIA)	Asumsio J. P. Achacha	Deputy Commissioner of Immigration	asumsio@yahoo.com	
		RWEGASIRA BAGENDA	CSA	denib@yahoo.com	
		Nasra MUNISI	CSA	mankanas@yahoo.com	
		Shamango APOLINARY	CSA	shamango1@yahoo.com	
		Otto MWANAKAIWE	IT Officer	ottomshigeni@hotmail.com	
	Immigration office (HQ)	Mahafudh Nassoro (ICT Section), M. A. Bakar (ICT Officer)			
Activities		- The NIPA consulting team conducted an interview with Immigration officer who charged of JNIA - The officer explained the whole process & information system of immigration and visa issuing. - The NIPA consulting team surveyed the visa issuing room in JNIA.			