

参考 1. TICAD7 関連資料

Grand Design for Global Logistics in the Indo-Pacific Region



Japan International Cooperation Agency (JICA)

August 2019

1. Background and Objective of the Study

1.1 Background of the study

JICA has been providing support for ports and logistics infrastructure in Africa with the objective of achieving medium to long-term sustainable growth. At TICAD 5, held in 2013, objectives such as support for the development of five growth corridors, formulation of strategic Masterplans for 10 areas and the establishment of One Stop Border Posts (OSBPs) in 20 countries, among others, were adopted. The goal was to achieve high quality growth in the region as a whole, including the landlocked countries which are disadvantaged due to relatively high trading costs. Also, at TICAD 6, held in 2016, objectives were adopted for the development of corridors in three priority regions: the Mombasa Northern Corridor, the Nacala Corridor, and the West Africa Growth Ring.

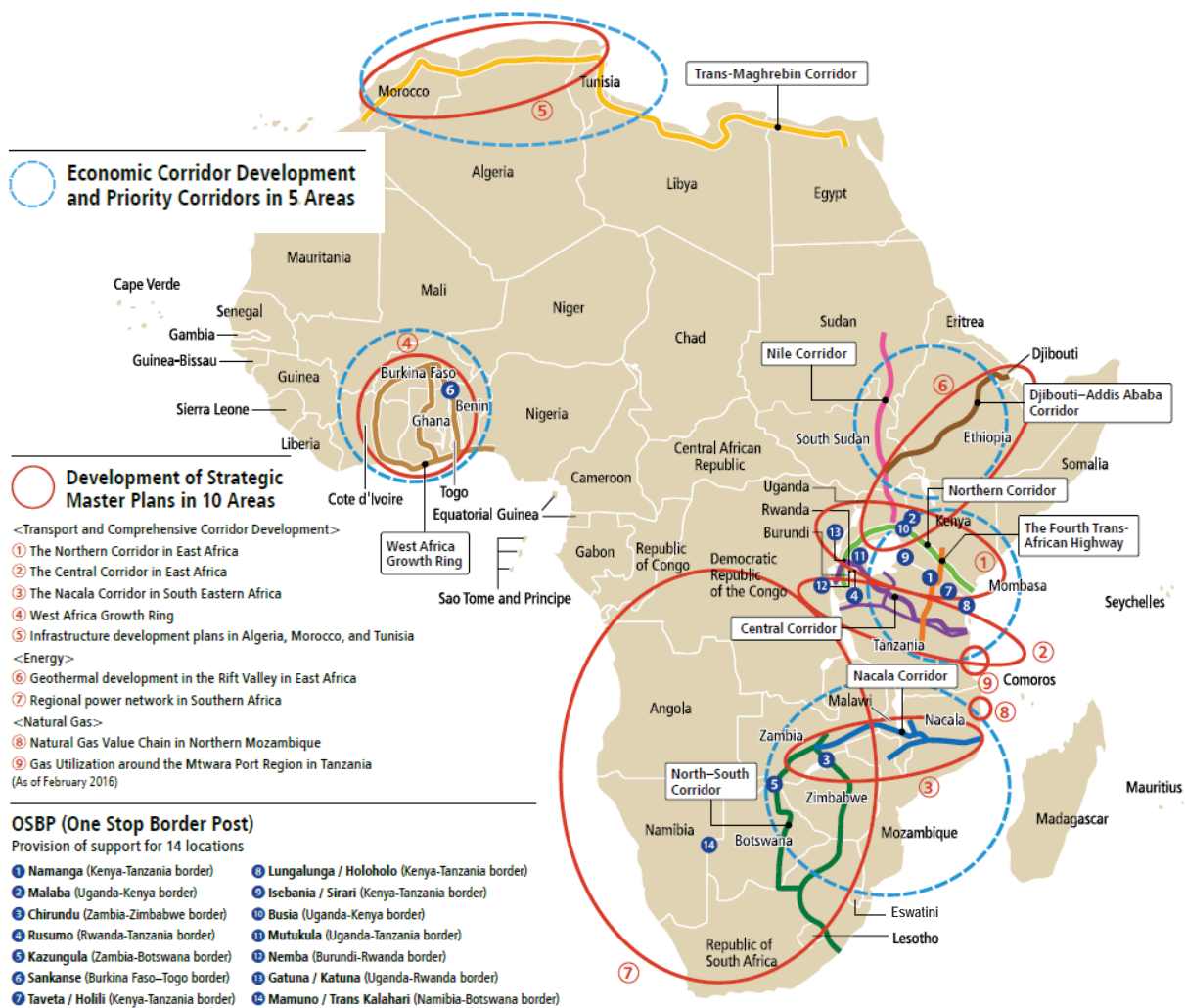


Fig. 1 Corridor development map*

JICA has been active in assistance, mainly through ODA, for the development of the ports that are the gateways for these corridors¹. In order to ensure that each individual project functions consistently and effectively, formulation of a comprehensive logistics development strategy is needed. It is therefore essential to analyze the global logistics taking into account region-wise economic growth potential and future uncertainties.

¹ For example, Kenya: Mombasa Port, Mozambique: Nacala Port, and Madagascar: Toamasina Port

which development of the economic corridors in Africa fails leading to stagnation of socio-economic activities; were established for this analysis.

2.2 Intermodal global logistics model analysis

The intermodal global logistics model is a simulation model developed by Associate Professor Ryuichi Shibasaki et al. at the University of Tokyo. It is a network assignment model in which given transport demand of container cargos are assigned to actual network based on transport mode and transport routes choice. This model is composed of three models: a marine transport sub-model, a land transport sub-model, and a model that integrates these two models. The model simulates the cargo flow based on the actual maritime transport network and the land transport network.

In this analysis, the future interregional container transport demand was estimated with GTAP model. Sensitivity analysis was performed, using mainly S1 (Successful realization of economic corridor development) scenario in year 2040, to examine the impact of global logistics infrastructure development. (Note that trade within East-coast of Africa was excluded for modelling.)

3. Results of the Study

3.1 <Result 1> What impact does elimination of trade barriers through establishment of AfCFTA have on the industry structure transformation?

The trends of trade in the world were analyzed using the GTAP model for the 3 scenarios described previously (BL, S1, S2).

Explanation of the analysis results

In S1 scenario – successful realization of economic corridor, both the volume of exports and imports increased as a whole, but in particular there was a large increase in exports. The factors responsible for this could be the relative reduction in production costs in each African country as a result of technological innovation in production and transport, and the ability to procure input goods and industry goods at lower cost from each African country as a result of reduction or elimination of trade barriers due to FTAs. On the other hand, in S2 scenario – failure of economic corridor, the rate of growth in exports and imports was, in overall, lower compared to S1, excluding primary industries such as agriculture, petroleum, due to factors that were the opposite to the reasons which were explained above. It is worth noting that in both S1 and S2, there was a substitution of goods between countries and regions, but compared with S1 in which trade barriers were eliminated between countries in Africa as a

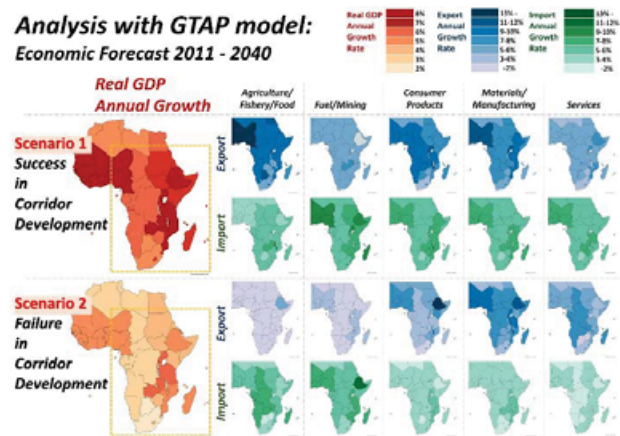


Fig. 5 Change in volume of trade by scenario and industry* (11-14)

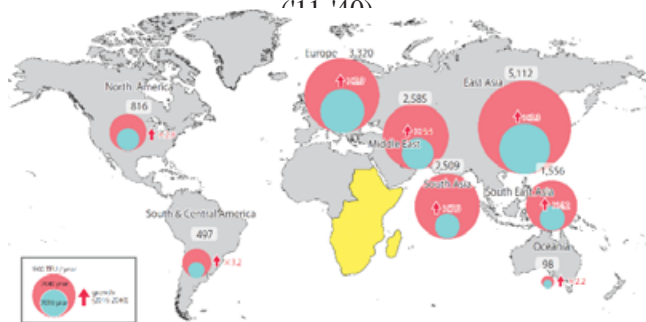


Fig. 5 Change in volume of container trade with East-coast of Africa ('16-'40: S1)*

whole, in S2 in which some trade barriers remained, the relative price differences between regions were more significant, which led to higher substitution of goods between countries and regions.

S1 scenario reflects a circumstance similar to when the AfCFTA is taken into effect. As a result of elimination of tariffs on goods between all countries of Africa it is considered that the relative price distortion between regions will be resolved. This would result in increases of products with competitive advantage in terms of price and quality, such as agricultural production on the East-coast of Africa, and manufacturing in West Africa. Specifically, for countries in East-coast region of Africa the share of agriculture increased by 1.6 percentage points from 7.5% to 9.1%, and, for West Africa the share of manufacturing industry increased by 5.4 percentage points from 7.8% to 12.6%.

The result implies that, by synchronizing transport infrastructure development and private investment facilitation with the elimination of trade barriers, while at the same time taking into account the characteristics of the industrial structure and production systems of each country and region, quality economic growth could be achieved through the increase in production.

3.2 <Result 2> What impact does the development of the economic corridors have on the landlocked countries?

In order to quantitatively analyze the impact of the development of the economic corridors in the countries of the East-coast of Africa, a sensitivity analysis was performed using the intermodal global logistics model, for the container cargo transport demand in the year 2040 under S1 scenario – successful realization of economic corridor. In the sensitivity analysis, the reduction in transport costs were taken into account. Transport cost reduction derives from two distinct factors: the improvement in the cargo transport environment due to the development of the economic corridor; and the reduction in costs and time as a result of improved customs procedures at the One Stop Border Posts (OSBP) at the cross border point on economic corridor. A comparison was drawn between with and without these tangible developments and intangible measures (with - without analysis), and thus quantitatively analyzed.

Explanation of the analysis results

There will likely be a 14% reduction in the average unit transport costs for the 21 countries in East-coast of Africa as a result of development of the economic corridors and the development of OSBPs. Comparing the change in the average unit transport costs for the coastal countries (9 countries³) that have their own ports, and the landlocked countries (12 countries⁴) that require

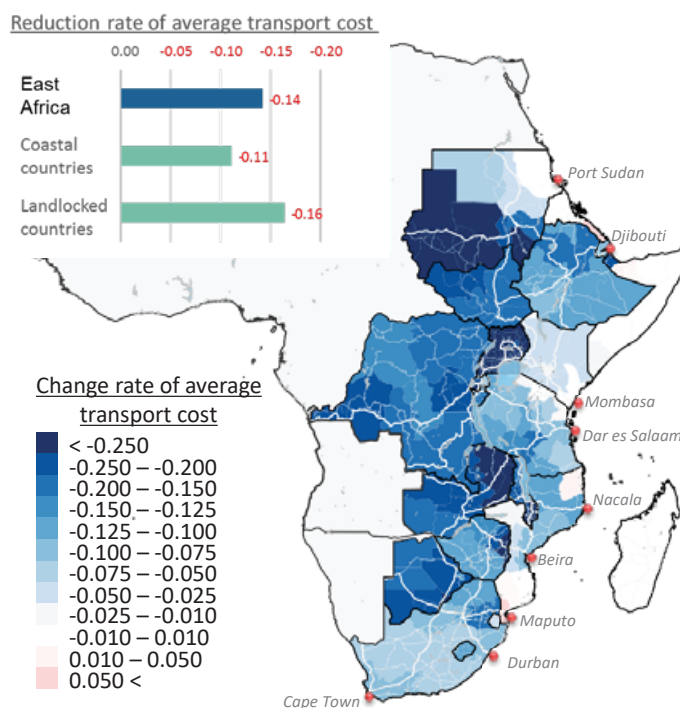


Fig. 6 Change in the average unit transport cost (2040: S1)*

³ Coastal countries: Sudan, Eritrea, Djibouti, Somalia, Kenya, Tanzania, Mozambique, South Africa, Madagascar

⁴ Landlocked countries: Ethiopia, South Sudan, Uganda, Rwanda, Burundi, Democratic Republic of the Congo, Zambia, Malawi, Zimbabwe, Botswana, Lesotho, Eswatini

a border crossing to use a port, it was found that the reduction was 11% for the coastal countries and the reduction was 16% for the landlocked countries, so the effect of reducing the transport unit costs was about 1.5 times greater for the landlocked countries than for the coastal countries. On the other hand, the model calculation result suggests that in some regions in the coastal countries, the cargo transport demand could exceed the road infrastructure capacity, which leads to congestion due to concentration of cargo trucks. This could have a negative impact, that is - increase in the average cargo transport unit cost. Provided these roads are developed in the future to provide sufficient transport capacity, it is expected that there will be further reductions in the transport unit costs.

3.3 <Result 3> Which ports are important for each country?

Quantitative analysis was carried out using the intermodal global logistics model to determine the most economically beneficial ports to be used for global maritime container cargo trades, for each region of the countries on the East-coast of Africa, for the cargo demand in the year 2040 under S1 scenario – successful realization of economic corridor, the same as described above.

Explanation of the analysis results

The port to be used for global maritime container transport by each country and region is basically selected based on economic rationality such as transport cost, transport time, etc. It was confirmed that there is a trend for countries of the East-coast of Africa to use the port that is closest to each country, the same as for the analysis using the intermodal global logistics model.

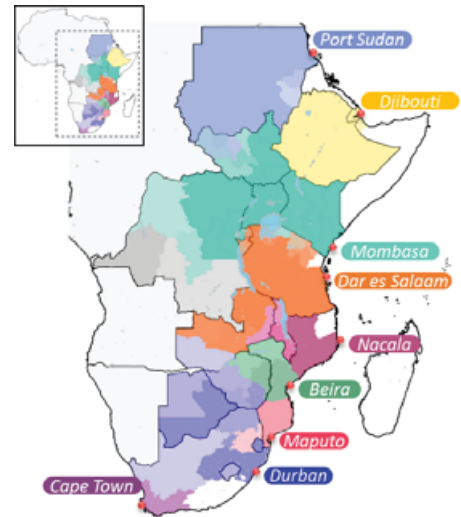


Fig. 7 Port usage share by hinterland (2040: S1)*

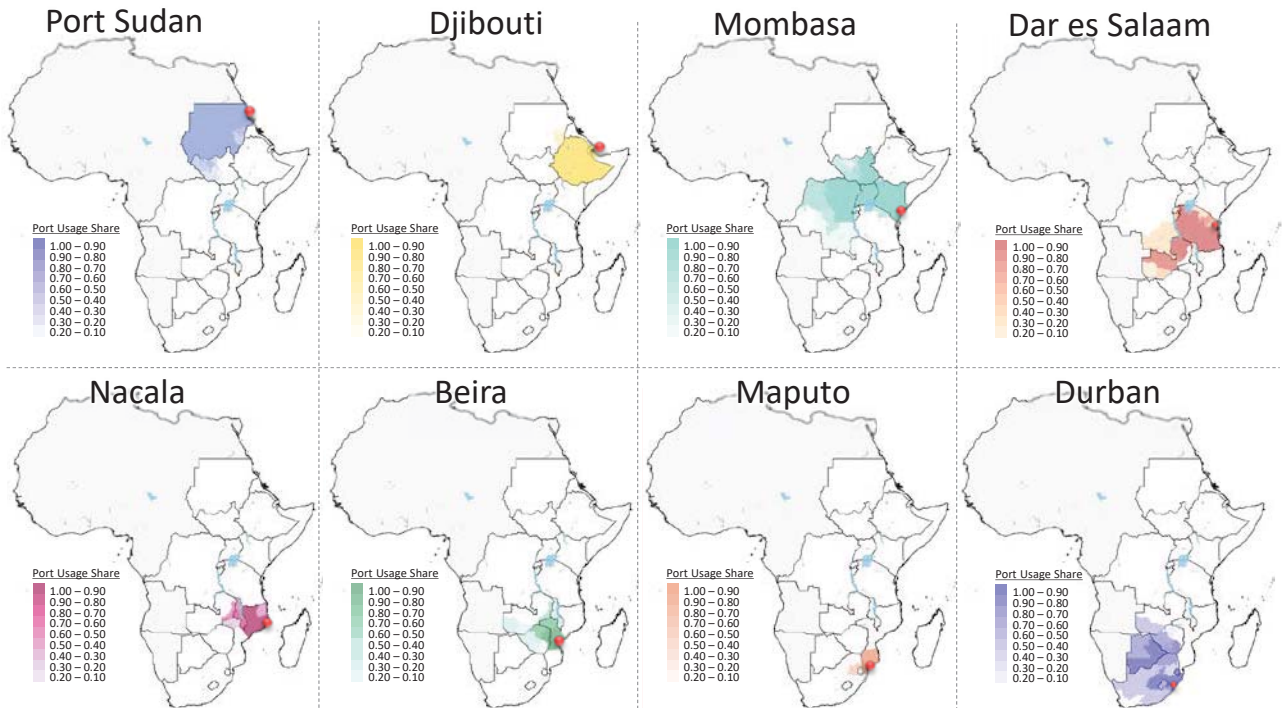


Fig. 8 Hinterland area by port (2040: S1)*

However, in the case of South Sudan the results indicated that western region would mainly use Port Sudan in neighboring Sudan, while the eastern region would mainly use Mombasa Port of Kenya. Also, in the case of cargos originating in or arriving at the quasi-landlocked country Democratic Republic of the Congo, for the northern regions the results indicated the use of Mombasa port in Kenya via Uganda, and for the other regions the results indicated the use of mainly Luanda or Lobito port in Angola. In other words, depending on the region, a difference in the route selection can be observed, and the effect of smoother trade as a result of development of the economic corridor and the development of the OSBPs was confirmed. Of the ports, the analysis result indicated that Mombasa Port, Dar es Salaam Port, Nacala Port, Beira Port, and Durban Port consist vast area of hinterland, including the landlocked countries in particular. Therefore it could be confirmed that these ports are important for the economic development of those regions, and thus a sound development of these ports, coordinating with the transport demand of the inland regions and countries, is required.

3.4 <Result 4> Are the current / planned infrastructure capacity sufficient for the future demand?

Similarly to the aforementioned analysis, intermodal global logistics model was applied to quantitatively simulate the volume of cargo flow on the actual transport networks for each of the regions of the countries in East-coast of Africa. Cargo transport demand in the year 2040 under S1 scenario – successful realization of the economic corridor was used, as is also the case with the other analysis on global logistics. The road condition information was compiled mainly from report⁵ from Programme for Infrastructure Development in Africa (PIDA), and was thus integrated to the analysis.

Also, by comparing the future cargo volume at the port estimated with the GTAP model and the future planned capacity of the major ports in East-coast of Africa, an analysis was conducted to evaluate whether the current capacity or the planned capacity is sufficient against the future demand for global maritime cargo shipping.

Explanation of the analysis results

In the “Infrastructure Outlook 2040” published by PIDA in 2011, it was pointed out that the demand for cargo transport at the regional and continental level will increase due to the economic growth and population growth in Africa. It is forecasted that the future demand would exceed the capacity in many parts of the primary transport infrastructure network (the ARTIN corridor) which is currently being expanded. It is pointed out in the PIDA report that this gap between supply and demand for transport and logistics infrastructure could cause various potential problems for the region.

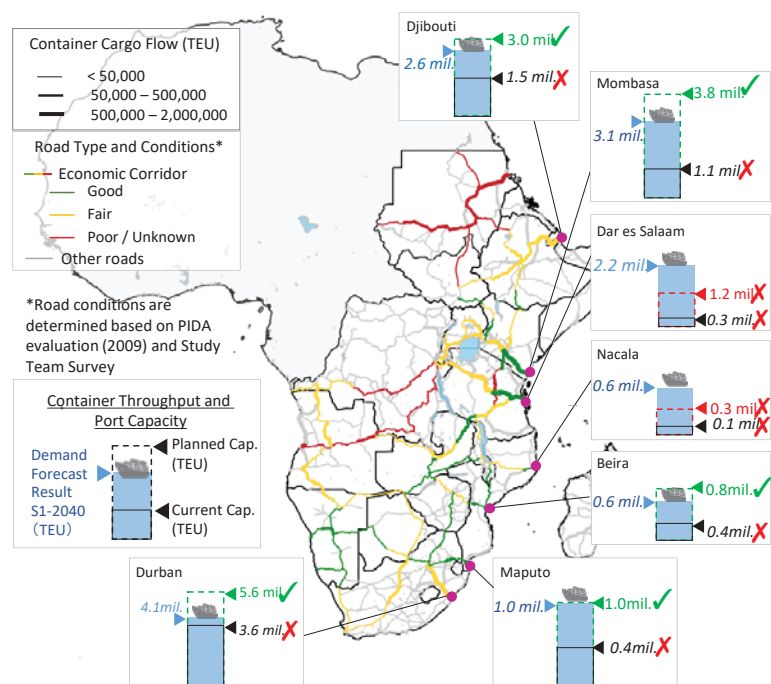


Fig. 9 Volume of cargo according to the transport route (2040: S1: road cargo transport)*

⁵ PIDA categorized the condition of the main corridors in the region in three levels: good, fair, and poor, based on road condition data in 2009.

Fig. 9 shows the estimated flow volume of cargo on the road network in year 2040 under S1 scenario. The conditions of the economic corridor, evaluated by PIDA, is also integrated in the figure, and thus the corridors are depicted in three different colors according to the conditions: good (green), fair (yellow), and poor or unknown (red). Since the PIDA report stipulates that the road condition at the economic corridor needs to be “good (green)” in all sections by 2040, the Figure reflects the gap between the current situation and the status by 2040 and its importance in terms of demand. It is envisaged that, regarding the interior corridor for Mombasa port and Dar es Salaam port, though the cargo volume is estimated to be large, the urgency for improvement of the sections are relatively low, since the current status of the roads is good. On the other hand, it could be said that priority for corridor development projects should be placed on the corridors connecting inland regions and countries, where present conditions are not as good. In addition, cargo volume at the roads between Djibouti port and Ethiopia and from Durban port to the hinterland is large, whereas the road condition is “fair”, meaning that improvement will be needed. From these analysis results, it can be concluded that it is important to orderly develop the roads on which the volume of cargo transport is estimated to be large and whose present status is not good.

Also, through comparison of the future estimated maritime cargo volume at the port against the port capacity, it is implied that, though the future cargo volume would exceed the current capacity, the planned capacity shall be sufficient most of the examined ports. However, in the case of Dar es Salaam Port and Nacala Port, the estimated volume shall exceed the planned handling capacity of about 1 million TEU per annum and 0.3 million TEU per annum respectively, whereas planned capacity for Maputo Port was almost the same with the estimated future demand. Therefore, for these port in particular, the ports should be sufficiently developed based on the future cargo demand, including that of the inland countries in its hinterland.

4. Recommendation

As a result of this study, it was found that through the progress of free trade in the region along with successful development of the corridors, the disparity of the trade conditions between the landlocked countries and the coastal countries can be mitigated, and high quality economic growth could be realized for the landlocked countries. Also, the strategy for each port and the logistics infrastructure that should be developed with priority were identified through analysis of global logistics which includes the regional logistics in the hinterland. The recommendations regarding East-coast of Africa, based on implications drawn from the study, are summarized below.

4.1 Materialization of AfCFTA to realize sustainable growth for the whole region

African Continental Free Trade Area (AfCFTA) is a framework which came into effect on May 30th 2019. The objective of the framework is to facilitate economic integration in the region through formulating a single market for the 55 member countries of the African Union. Realization of freedom of movement and integration of currency is also envisaged within the AfCFTA framework.

It could be said that sound enforcement and implementation of AfCFTA is essential for maximizing the effect of infrastructure development and One Stop Border Post (OSBP) development, and thus realizing sustainable and inclusive growth for the region.

4.2 Integrated development of economic corridor and OSBP to catalyze further economic growth

In general, trade cost for inland countries and regions tends to be higher than that of coastal countries with ports, as trade cost is affected by factors such as transport distance, time, packaging, lot allocation, and border crossing. Higher trade cost for the inland countries could have a hindering effect on economic growth for those countries.

The study revealed that in the case where economic corridor development succeeds, and the customs procedures are made smoother by OSBP development, the estimated reduction in trading costs for the landlocked countries would be greater than for the coastal countries. The estimated value of the average cargo transport unit costs for the countries of the East-coast of Africa in the year 2040 will be reduced by 11% for the coastal countries, whereas it is reduced by 16% for the landlocked countries. Therefore, development of the economic corridors together with development of the OSBPs is important for realizing a balanced economic growth in which disadvantages in trade conditions for landlocked countries are mitigated.

4.3 Infrastructure development to sufficiently address future cargo transport demand

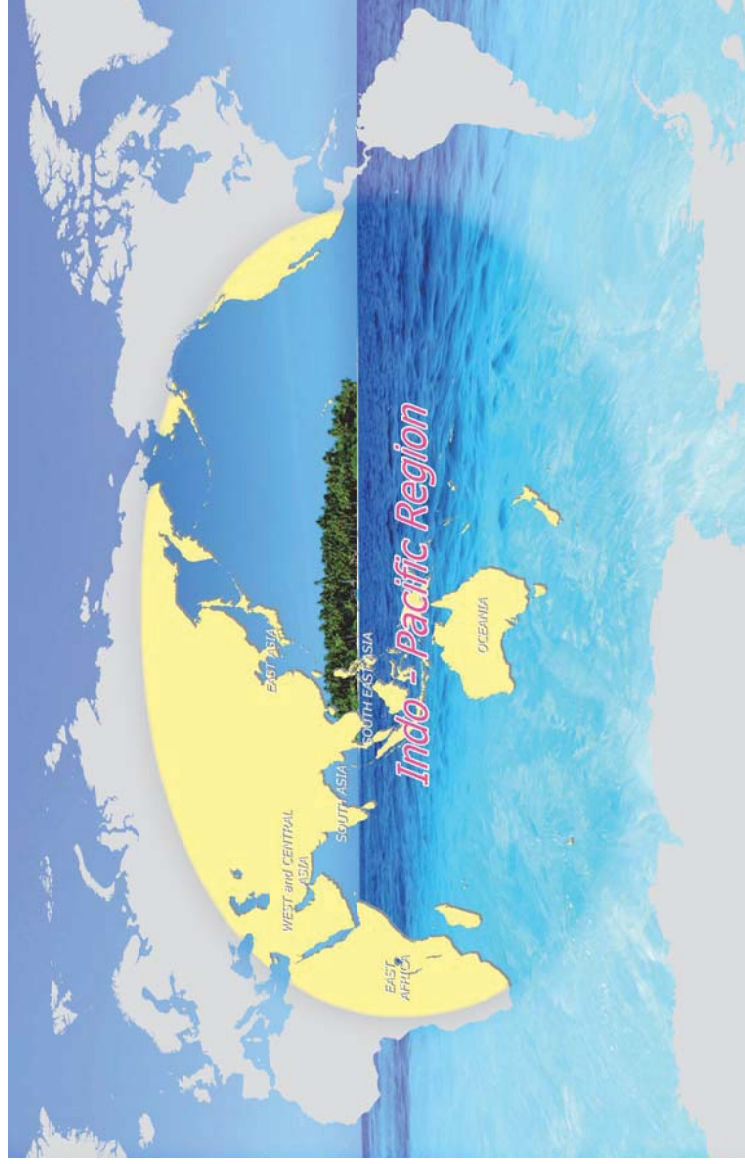
According to the estimation result of the study, container cargo trade volume in East-coast of Africa would be 4.6 times larger in year 2040 compared to the volume in 2016, which well exceeds the world average (2.6 times larger). In addition, the result of the analysis with the intermodal global logistics model indicates that Mombasa Port, Dar es Salaam Port, Beira Port, Nacala Port, and Durban Port in particular play an important role for transport to the landlocked countries. However, the study also suggests that the planned capacity at Dar es Salaam Port and Nacala Port in particular may not be sufficient to efficiently handle the cargo volume that is projected in year 2040.

Therefore, for the important ports for the region, especially for those that handle cargos for the inland countries, it is important to provide strategies for port development taking special considerations for the growth of cargo transport demand at hinterland.

5. Acknowledgements

This study utilized the results of the JICA research project “Grand Design for Global Logistics in the Indo-Pacific Region (Phase 2)”. We would like to express our thanks to the following experts that have participated in this study: Professor Hironori KATO, Department of Civil Engineering, University of Tokyo; Assistant Professor Tomoya KAWASAKI, School of Environment and Society, Tokyo Institute of Technology; Hiroshi SATO, Chief Senior Researcher, Institute of Developing Economies; Associate Professor Ryuichi SHIBASAKI, Department of Civil Engineering, University of Tokyo; Professor Shinya HANAOKA, School of Environment and Society, Tokyo Institute of Technology; Professor Tetsuro HYODO, Department of Marine Engineering, Tokyo University of Maritime Science and Technology; Hideyuki OIWA, Director, Toyota Tsusho Corporation; Hiroya CHINO, Chief of Policy Proposal Group of Japan Foreign Trade Council, Inc. (participated as observer); Kazumi SUZUKI, Chief of Second Policy Proposal Group of Japan Foreign Trade Council, Inc. (participated as observer) (affiliations and titles are as of the time of conducting the study).

Global Logistics toward Free and Open Indo-Pacific Region



Japan International Cooperation Agency (JICA)
2019.8 TICAD7

1. Background and Objective of Study

Global Logistics toward Free and Open Indo-Pacific Region

1.1 Background of Study

■ JICA has been providing support for the development of Economic Corridors and ports towards achieving sustainable growth in the mid-to-long term in Africa.

- <TICAD5> 2013
 - ✓ 5 Priority Corridor Development projects
 - ✓ Strategic Master Plans in 10 Areas
- <TICAD6> 2016
 - ✓ Mombasa, Northern Corridor
 - ✓ Nacala Corridor
 - ✓ West Africa Growth Ring
- <Port Development>
 - ✓ Mombasa (Kenya)
 - ✓ Nacala (Mozambique)
 - ✓ Toamasina (Madagascar)

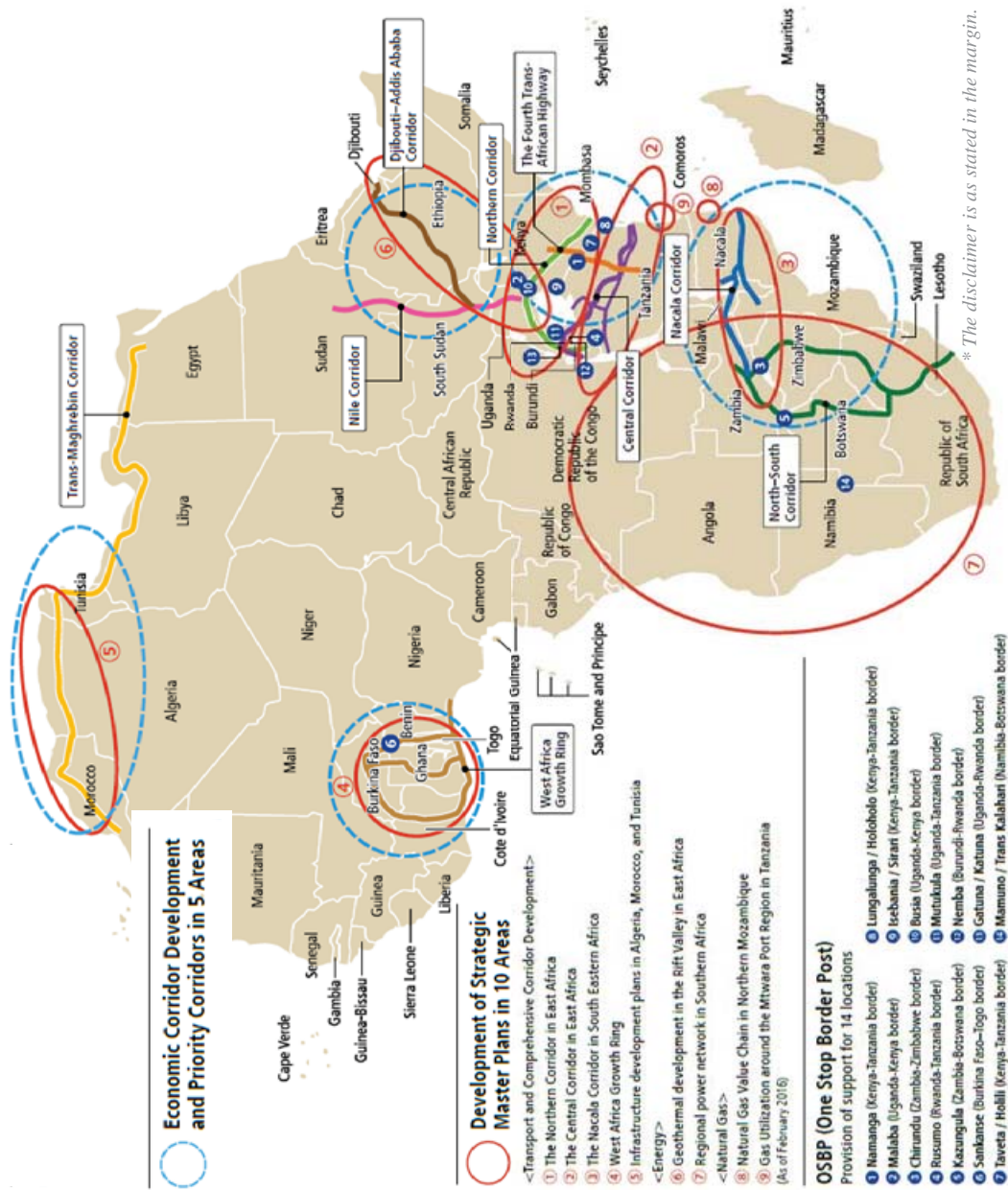
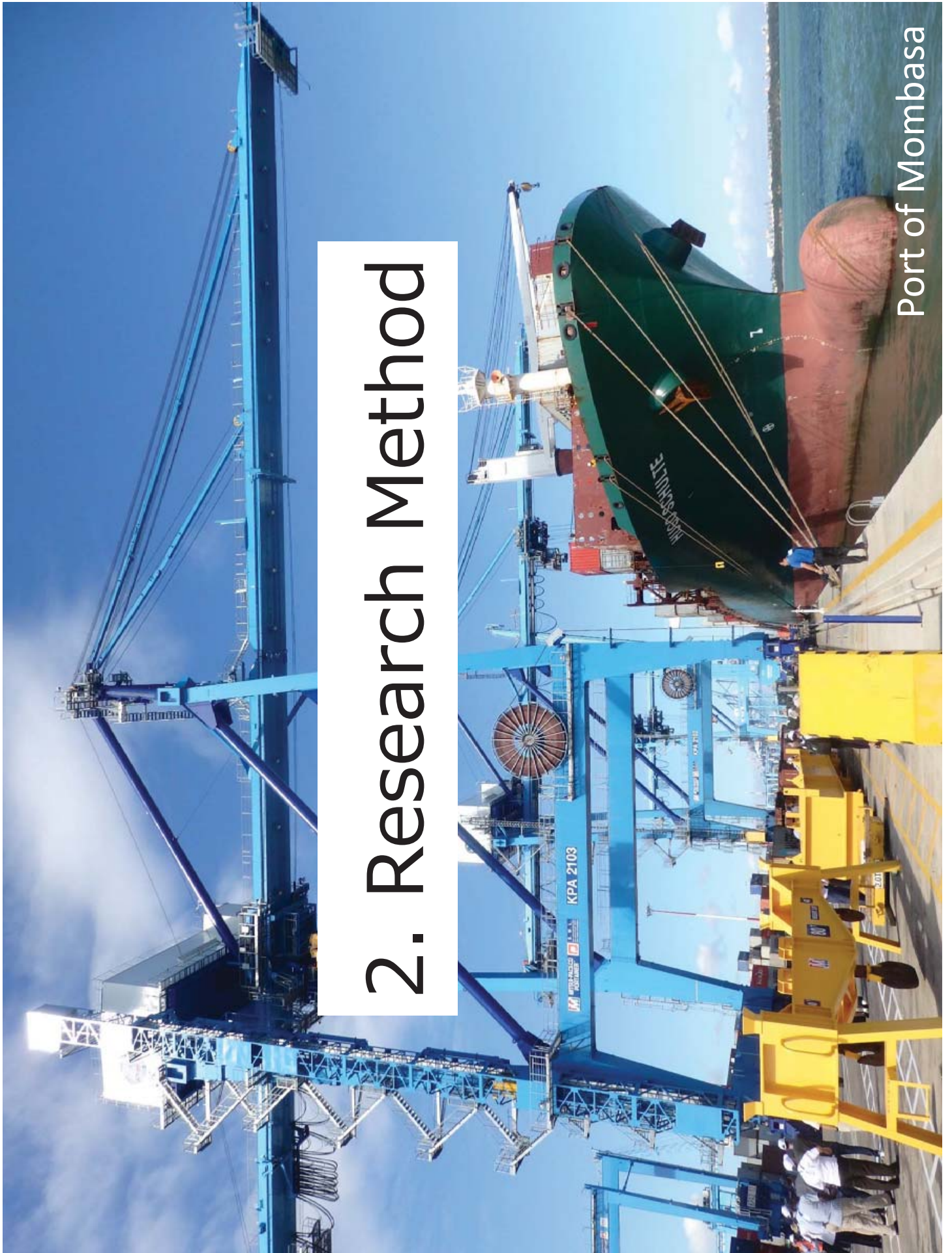


Fig. 1.1 Infrastructures contributing to regional integration

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2. Research Method

2. Research Method

■ Future Scenario Establishment

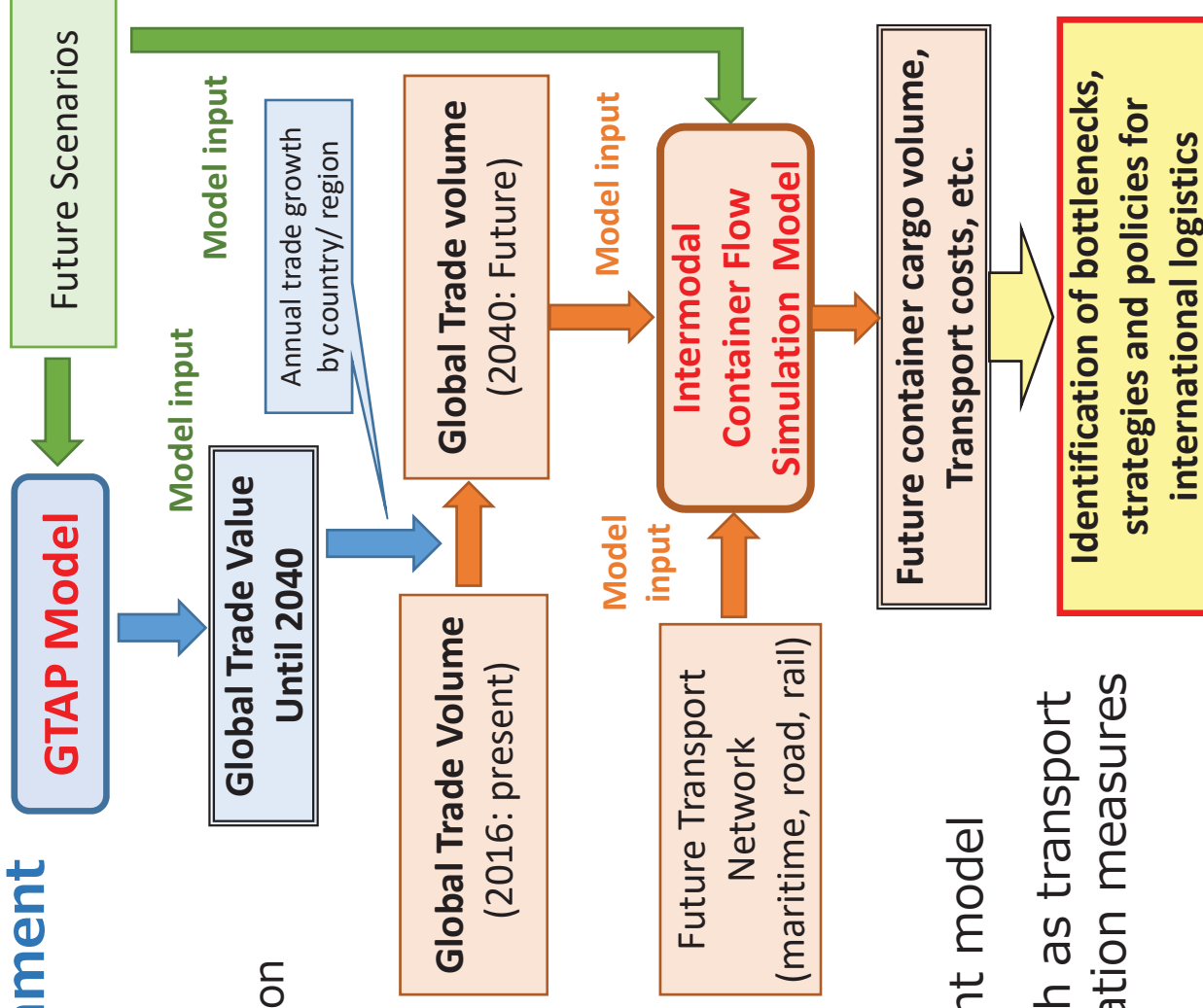
- Scenarios for 2040
 - 1) BL: Baseline
 - 2) S1: Economic Corridor Realization
 - 3) S2: Economic Corridor Failure

■ Forecasting Global Trade

- GTAP (Global Trade Analysis Project) Model
- Trade volume estimation by scenarios

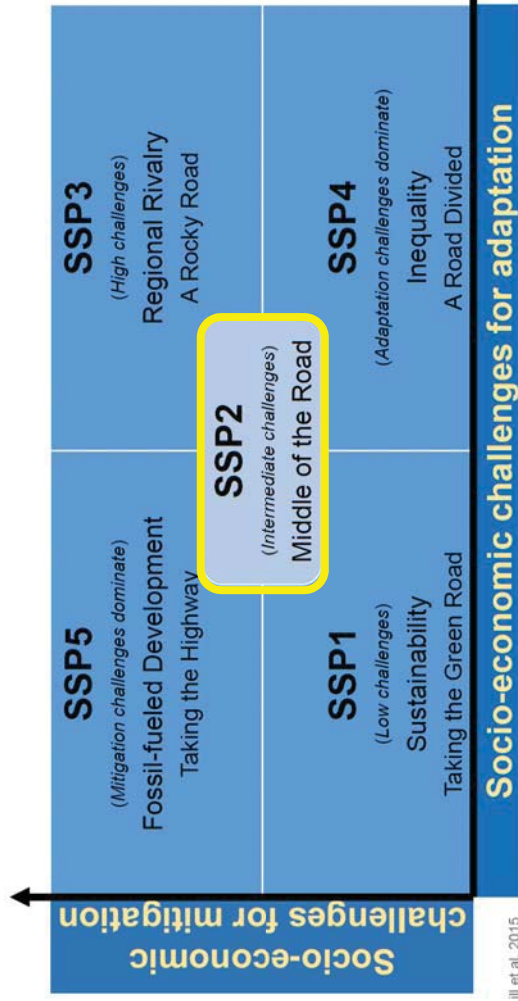
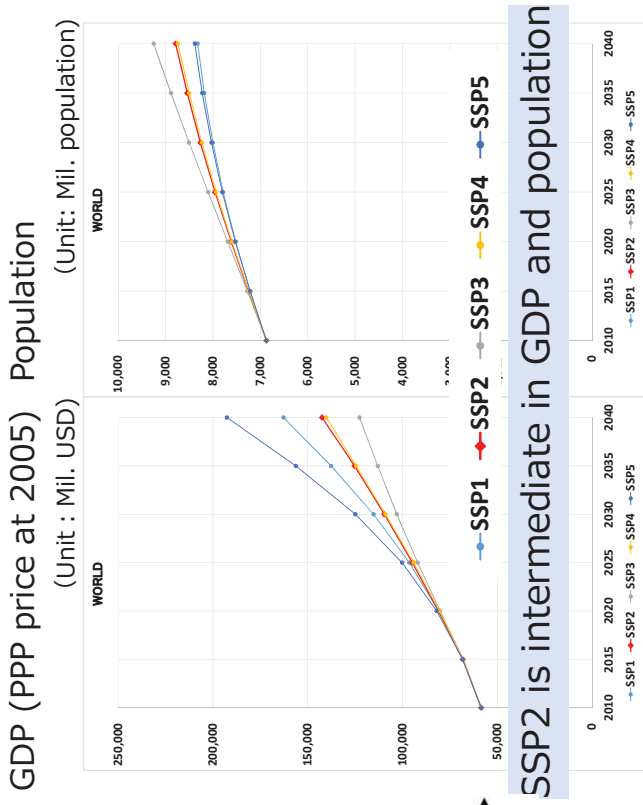
■ Container Cargo Flow Simulation

- Intermodal network assignment model
- Impact of logistics policies such as transport infrastructure and trade facilitation measures



2.1 Future Scenario Setting

- **BL: Baseline scenario (Business As Usual scenario)**
 - Trends of socio-economic activities in a base year will continue until the target year
 - Population and GDP growth rate are set based on the “SSP2 - Intermediate challenges: Middle of the Road” scenario from Shared Socio-economic Pathways (SSP)

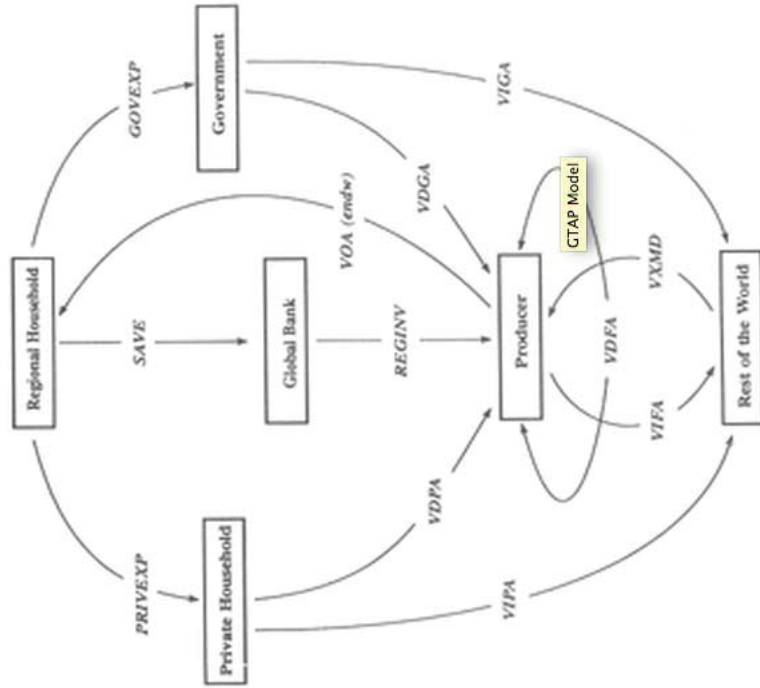


- **S1: Economic Corridor Realization**
 - Successful development of Africa Economic Corridor catalyzing socio-economic activities, such as trade and investment facilitation
- **S2: Economic Corridor Failure**
 - Failed development of Africa Economic Corridor leading to protectionism and stagnation of socio-economic activities

2.2 Forecasting Global Trade

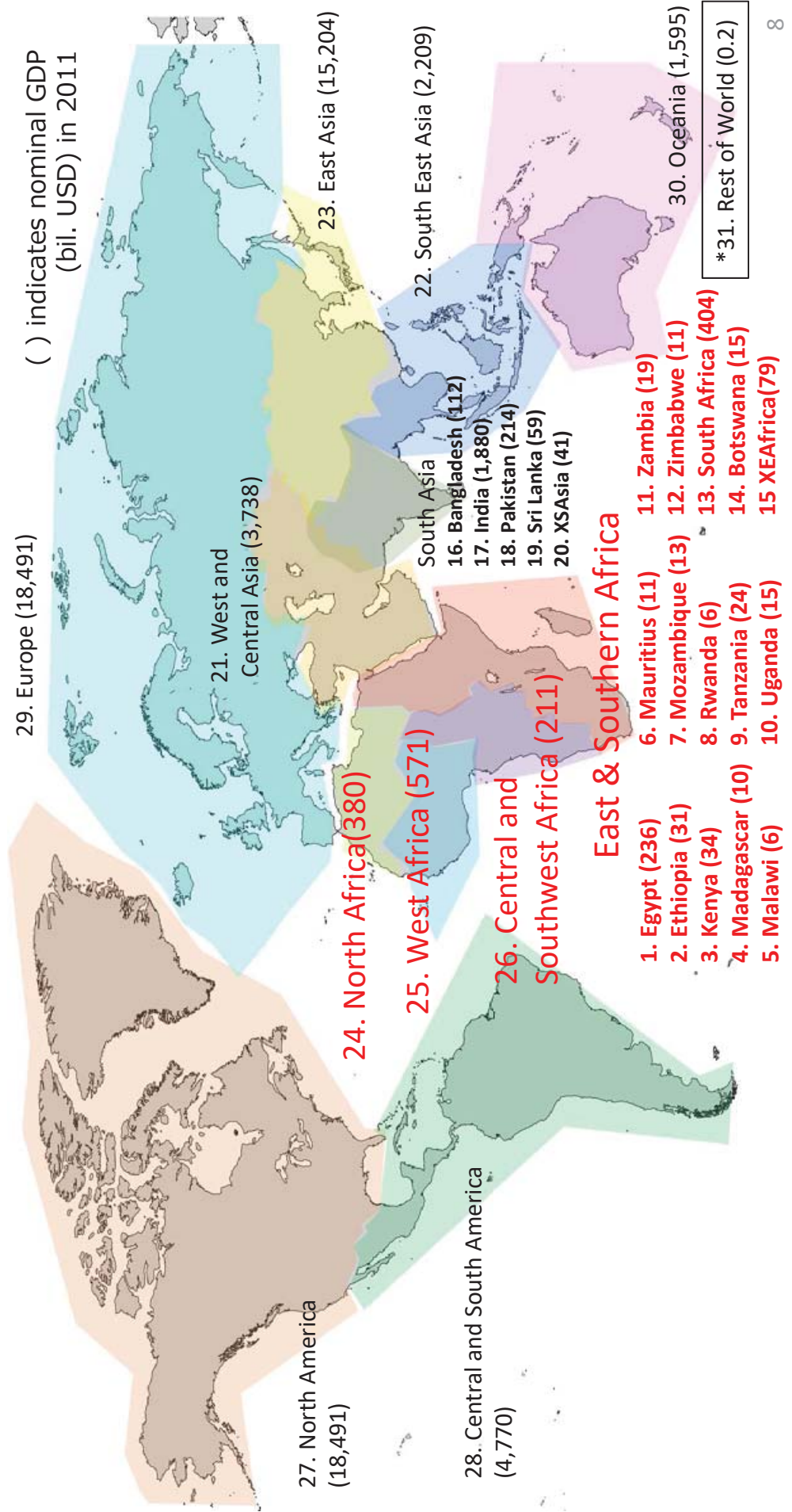
Global Trade Analysis Project (GTAP) Model

- Most popular model package among the world for trade forecast
- CGE (Computable General Equilibrium) framework based on microeconomic theory
- Developed by Purdue University
- Many applications in practical field



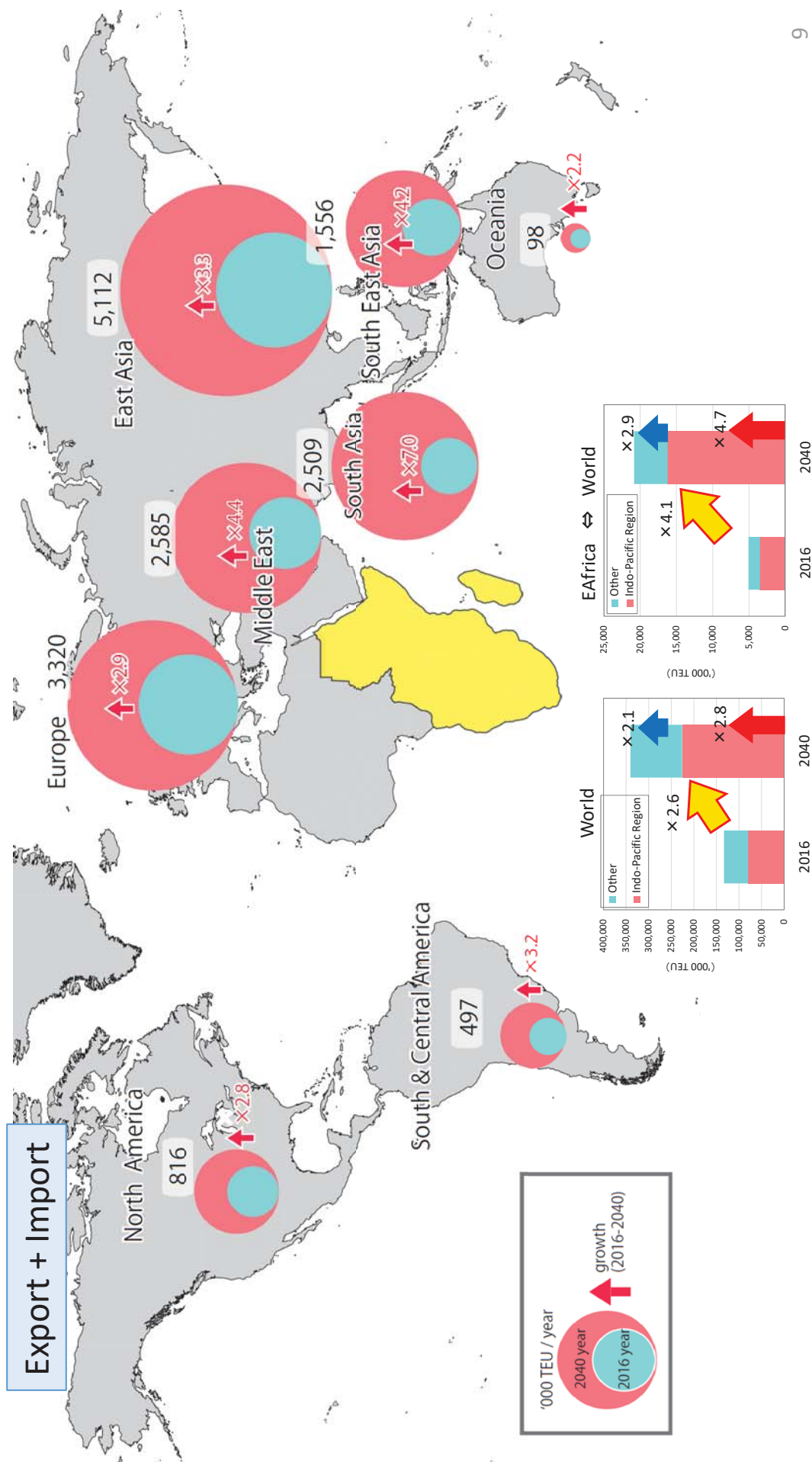
Country/Regional Classification of GTAP Model

- 18 countries including East/Southern Africa (14) and South Asia (4)
- Other 13 regions of the world



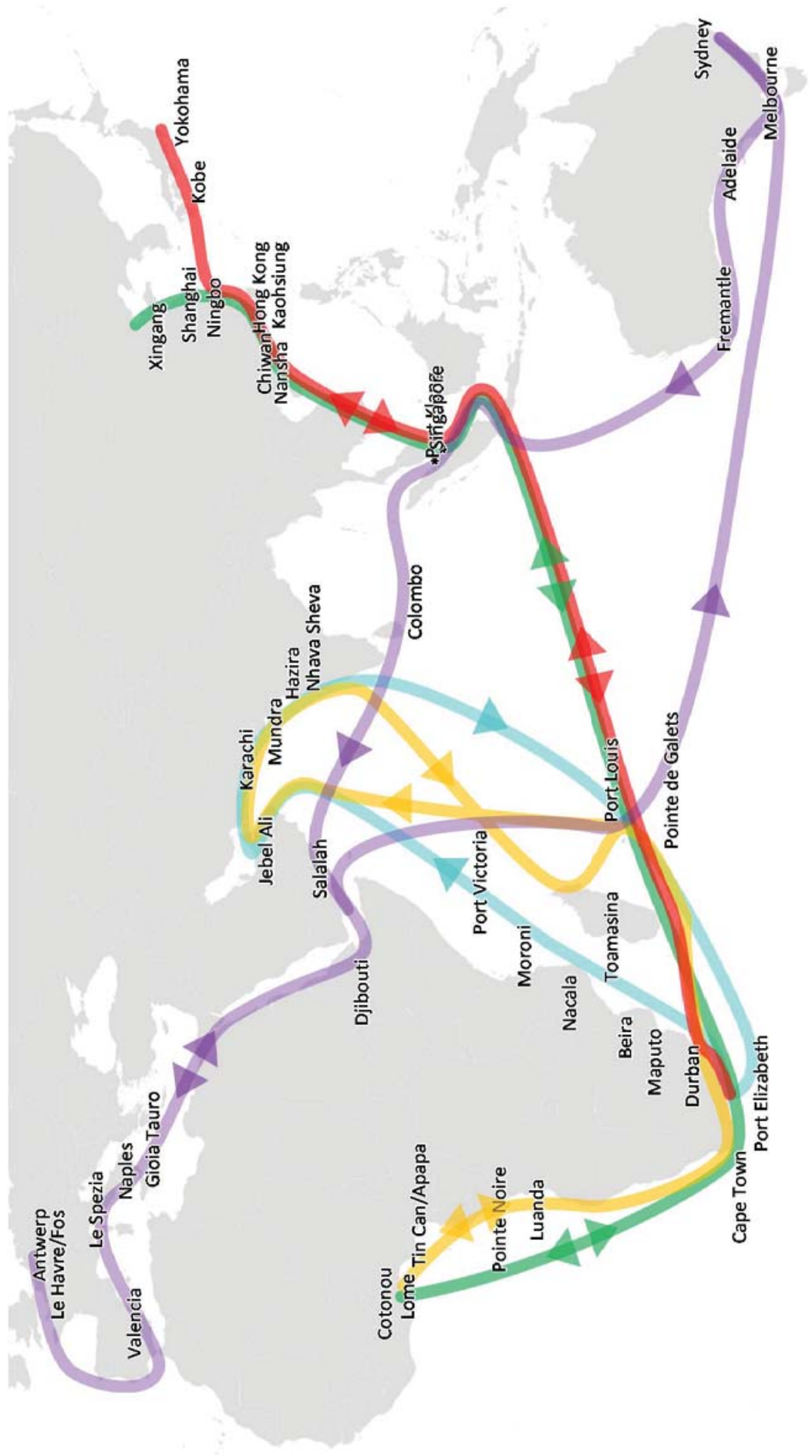
Example of Model Output (Estimated Trade Volume)

- Estimated increased volume of export and import container between East Africa and the world (2016 to 2040)



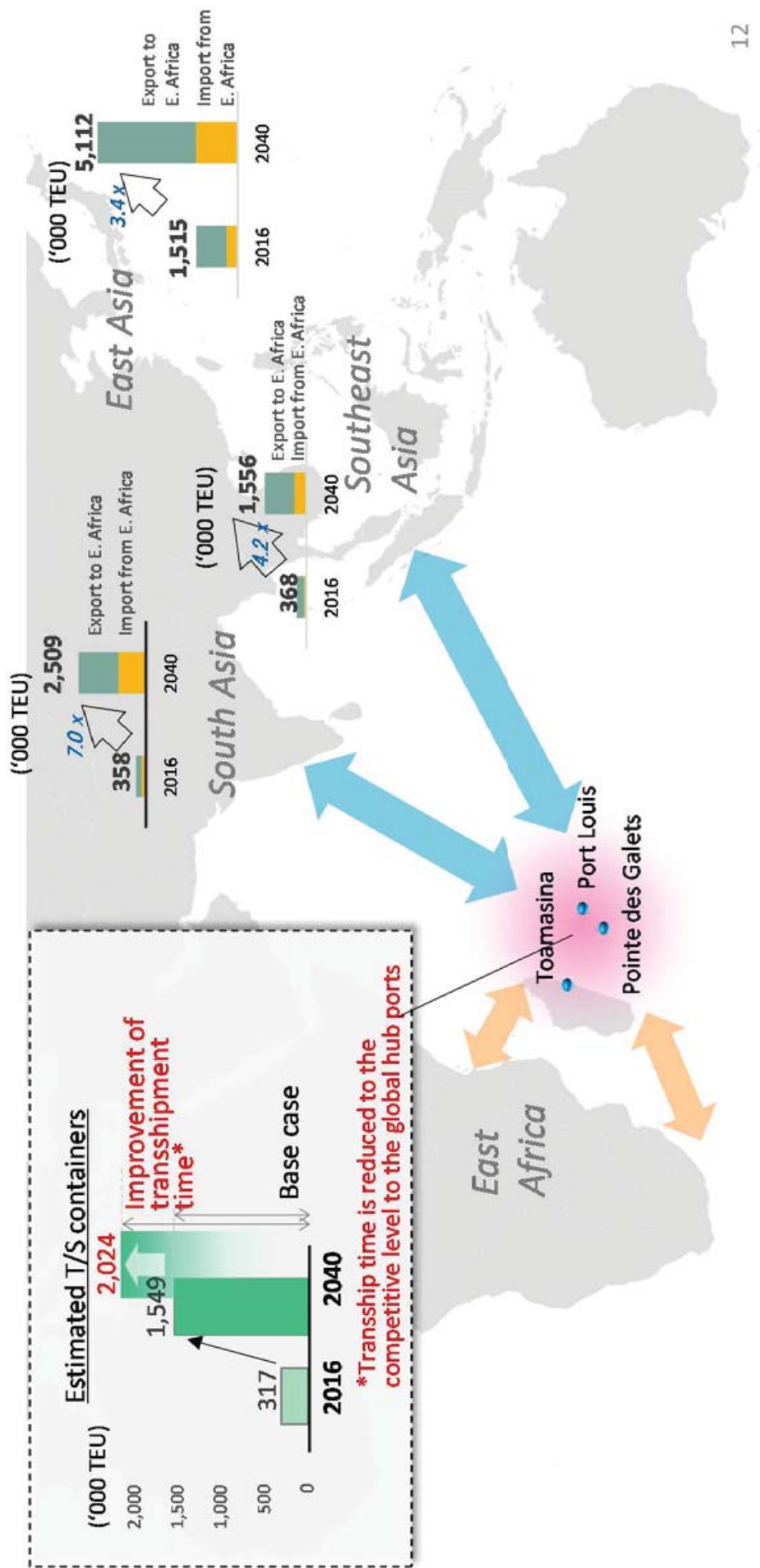
Example of Model Input: Liner Service Network (as of 2016)

■ Liner services to call at Port Louis



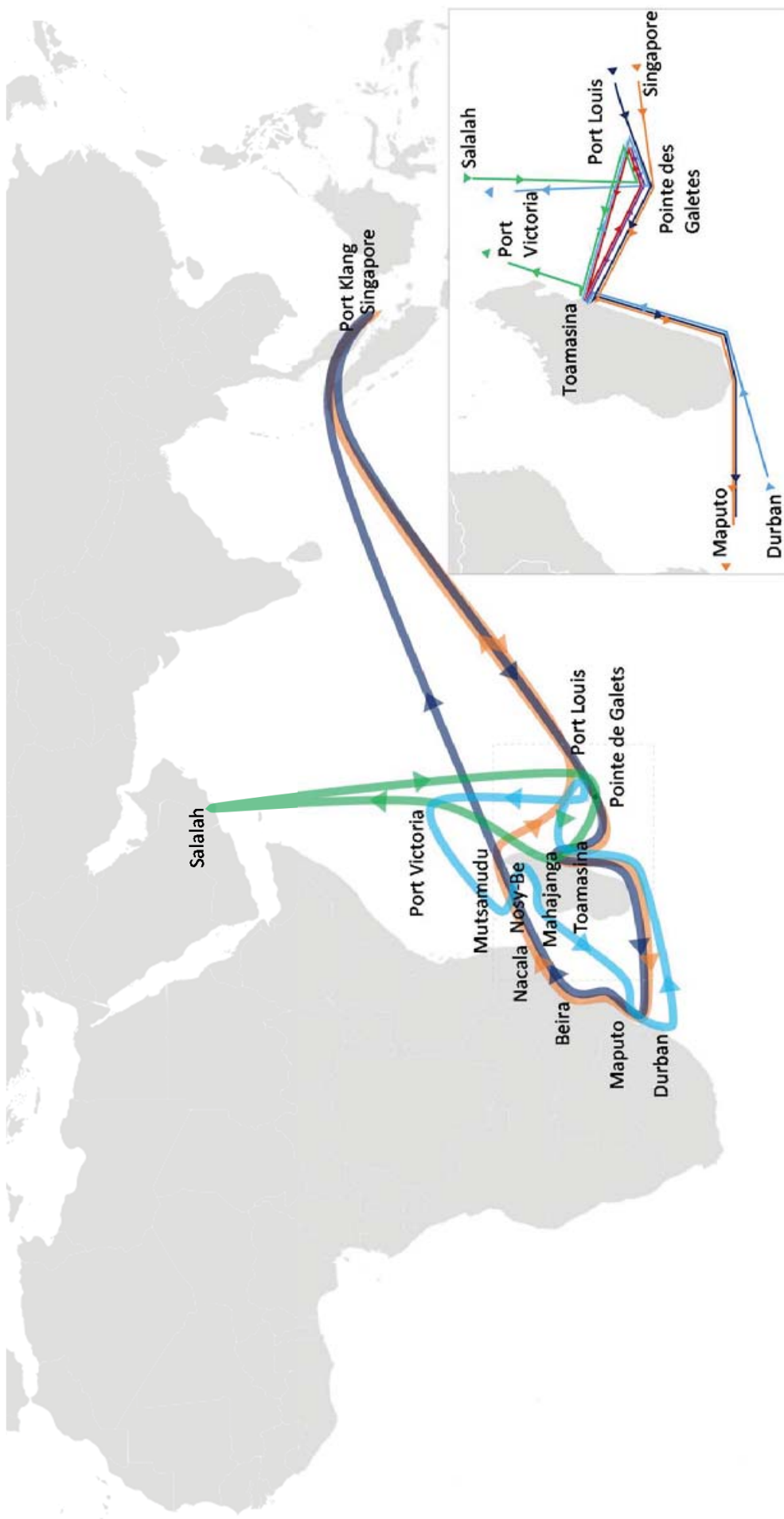
Example of Model Output: Transshipment in Indian Ocean

- In 2040, the total number of T/S containers in Port Louis, Pointe des Galets, and Toamasina is estimated approx. 1.5 mil TEU
- If T/S time is reduced to 1/3 of the present level, it will increase by 0.5 mil TEU



Example of Model Input: Liner Service Network (as of 2016)

■ Liner services to call at Toamasina Port



3. Result of Study

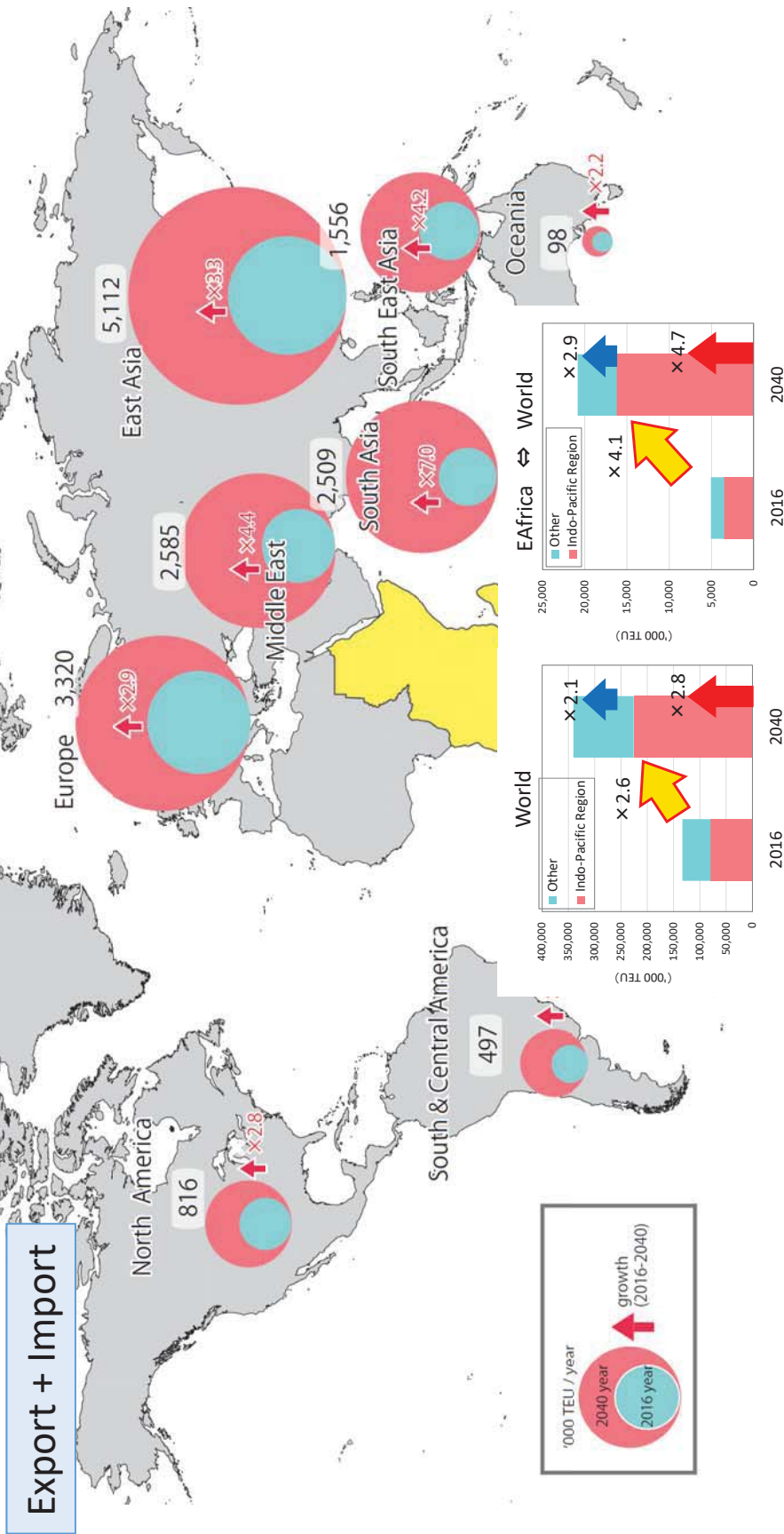
3.1 What impact does removal of trade barriers through AfCFTA have on economies and industries?

Global Logistics toward Free and Open Indo-Pacific Region

3.1 What impact does removal of trade barriers through AfCFTA have on economies and industries?

■ Estimated Trade Volume Growth between East Coastal Africa and the world (2016 – 2040: Export + Import)

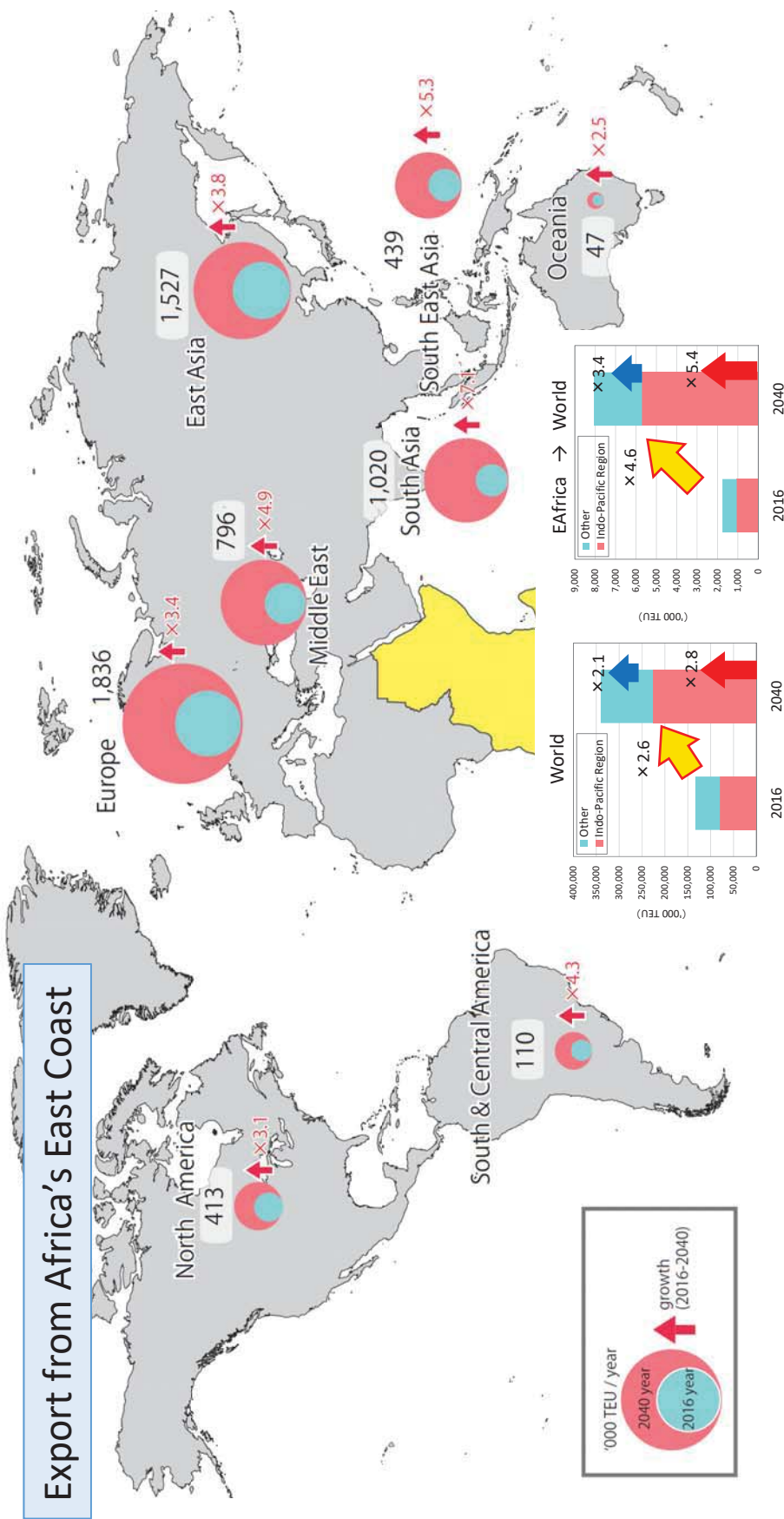
- Trade volume between East Coastal Africa and the world would be 4.1 times larger, well exceeding the world average growth (2.6 times).
- The biggest 3 trade partners are: 1) East Asia, 2) Europe, and 3) Middle East.
- Fastest growing trade partner would be South Asia (4.7 times).



3.1 What impact does removal of trade barriers through AfCFTA have on economies and industries?

■ Estimated Trade Volume Growth between East Coast Africa and the world (2016 – 2040: Export)

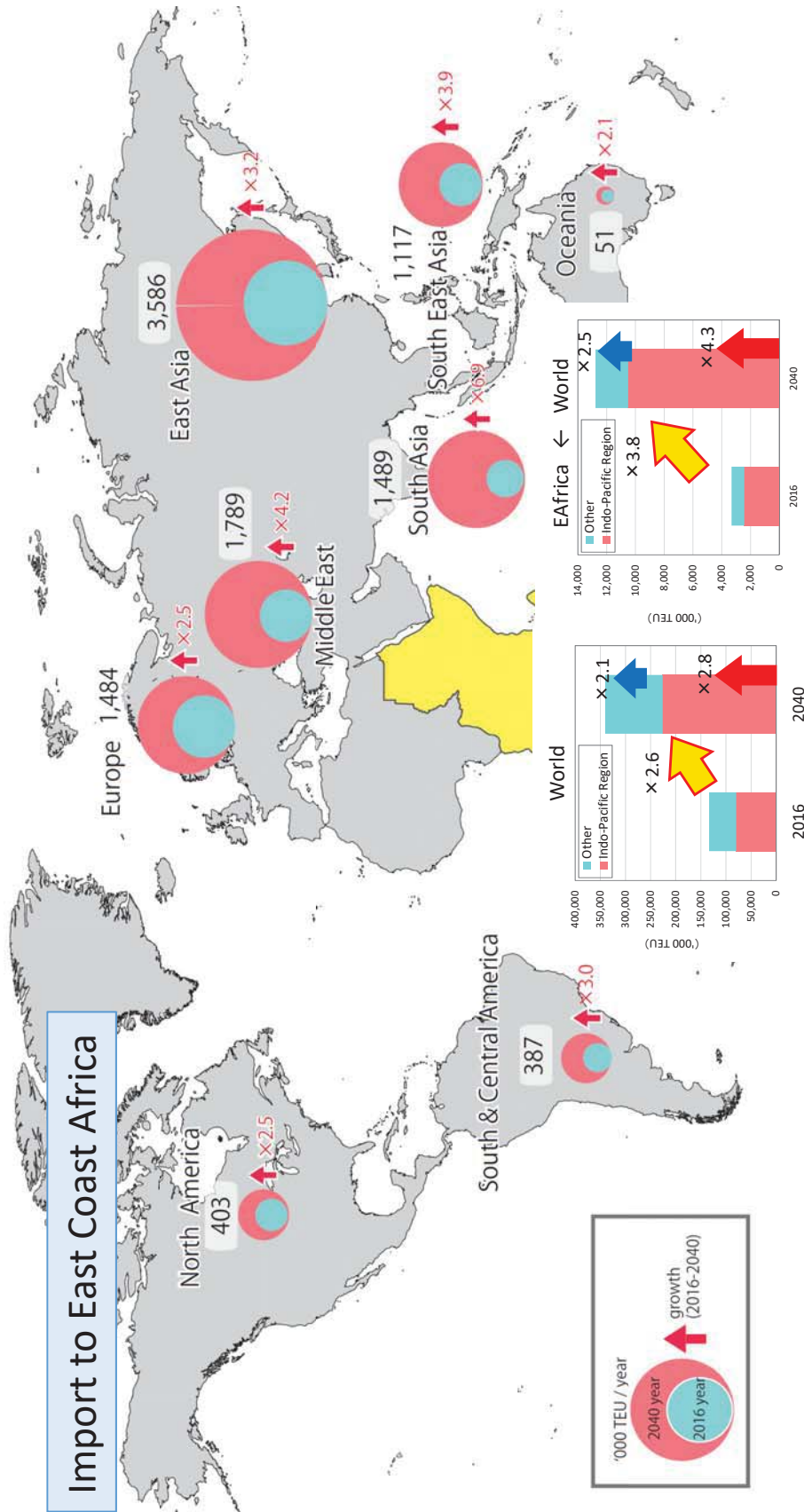
- Export volume from East Coastal Africa to the world would be 4.6 times larger, exceeding the average growth of the world(2.6 times).
- The biggest 3 trade partners are: 1) Europe, 2) East Asia, and 3) Middle East.
- Fastest growing trade partner would be South Asia (5.4 times).



3.1 What impact does removal of trade barriers through AfCFTA have on economies and industries?

■ Estimated Trade Volume Growth between East Coast Africa and the world (2016 – 2040: Import)

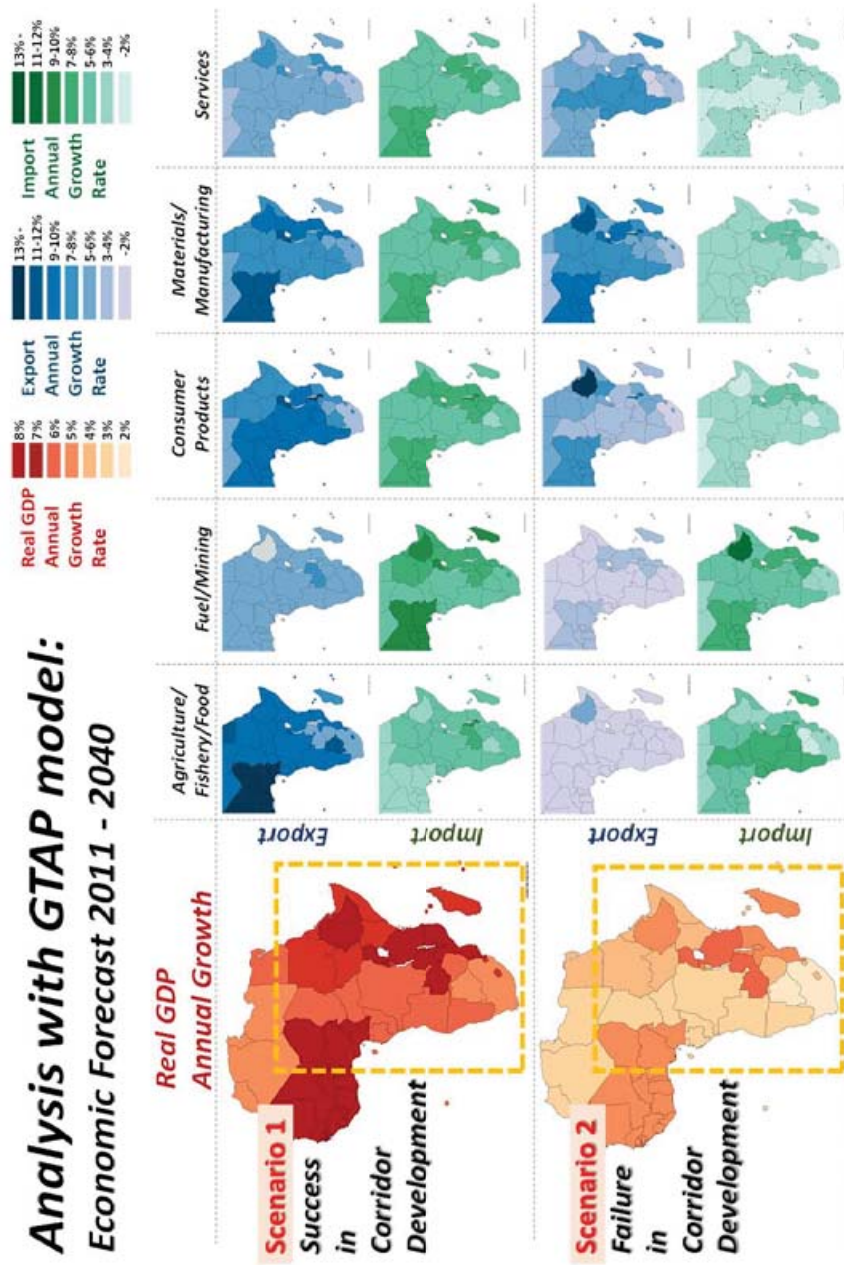
- Import volume to East Coast Africa from the world would be 3.8 times larger, exceeding the average growth of the world (2.6 times).
- The biggest 3 trade partners are: 1) East Asia, 2) Europe, and 3) Middle East.
- Fastest growing trade partner would be South Asia (4.3 times).



3.1 What impact does removal of trade barriers through AfCFTA have on economies and industries?

- Under S1 Scenario – Realization of Economic Corridor, both export and import would increase at high rate. Export growth tends to be larger.
 - circumstances similar to the coming into effect of the AfCFTA were assumed
- Under S2 Scenario – Failure of Economic Corridor, trade growth would be lower than S1, except for the primary industries such as agriculture and fuel.

**Analysis with GTAP model:
Economic Forecast 2011 - 2040**



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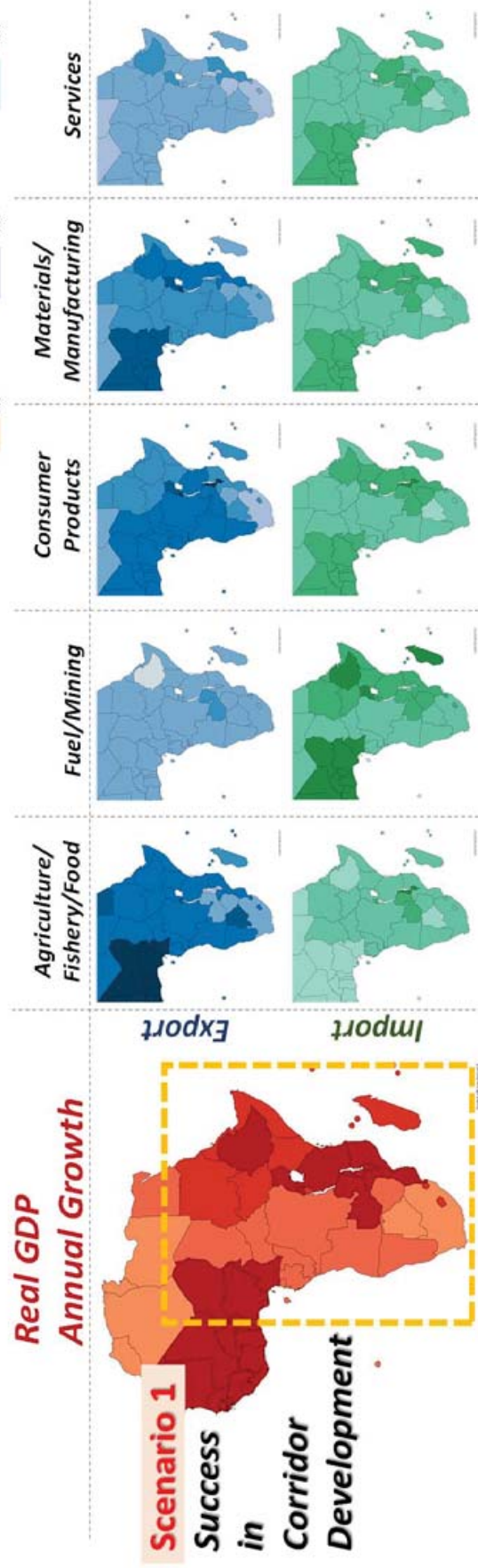
3.1 What impact does removal of trade barriers through AfCFTA have on economies and industries?

■ Under S1 Scenario, both the volume of exports and volume of imports increased overall

✓ In particular there was a large increase in exports

■ Competitive advantage in terms of price and quality

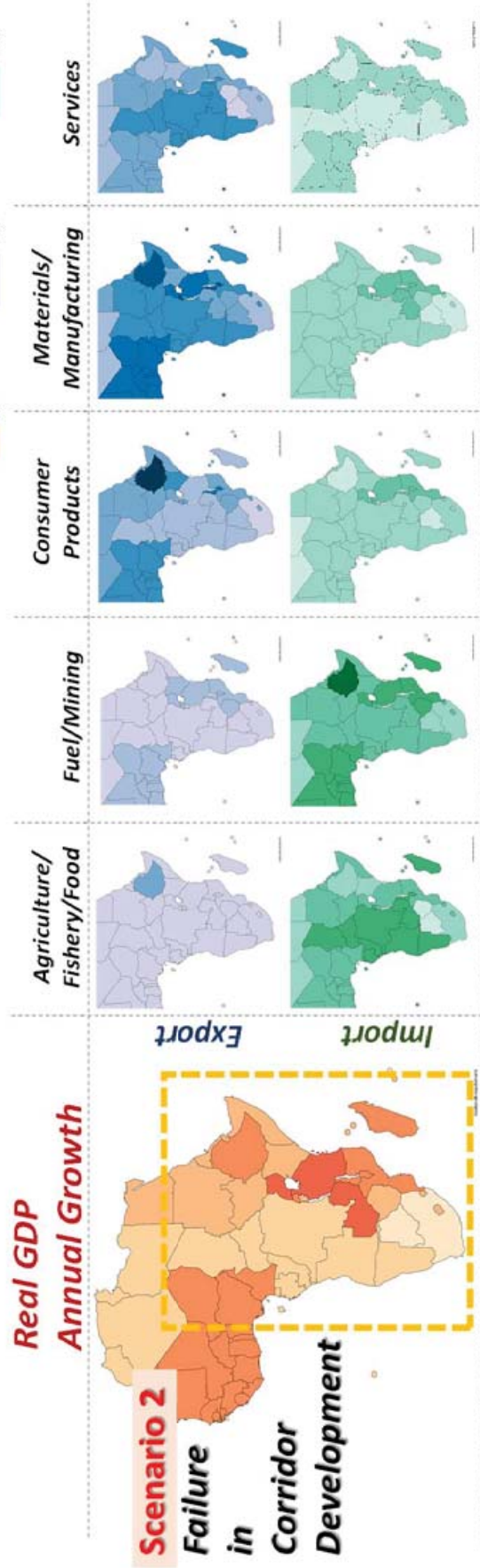
- Relative reduction in production costs in each African country as a result of technical innovation in production and transport
- Ability to procure input goods and production goods at lower cost from each African country as a result of reduction or elimination of trade barriers due to FTAs, etc.
- ✓ Increases in agricultural production on the east coast of Africa
- ✓ Increases in manufacturing in West Africa, etc.



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3.1 What impact does removal of trade barriers through AfCFTA have on economies and industries?

- Under S2 Scenario, growth rate of exports and imports was lower than S1
 - ✓ excluding primary industries such as agriculture, petroleum, etc.
- Some trade barriers remained in S2 compared with S1
 - Relative price differences between regions increased
 - More significant substitution of goods between countries and regions
- Removal of trade barriers, Promote infrastructure development, Private investment are important to economic development.



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3. Result of Study

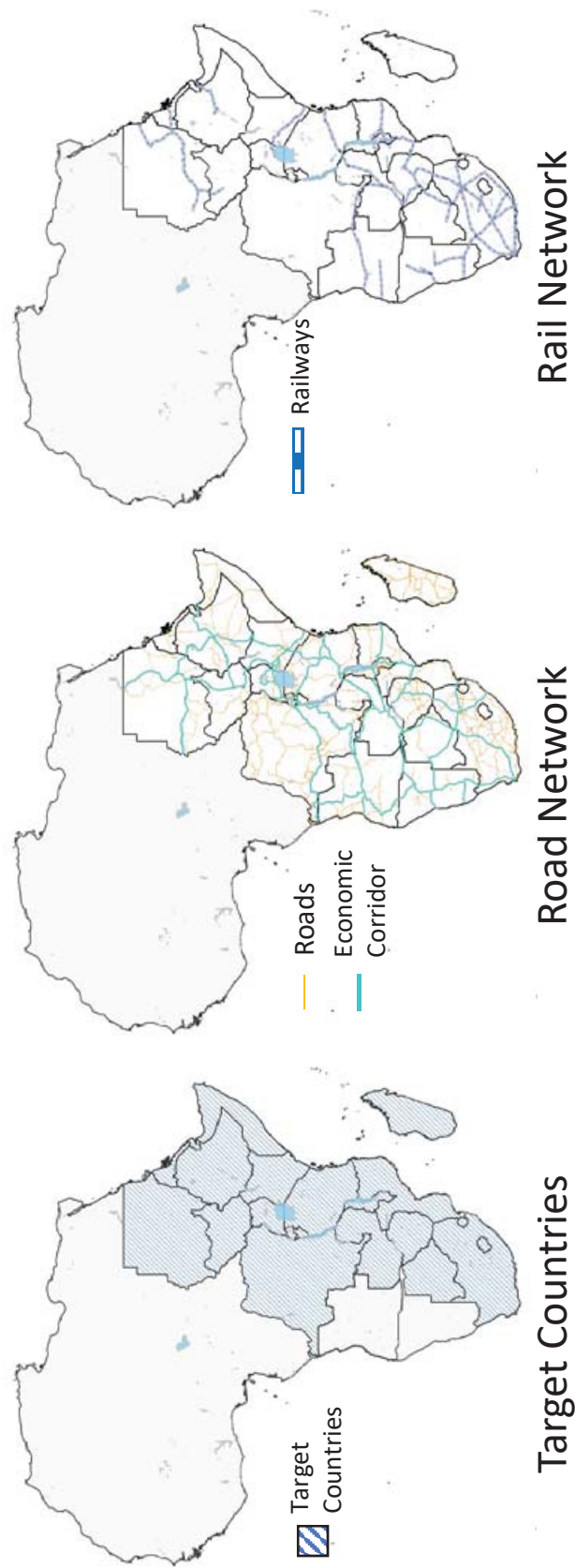
3.2 What impact does Economic Corridor development have on landlocked countries?

Global Logistics toward Free and Open Indo-Pacific Region

3.2 What impact does Economic Corridor development have on landlocked countries?

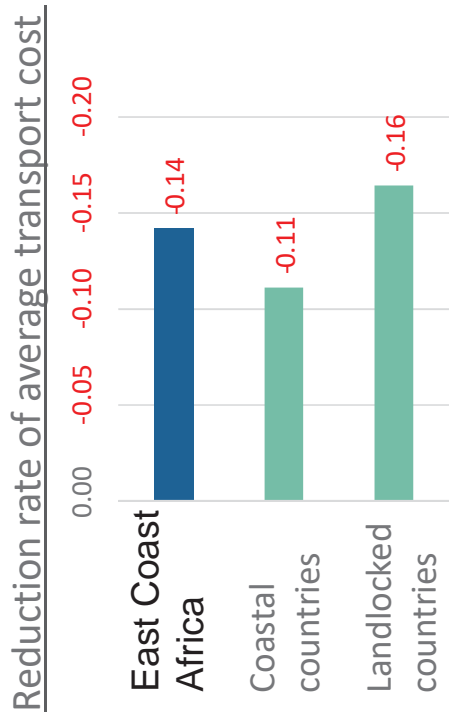
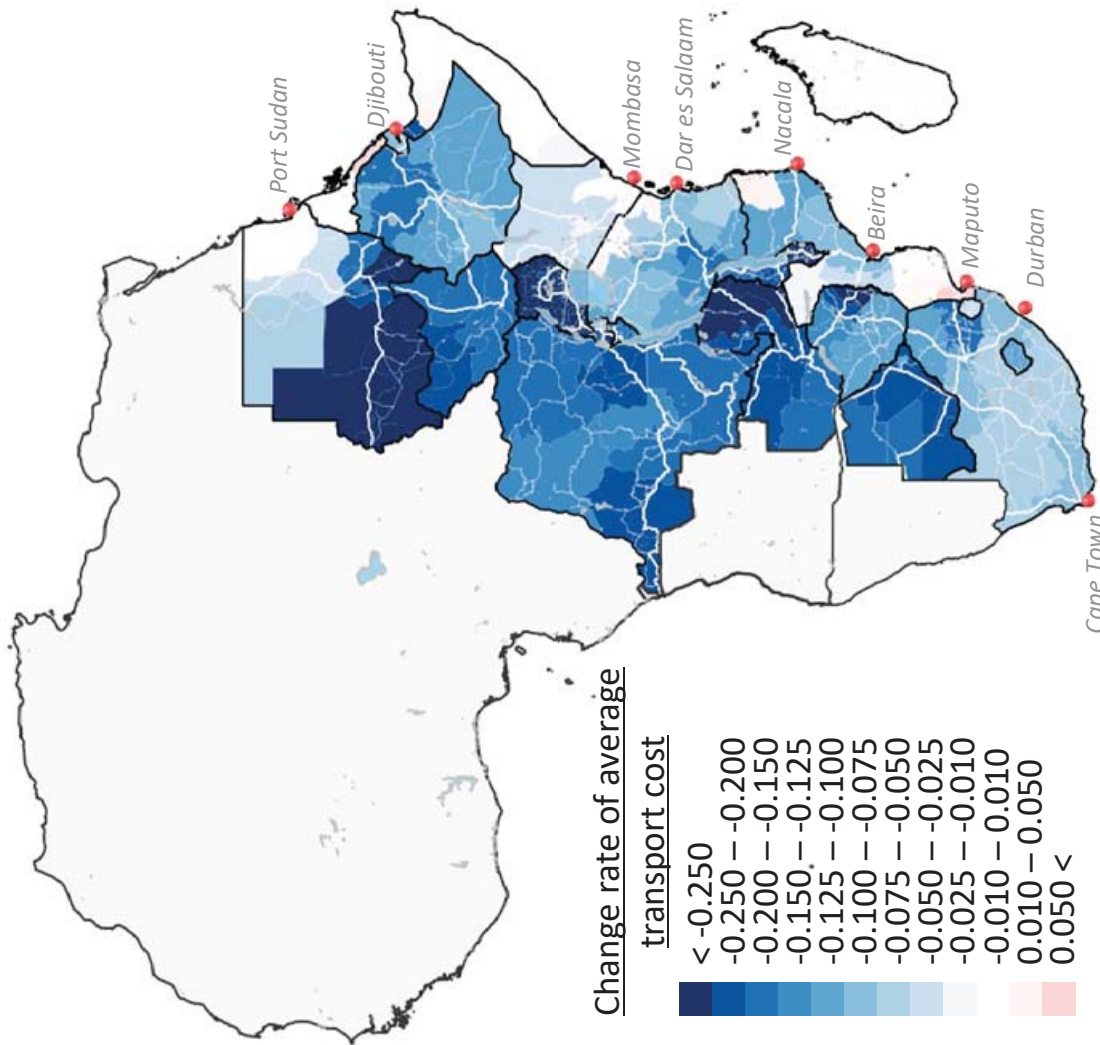
■ Impact analysis of Economic Corridor development in East Coast Africa (with – without)

- ✓ Network assignment of container cargo transport demand based on S1 – 2040
- ✓ Sensitivity analysis using Intermodal International Logistics Model.
- ✓ **<Infrastructure development>** Cost reduction effect due to improved transportation environment on Economic Corridor
- ✓ **<Cross border trade facilitation>** Reduction of cross border trade cost and time at the One Stop Border Post (OSBP) developed on the Economic Corridor



3.2 What impact does Economic Corridor development have on landlocked countries?

- Economic Corridor development and Cross-border trade facilitation at OSBP would contribute to reduction of transportation cost
 - Benefit is bigger in landlocked countries.
- Cost reduction for coastal countries is 11%, whereas that of landlocked countries is 16%.



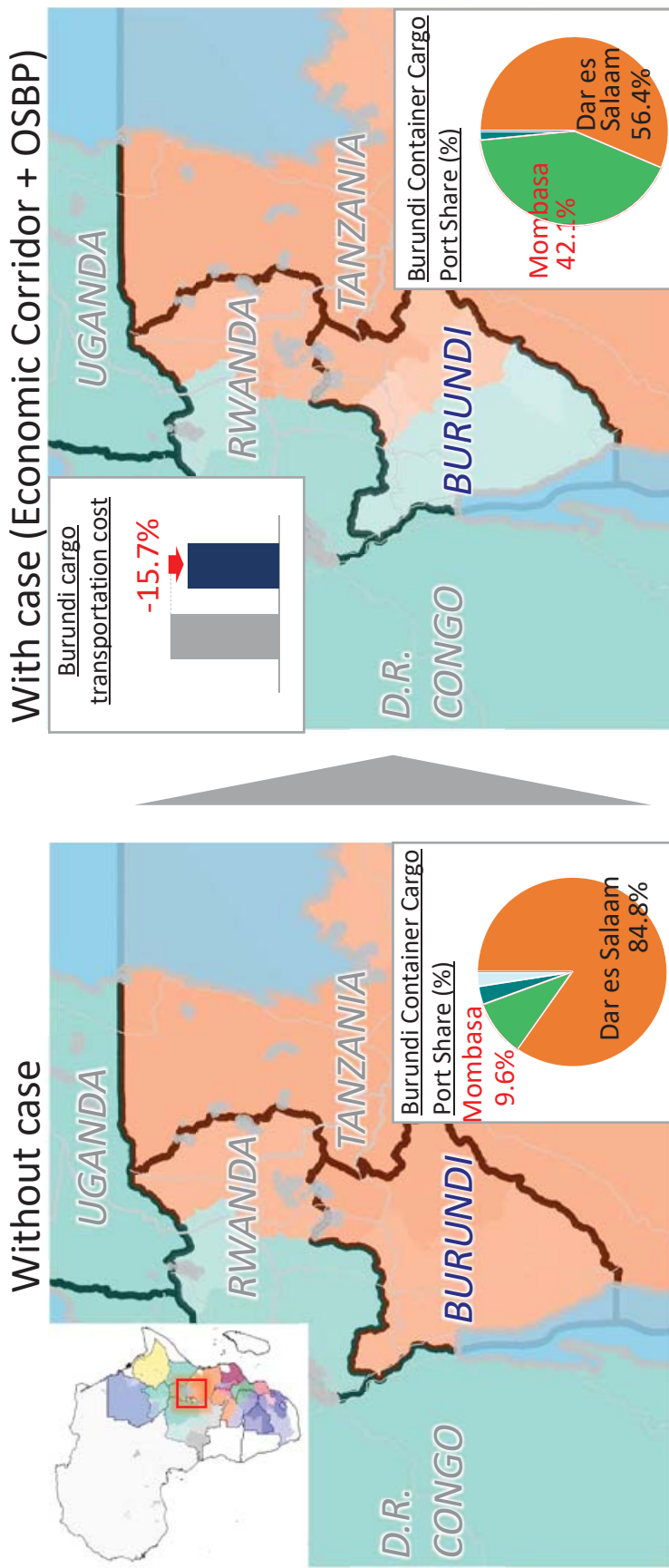
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3.2 What impact does Economic Corridor development have on landlocked countries?

■ Impact of Economic Corridor and OSBP (with – without comparison) : Case in Burundi

- Model shows that Burundi's port usage shall change by implementation of economic corridor and OSBP development.
- ✓ Economic Corridor development and OSBP would lead to increased usage of Mombasa (Kenya) port, as well as transport cost reduction.
- Burundi's case implies that Economic Corridor and OSBP would contribute to diversifying port choice, as well as cost reduction.



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3. Result of Study

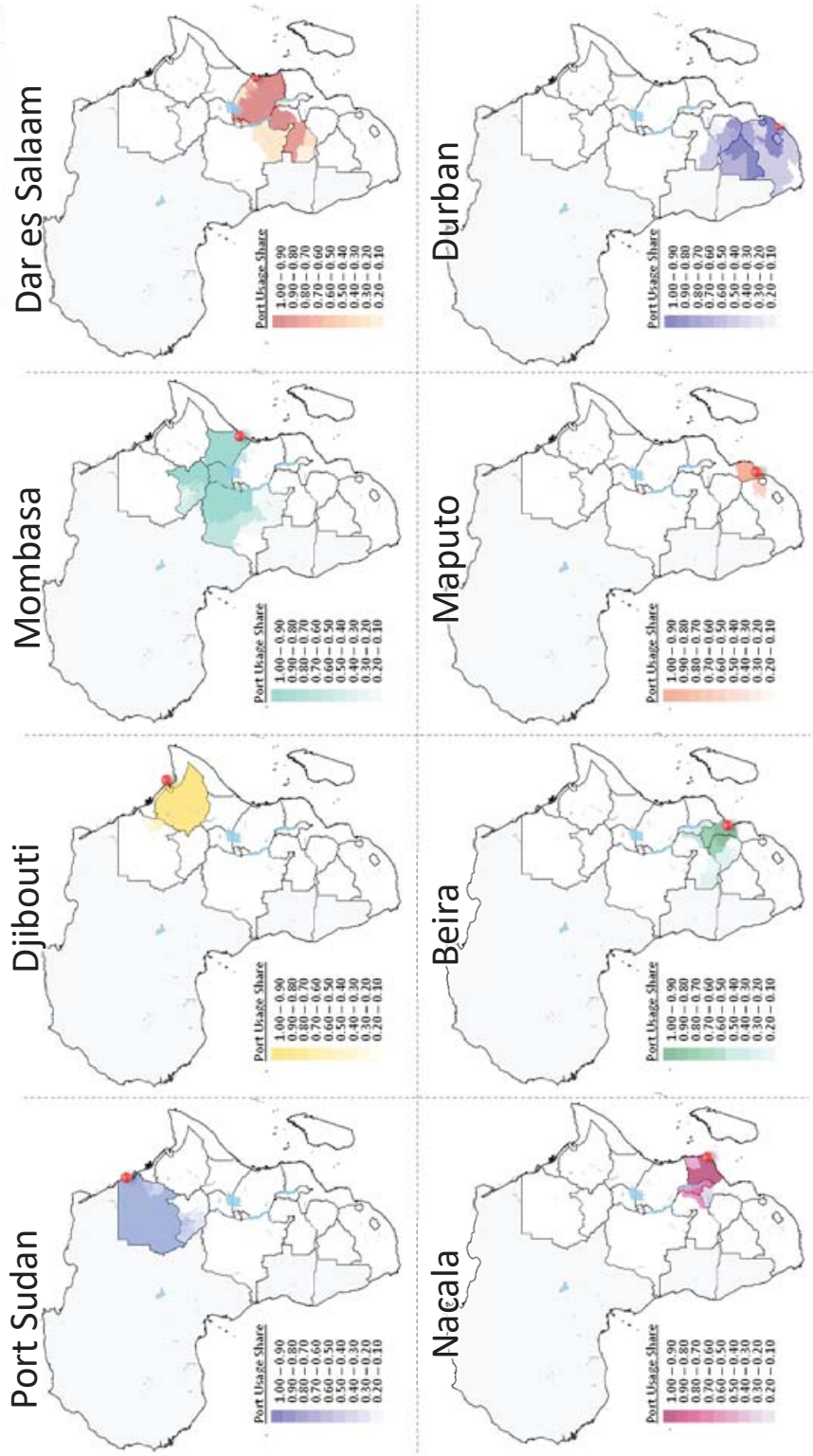
3.3 Which ports are important for each of East Coast African Country?

Global Logistics toward Free and Open Indo-Pacific Region

3.3 Which ports are important for each of East Coast African Country?

- **Port usage share by regions – in 2040 under S1 scenario**
 - Port usage are in principle consolidated into 8 major ports in the region.
 - Importance of Economic Corridor development is amplified as the ports are all connected by the Corridor.
- ✓ Result shows inland countries such as D. R. Congo, Zambia has multiple choices of ports

*The disclaimer is as stated in the margin.

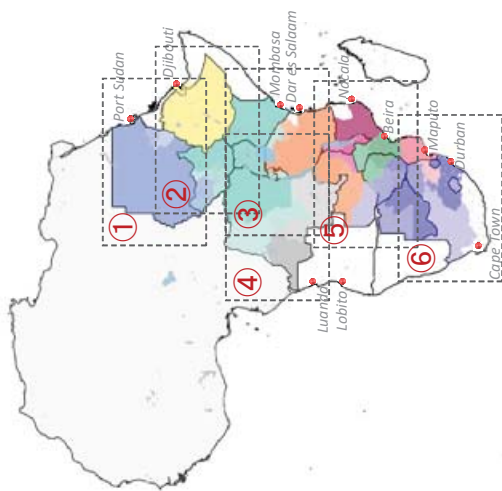
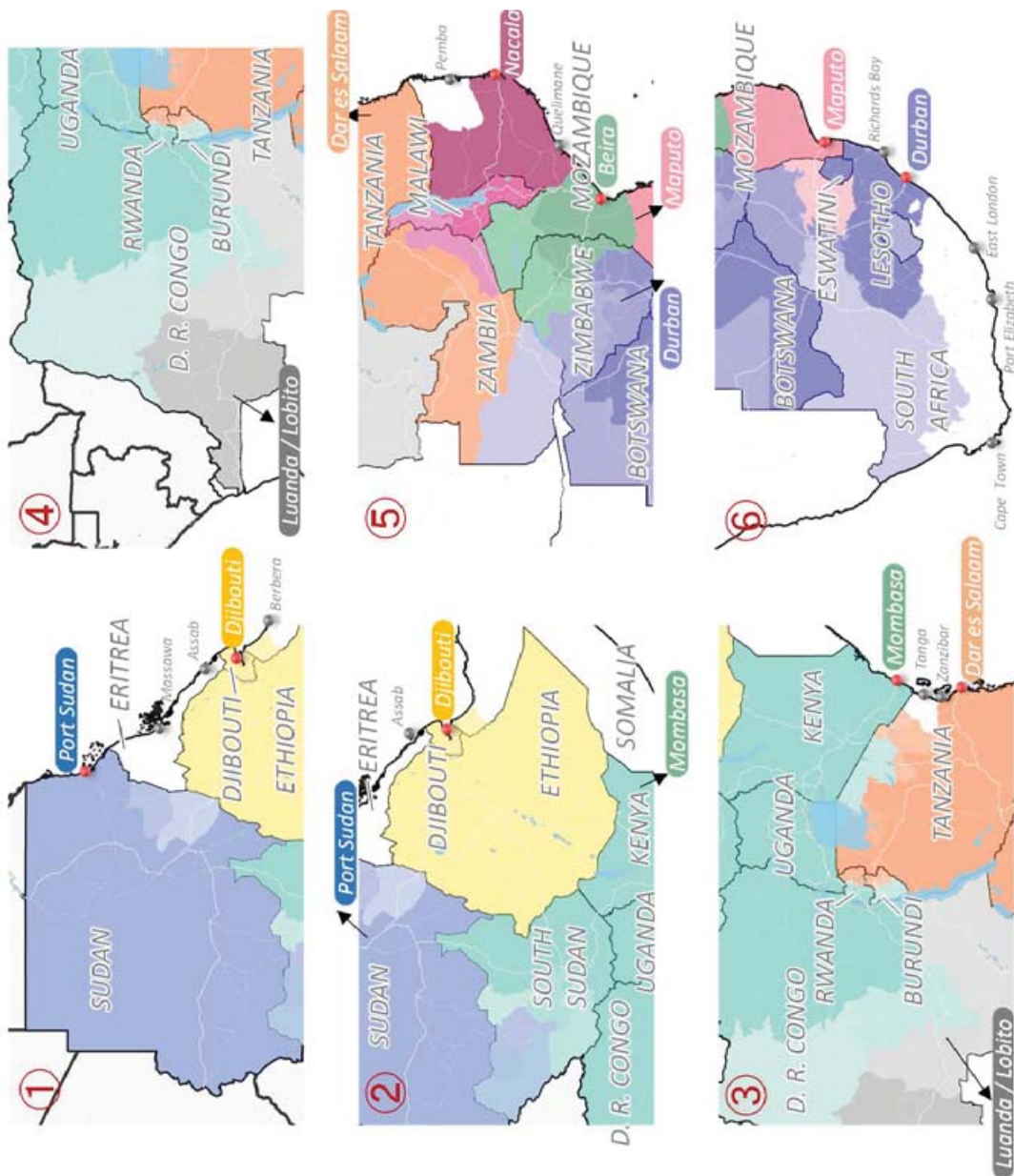


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3.3 Which ports are important for each of East Coast African Country?

■ Port usage share by regions (detail) – in 2040 under S1 scenario

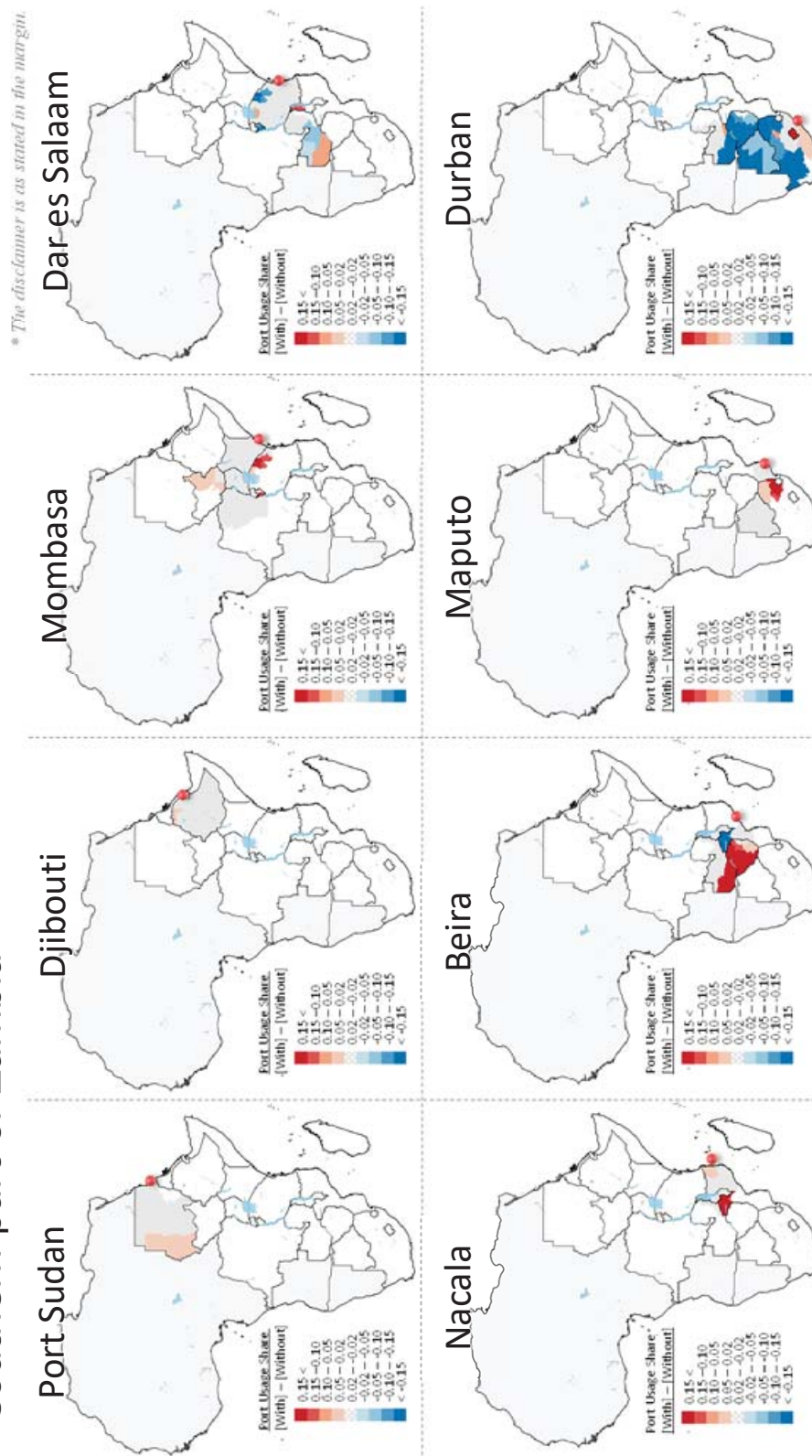
- Several ports cover vast areas including inland countries:
 - ✓ Djibouti, Mombasa, Dar es Salaam, Nacala, Beira, Durban
- Improvement of these ports and ensuring connectivity through Corridor and OSBP is important.



3.3 Which ports are important for each of East Coast African Country?

■ Port usage share change by regions: with-without Economic Corridor and OSBP – in 2040 under S1 scenario

- In “with” case, Durban Port would reduce cargo in Botswana, Zimbabwe, and Zambia due to competition with other ports.
- In “with” case, Beira port would increase cargo in Zimbabwe and southern part of Zambia

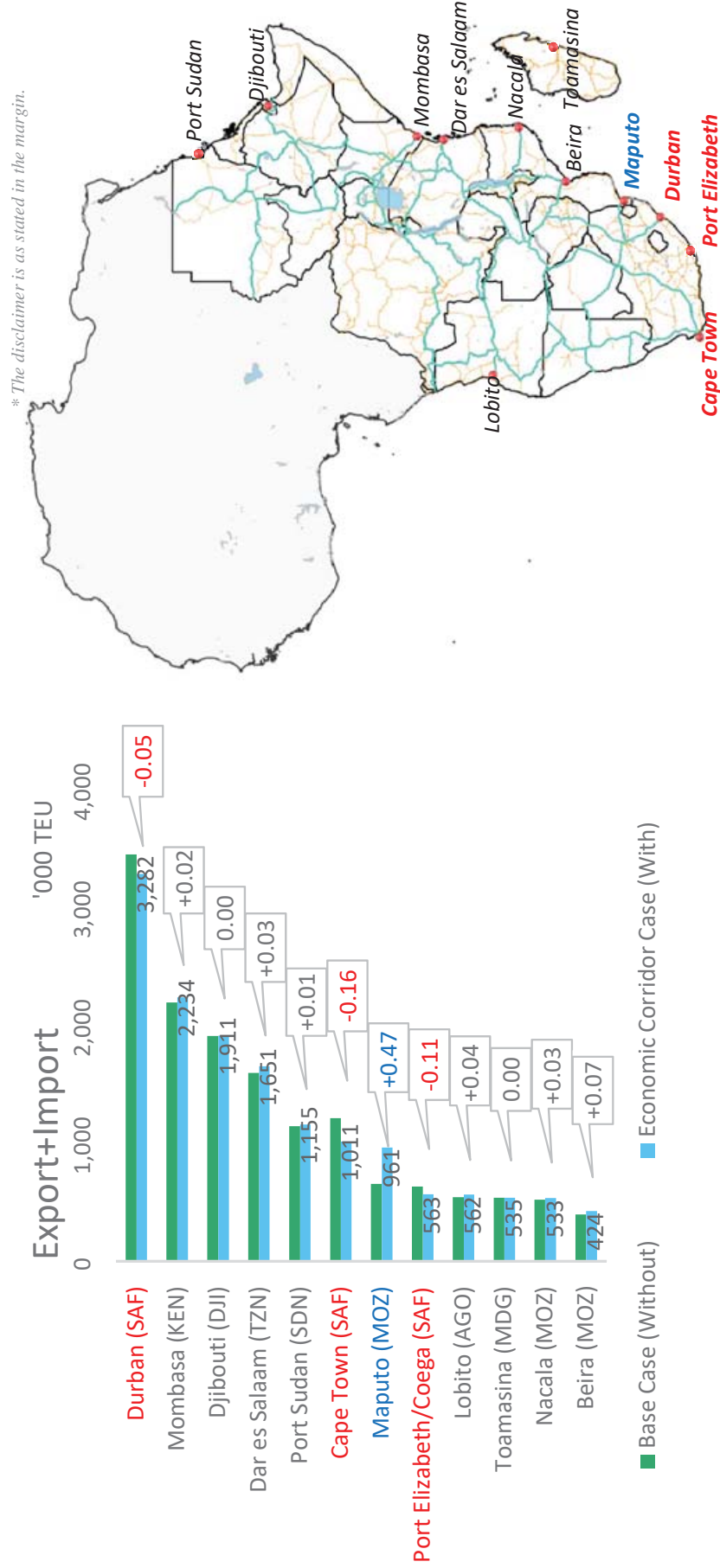


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3.3 Which ports are important for each of East Coast African Country?

■ Port throughput change by ports: with-without Economic Corridor and OSBP – in 2040 under S1 scenario

- South African ports (Durban, Cape Town, Port Elizabeth to decrease cargo handling).
- Maputo port in Mozambique to significantly increase cargo handling.

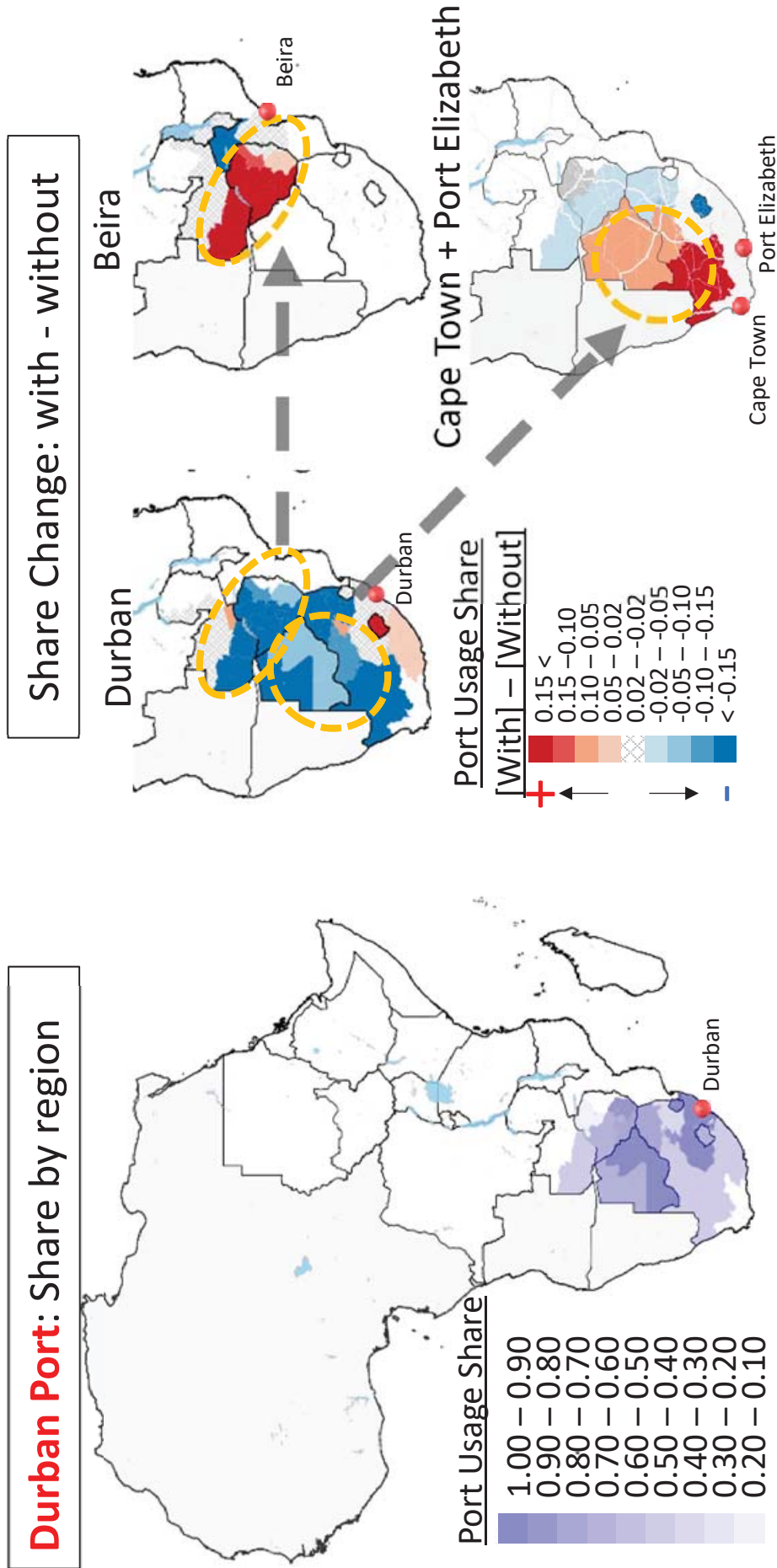


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3.3 Which ports are important for each of East Coast African Country?

■ Port usage share change for **Durban Port**: with-without Economic Corridor and OSBP – in 2040 under S1 scenario

- Durban port continues to be an influential port with vast hinterland.
- However, with corridor and OSBP development, Durban may lose its hinterland due to competition with ports in Mozambique as well as domestic ports.

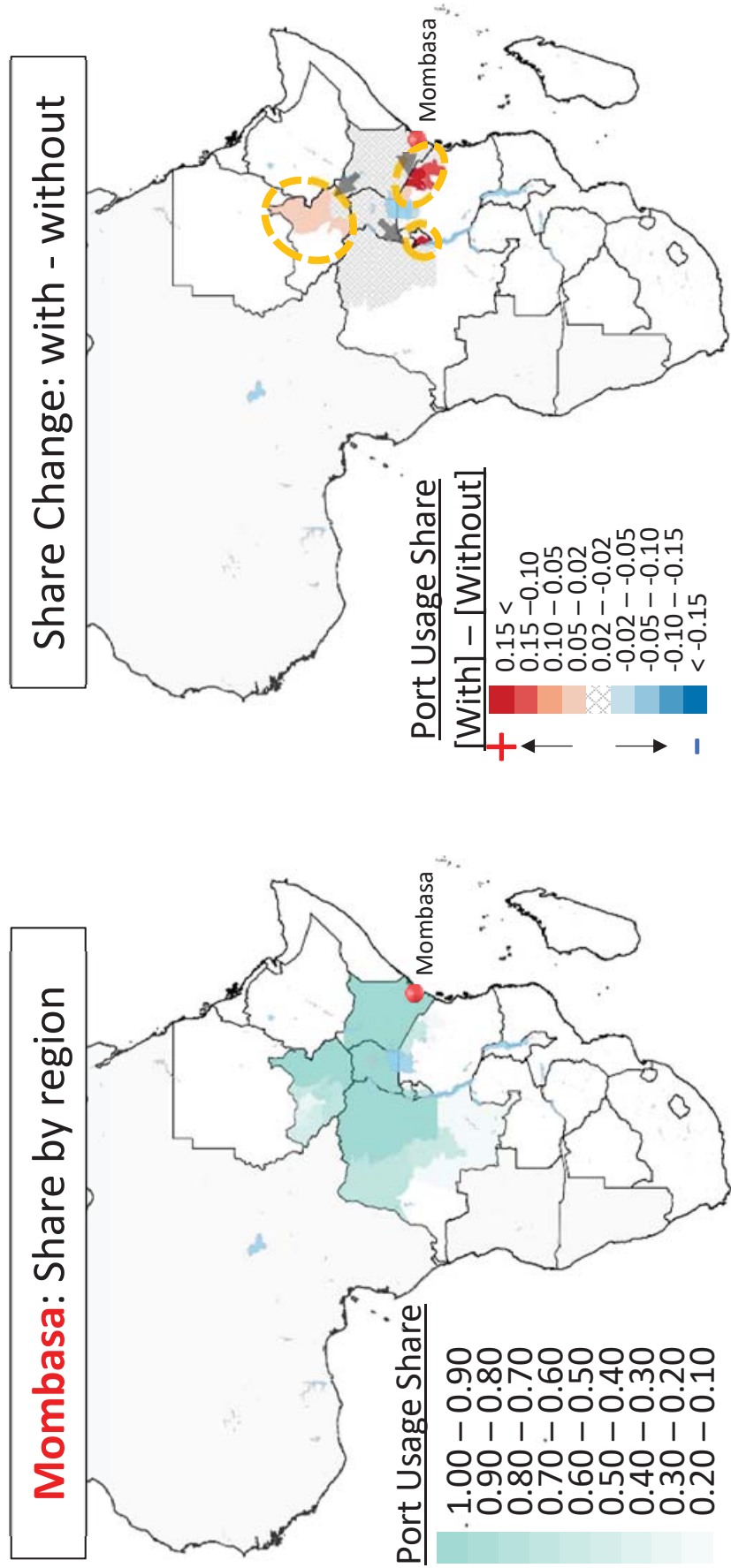


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3.3 Which ports are important for each of East Coast African Country?

■ Port usage share change for **Mombasa Port**: with-without Economic Corridor and OSBP – in 2040 under S1 scenario

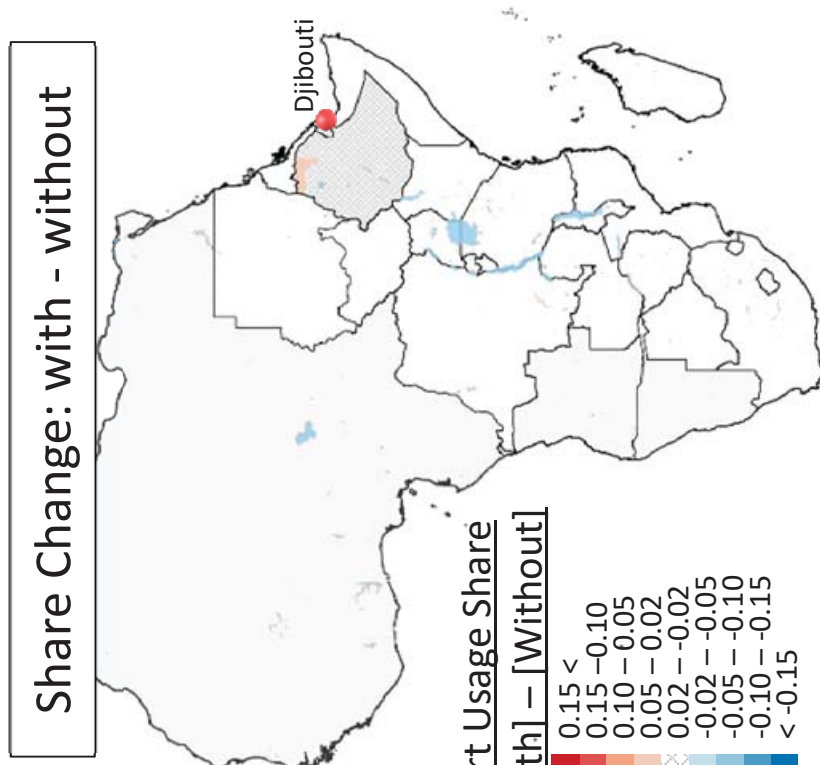
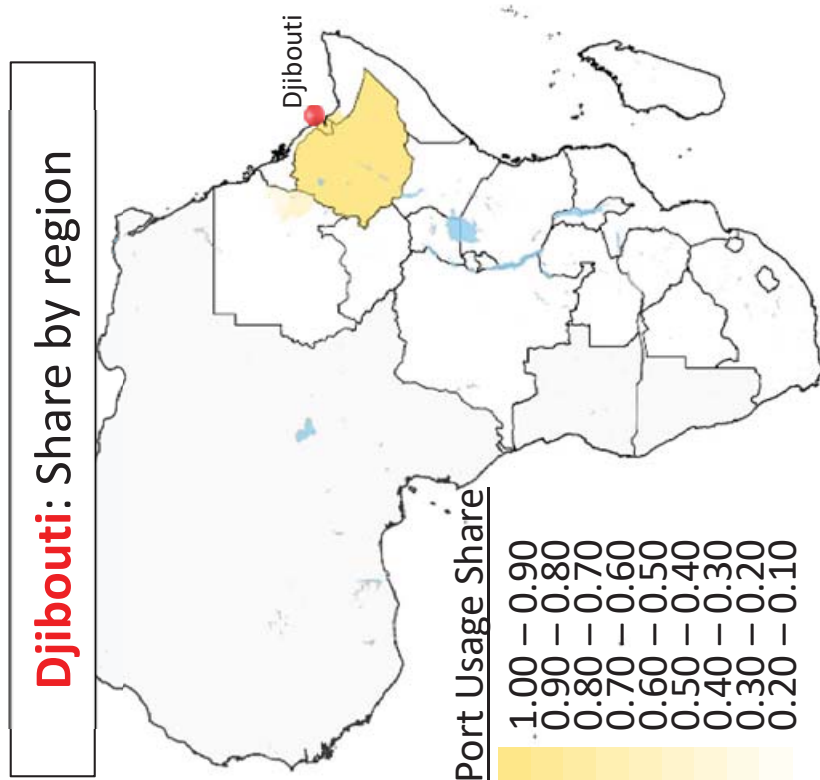
- Mombasa Port’s hinterland covers vast regions including inland countries: Uganda, South Sudan, and D.R. Congo
- Corridor and OSBP development would contribute to broadening its hinterland to Tanzania border, eastern part of South Sudan, and Burundi.



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3.3 Which ports are important for each of East Coast African Country?

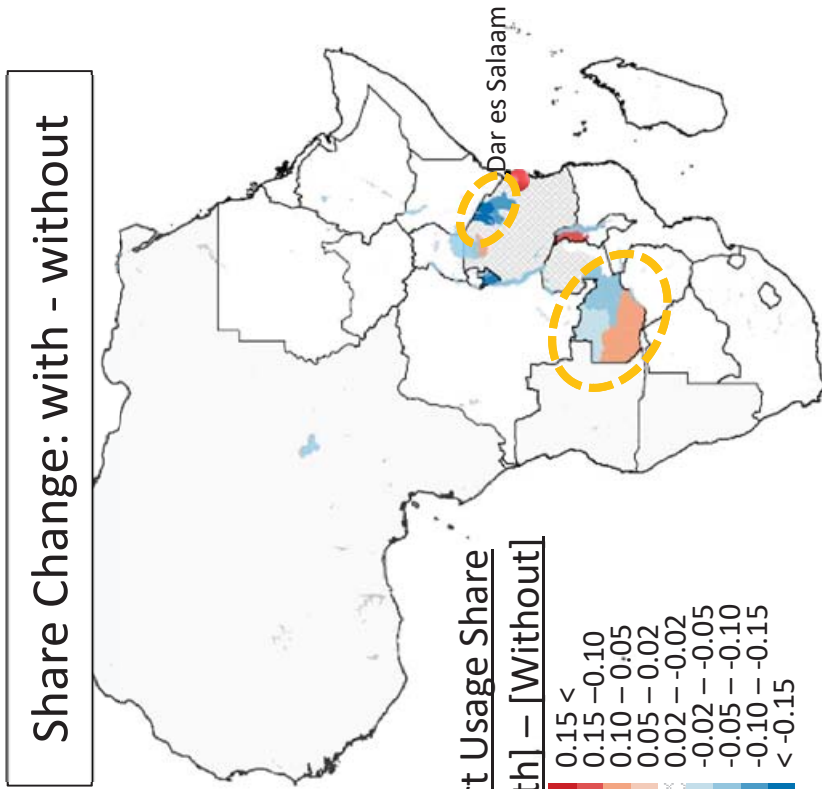
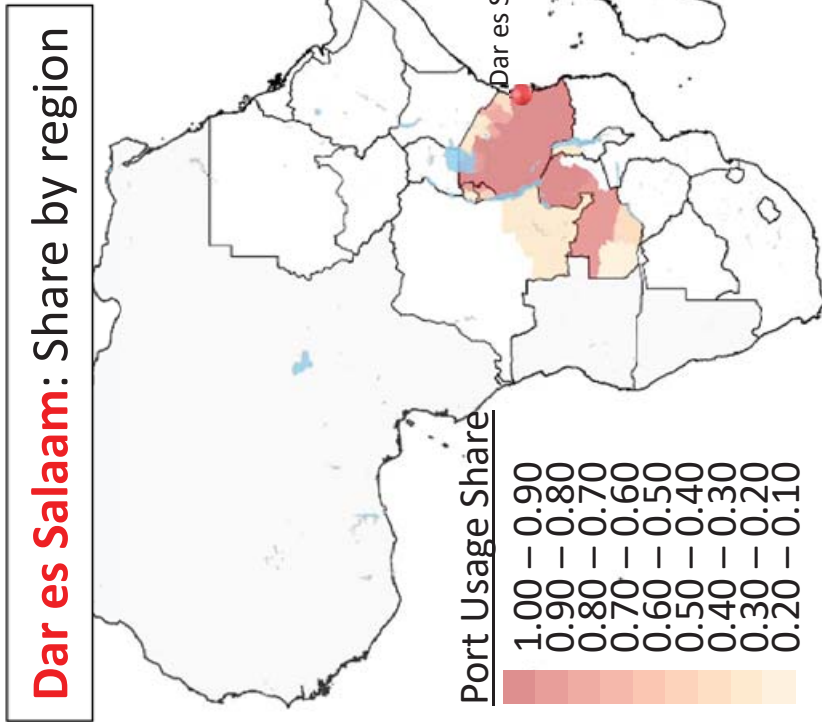
- **Port usage share change for Djibouti Port: with-without Economic Corridor and OSBP – in 2040 under S1 scenario**
 - Djibouti Port would be a primary port for Ethiopia, handling most of its cargo
 - Change for Djibouti Port’s hinterland area is limited regardless of development of corridor and OSBP



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3.3 Which ports are important for each of East Coast African Country?

- **Port usage share change for Dar es Salaam Port: with-without Economic Corridor and OSBP – in 2040 under S1 scenario**
 - Dar es Salaam Port’s hinterland covers vast regions including inland countries: Rwanda, Burundi, Zambia, southern part of Malawi
 - Corridor and OSBP development could lead to increasing the share in Malawi, however losing its share around the border with Kenya, and in Zambia



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3. Result of Study

3.4 Does the current infrastructure development plan sufficiently address the future demand?

Global Logistics toward Free and Open Indo-Pacific Region

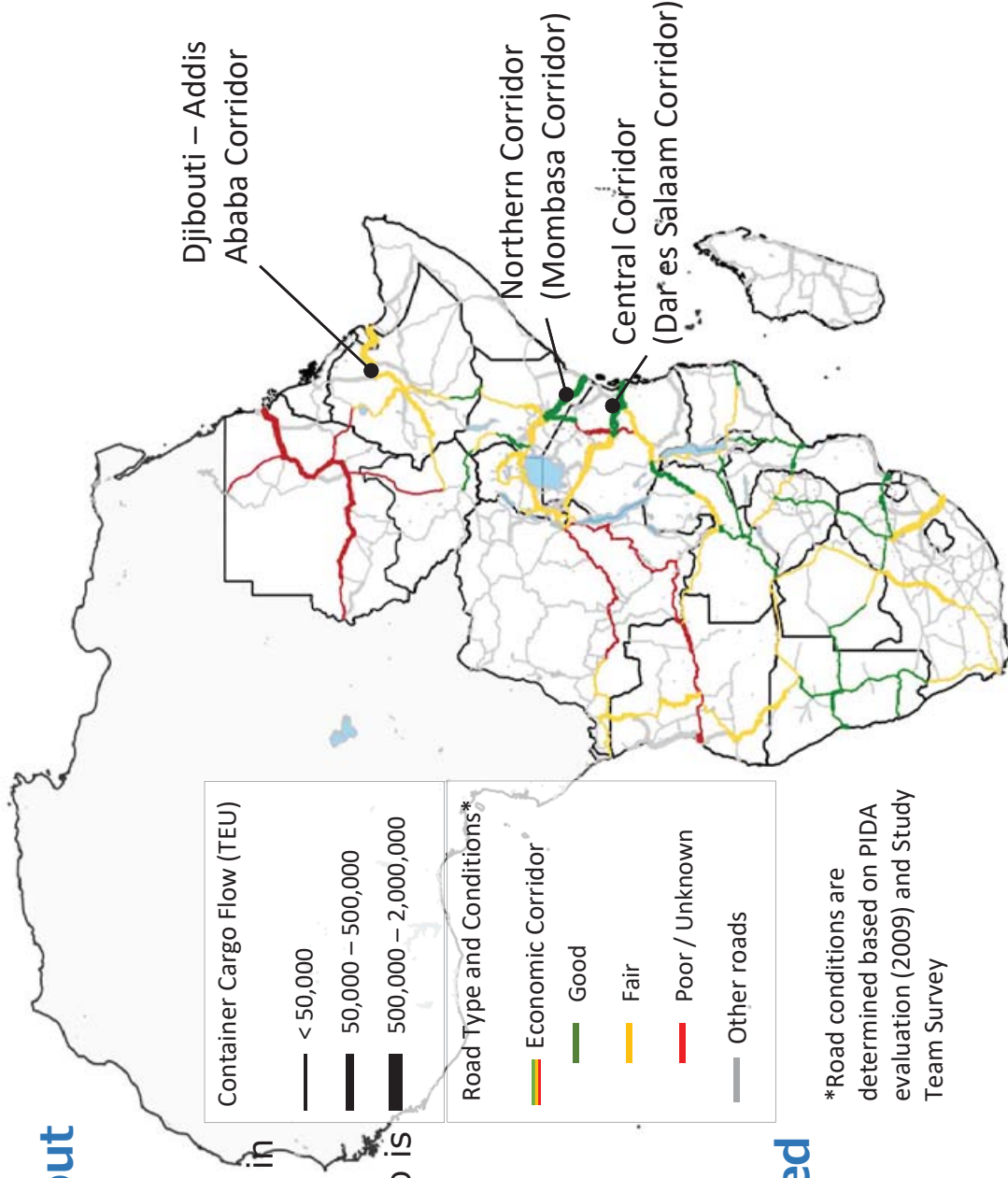
3.4 Does the current infrastructure development plan sufficiently address the future demand?

■ PIDA report points out concerns for infrastructure gap

- Cargo transport demand would increase significantly in the region due to growth in population and economy.
- Transport demand for cargo is forecasted to exceed the current transport network development.

■ Demand for development of Economic Corridors connecting landlocked countries

- Gap between demand and capacity exists especially at Djibouti Corridor, Mombasa Corridor, and Dar es Salaam Corridor.

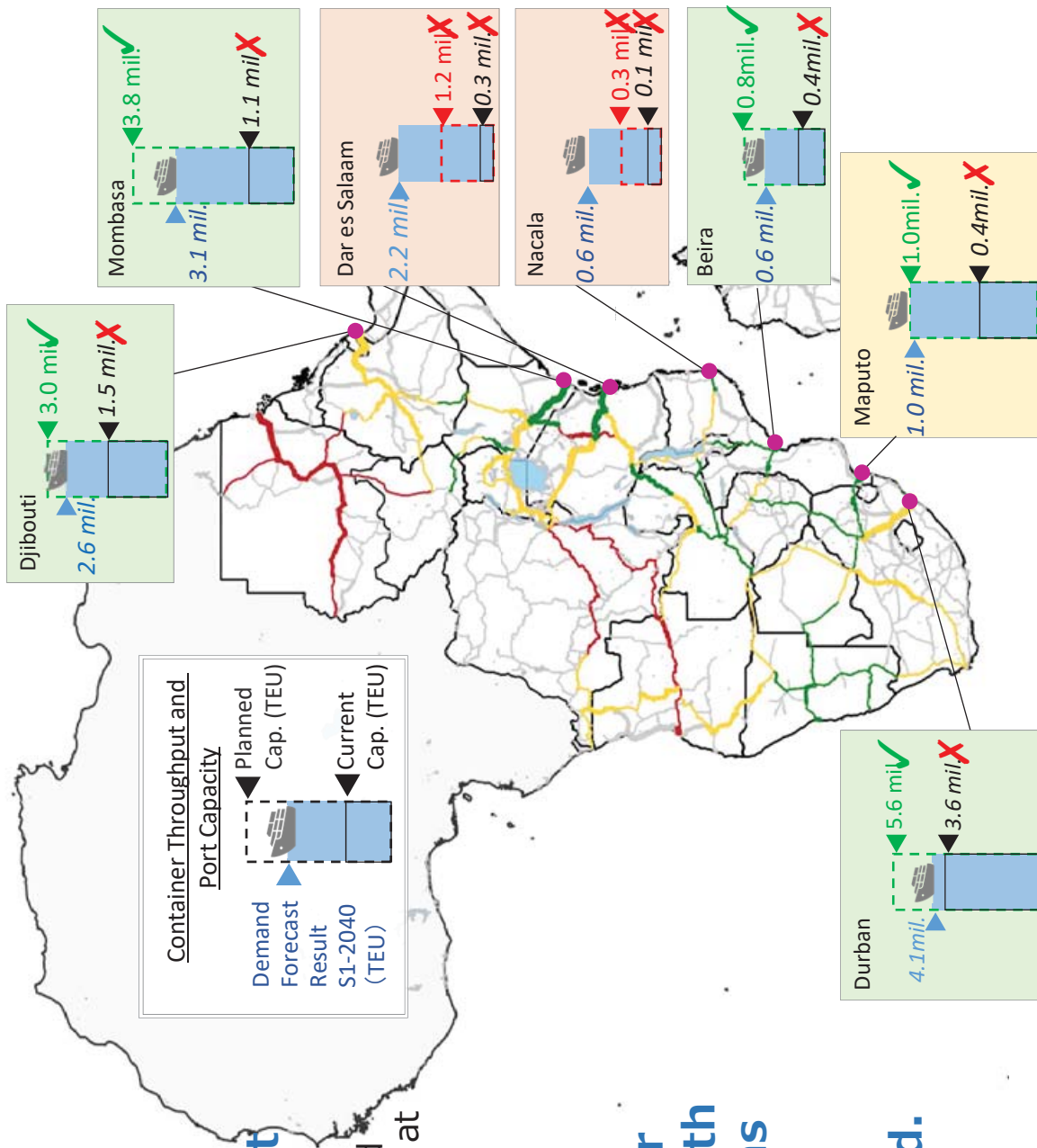


* Container volume on land network excludes empty container and includes only laden containers

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3.4 Does the current infrastructure development plan sufficiently address the future demand?

- Port development plans need to be reviewed and implemented to meet future demand
 - Cargo demand could exceed planned capacity, especially at Dar es Salaam Port and Nacala Port.
- It is important to provide strategies for port developments with special considerations for the growth of cargo transport demand at hinterland.



* Cargo handling estimation includes empty container volume

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3. Result of Study

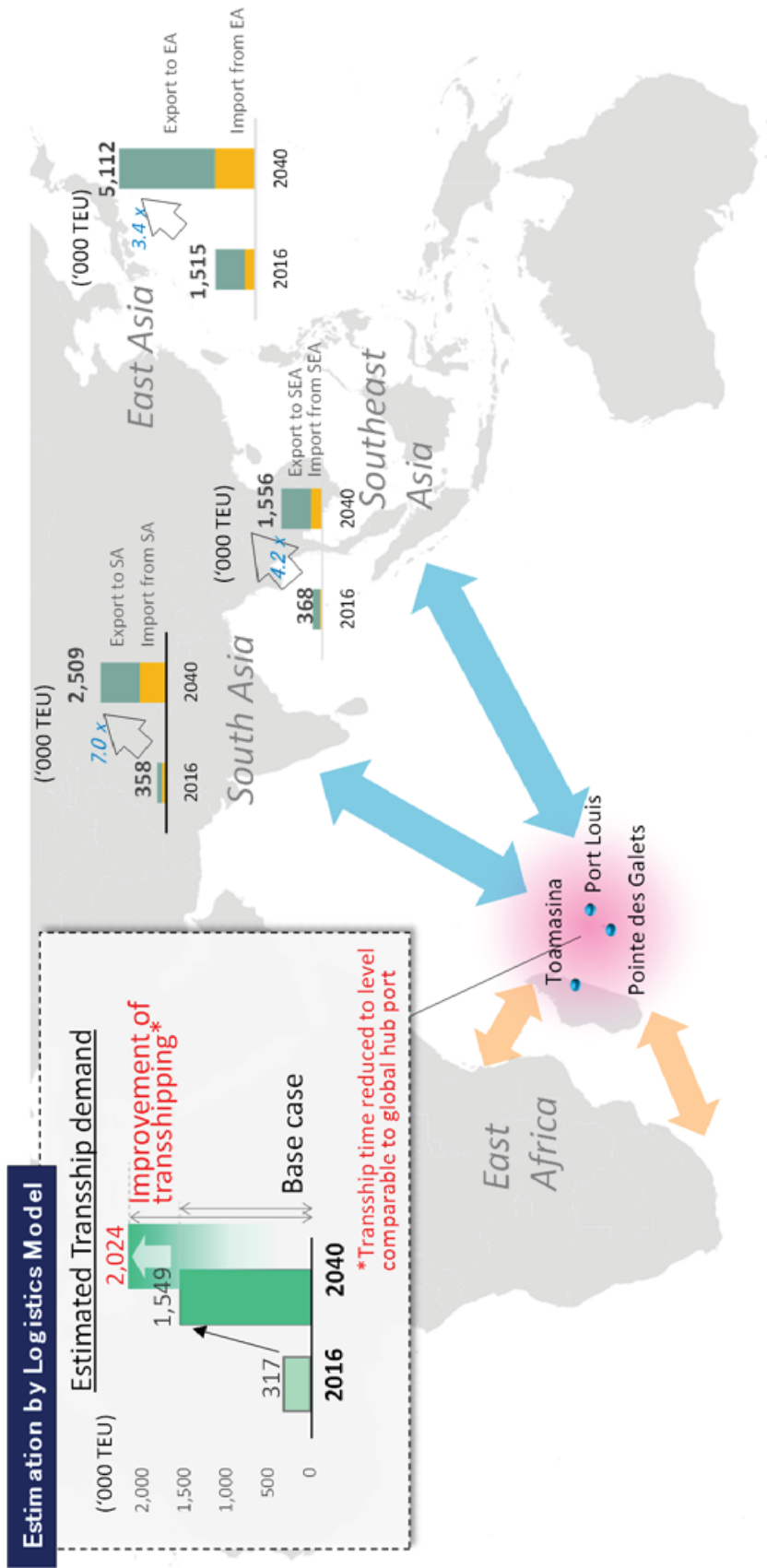
3.5 How much potential does the East Coast Africa Island Country have as a transship hub port?

Global Logistics toward Free and Open Indo-Pacific Region

3.5 How much potential does the East Africa Island Country have as a transship hub port?

■ Estimation of Transship demand at East Africa Island Countries

- Transship cargo volume at Toamasina Port, Port Louis, and Pointe des Galets is estimated to be five times larger in 2040 under S1-scenario
- When Transship time is reduced to 1/3, additional volume of 500,000 TEU is estimated for transshipment.

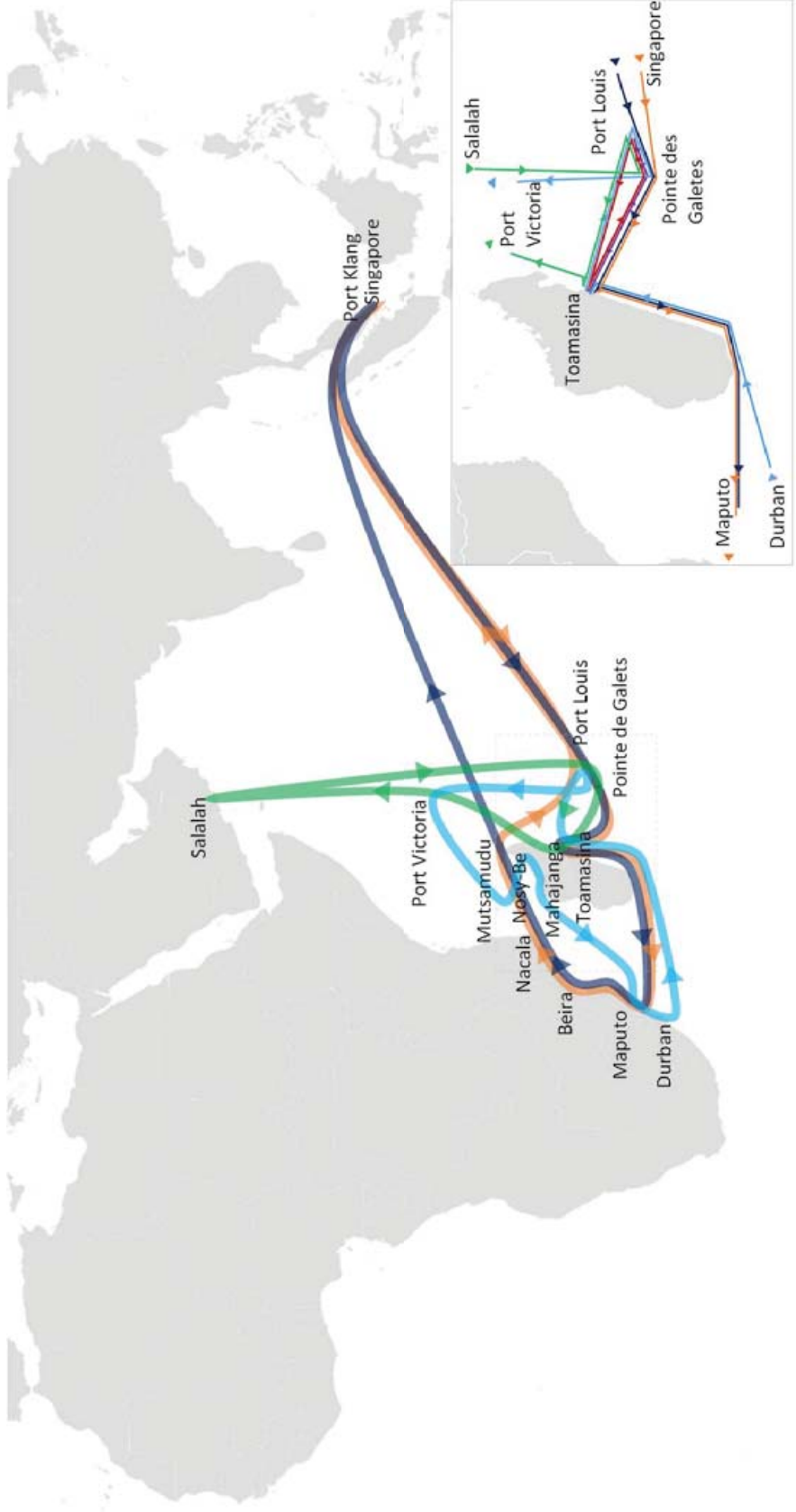


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3.5 How much potential does the East Africa Island Country have as a transship hub port?

■ Maritime transport network for Toamasina port (actual network at 2016)

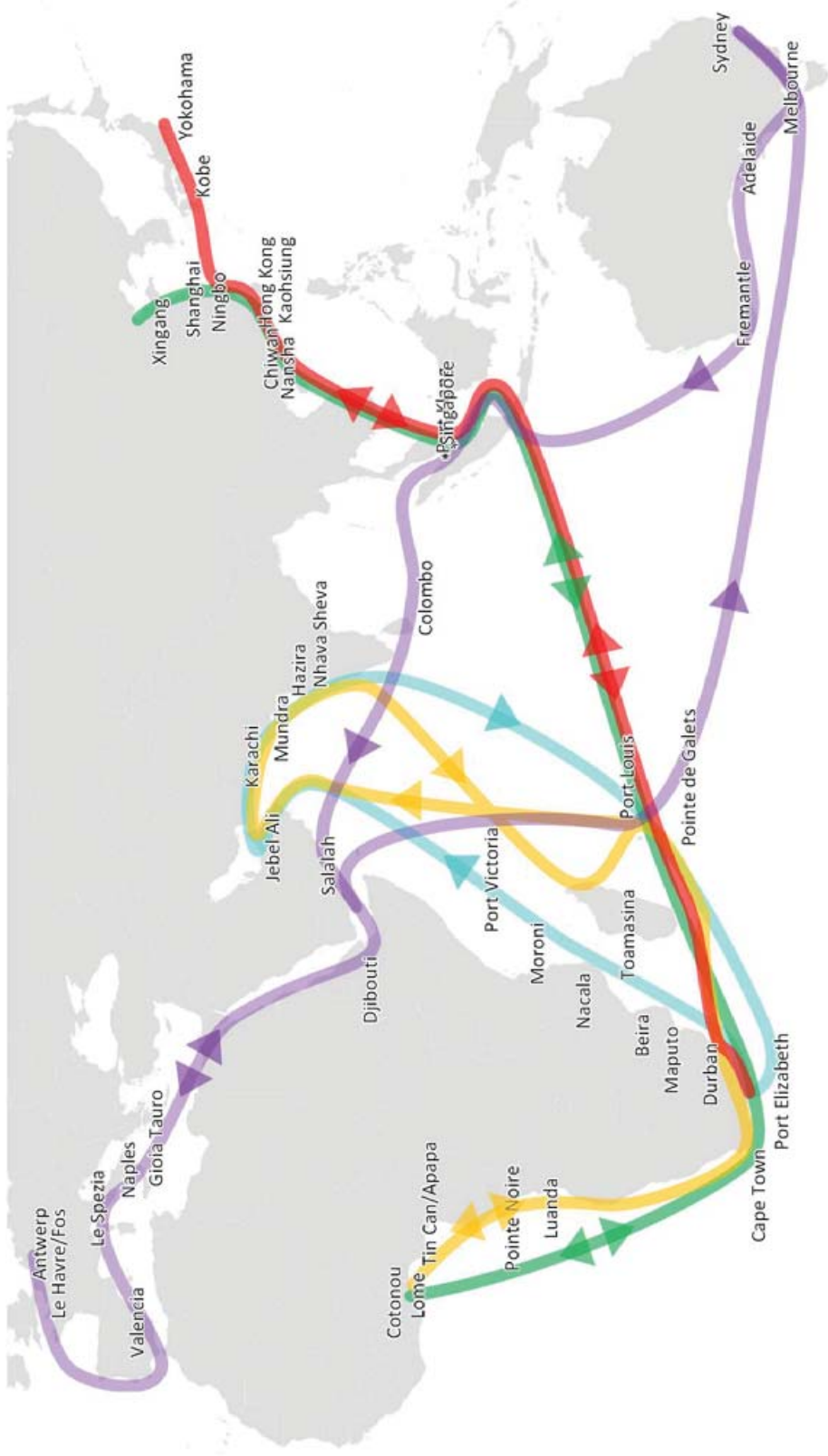
- Toamasina is heavily linked with Port Louis and Pointe des Galets
- No direct service connecting East Asia, or Europe.



3.5 How much potential does the East Africa Island Country have as a transship hub port?

■ Maritime transport network for Port Louis (actual network at 2016)

- Port Louis has wide variety of maritime transport networks, including loops connecting East Asia, South Asia, and Europe.



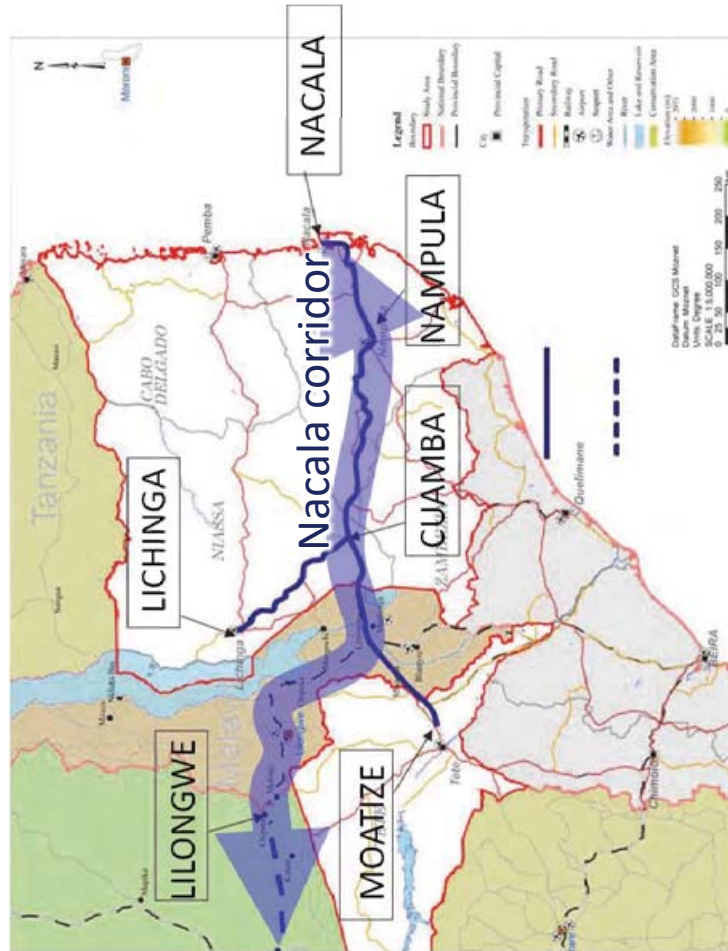
3. Result of Study

3.6 How would railways impact the port hinterland?
(Case study on Nacala economic corridor)

Global Logistics toward Free and Open Indo-Pacific Region

3.6 How would railways impact the port hinterland? (Case study on Nacala economic corridor)

- Previous JICA Study emphasize the importance of Moatize – Nacala rail in transportation of coal.
- Importance of cargo transport other than coal is also highlighted in ensuring multimodal transportation.
- The case study examines the impact and potential of Nacala railway when it is used for container cargo transport
- Analysis with logistics model for the year 2040 under S1 scenario.



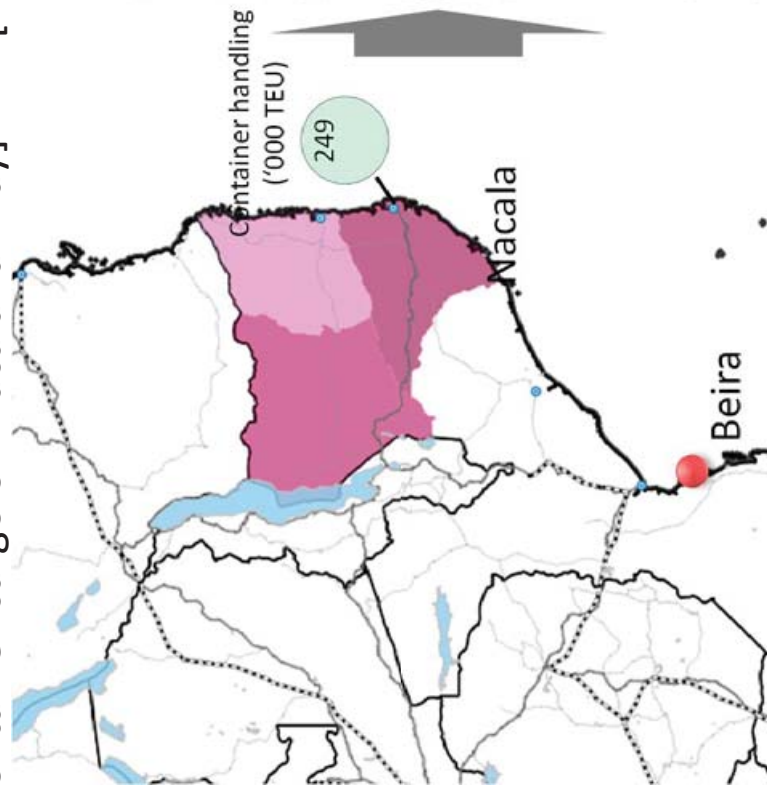
3.6 How would railways impact the port hinterland? (Case study on Nacala economic corridor)

■ Change of Nacala port hinterland area (with – without comparison)

- The result implies hinterland of Nacala port could cover Malawi, and southeast region of Zambia
- Cargo handling (laden container) estimated to grow more than 70%

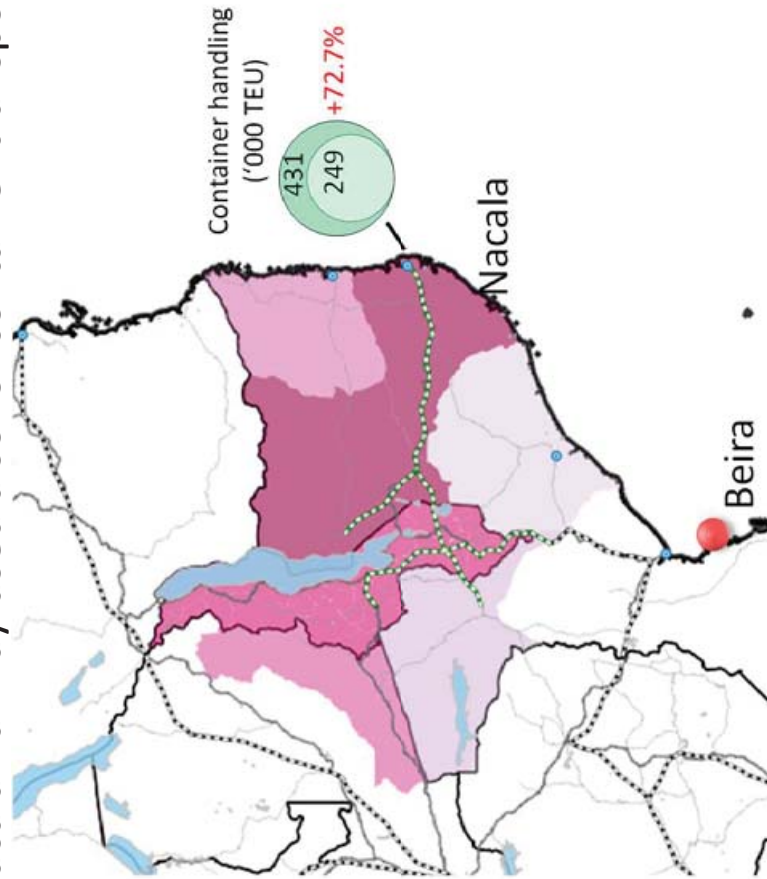
without

[No container cargo on Nacala railway]



With

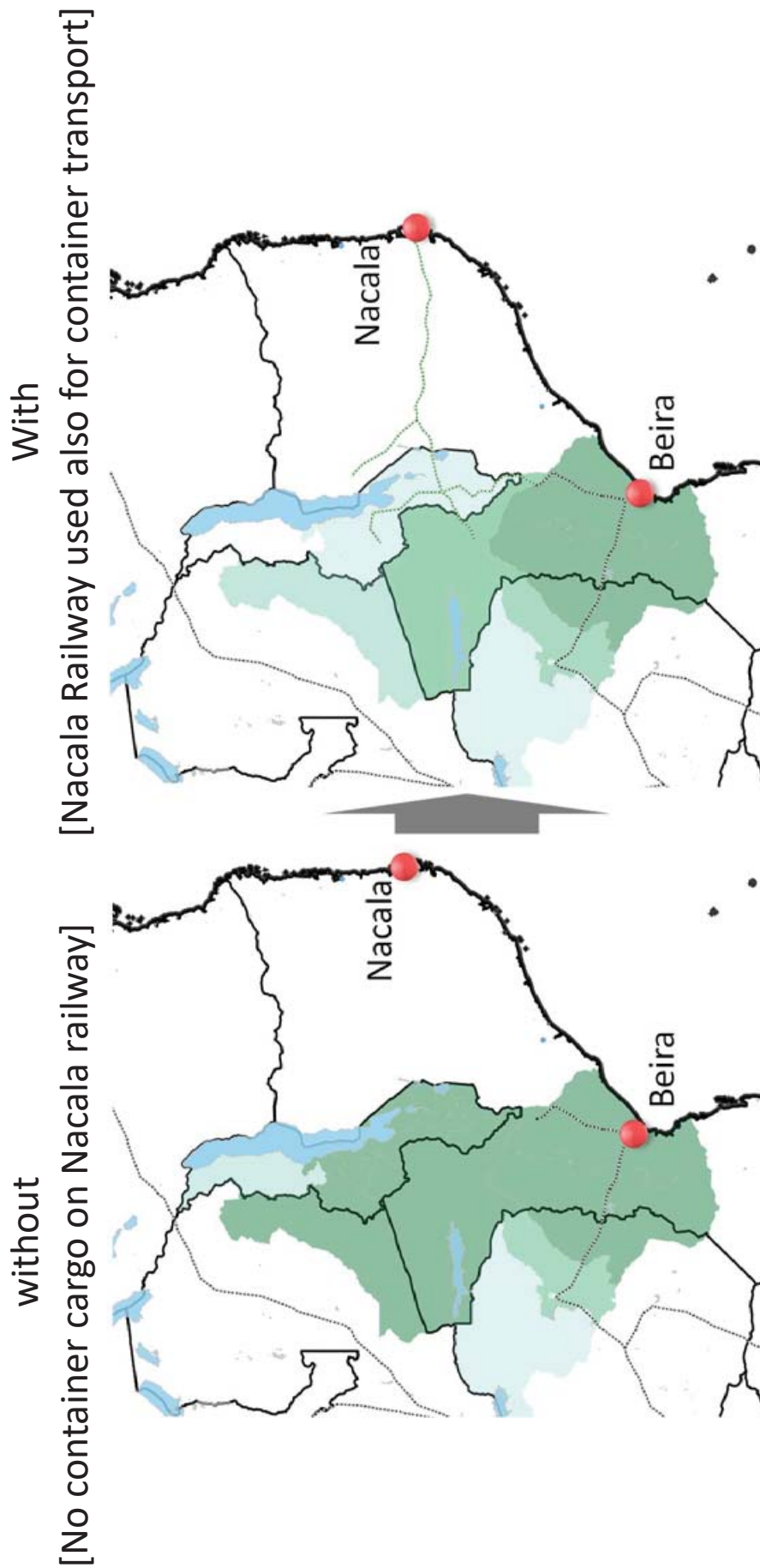
[Nacala Railway used also for container transport]



3.6 How would railways impact the port hinterland? (Case study on Nacala economic corridor)

■ Change of Beira port hinterland area (with – without comparison)

- The result implies influence of Beira port would remain, but would be reduced to a lesser extent.



4. Recommendations

Global Logistics toward Free and Open Indo-Pacific Region



Recommendations

■ Recommendation 1:

Materialization of AfCFTA to realize sustainable growth for the whole region

- Sound enforcement and implementation of AfCFTA is essential for maximizing the effect of infrastructure development and One Stop Border Post (OSBP) development, and thus realizing sustainable and inclusive growth for the region

■ Recommendation 2:

Integrated development of economic corridor and OSBP to catalyze further economic growth

- Progress of trade liberalization trade and successful realization of corridor development would contribute to mitigating disparity in trade conditions
- Development of port, economic corridor, and OSBP needs to be implemented in an integrated manner

■ Recommendation 3:

Infrastructure development to sufficiently address future cargo transport demand

- Mombasa Port, Dar es Salaam Port, Beira Port, Nacala Port, and Durban Port are important for the region, especially for inland countries
- Cargo throughput demand in 2040 at Dar es Salaam Port and Nacala Port is estimated to exceed the planned capacity
- Development of ports which includes inland countries in its hinterland is important for sustainable and inclusive development for the region

What impact does the elimination of trade barriers through the establishment of AfCFTA have on the industry structure transformation?

■ To synchronize transport infrastructure development and private investment facilitation with the elimination of trade barriers is important for sustainable and high quality economic growth. **Real GDP Annual Growth**

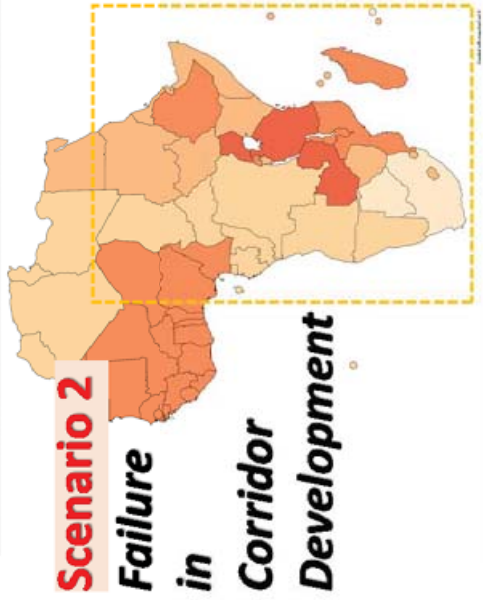
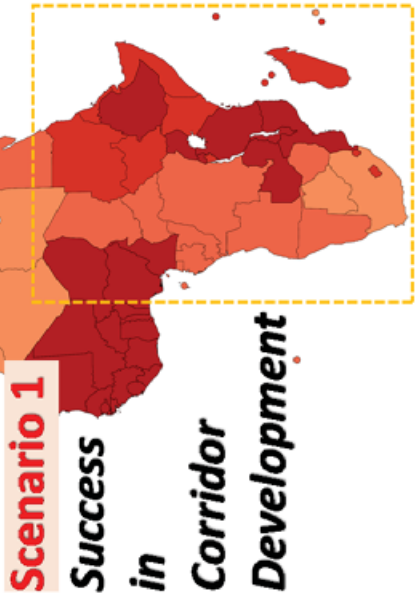
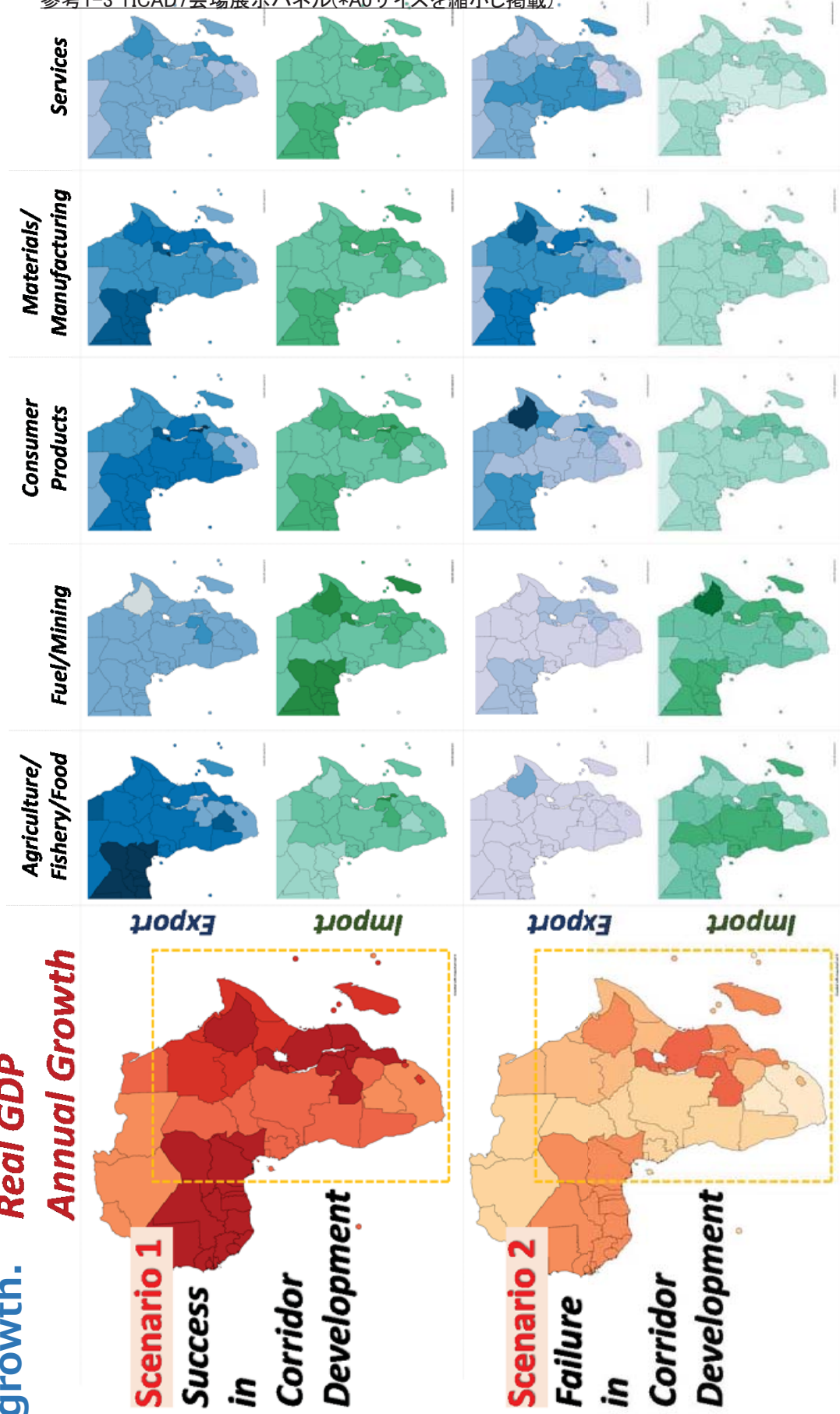
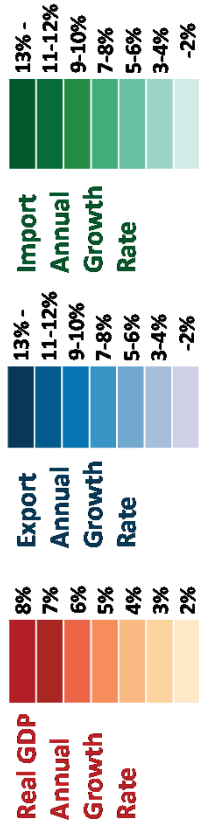
- The similar trend of trading with the GDP growth shows the contribution of the elimination of trade barriers on the economic growth.

- The failure in corridor development brings a negative impact especially on the export of primary industries, which leads to the stagnation. African countries with many workers for primary industries will be affected.

- Zambia and Malawi realize high GDP growth, but their export growth is lower than the coastal nations. In other words, the more they realize, the higher growth they can enjoy.

- In both cases, both good influence and bad influence are different by country/region and by industry. Countermeasures are needed simultaneously.

参考1-3 TICAD7会場展示パネル(*A0サイズを縮小し掲載).



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Does the current infrastructure development plan sufficiently address the future demand?

■ PIDA report points out concerns for infrastructure gap

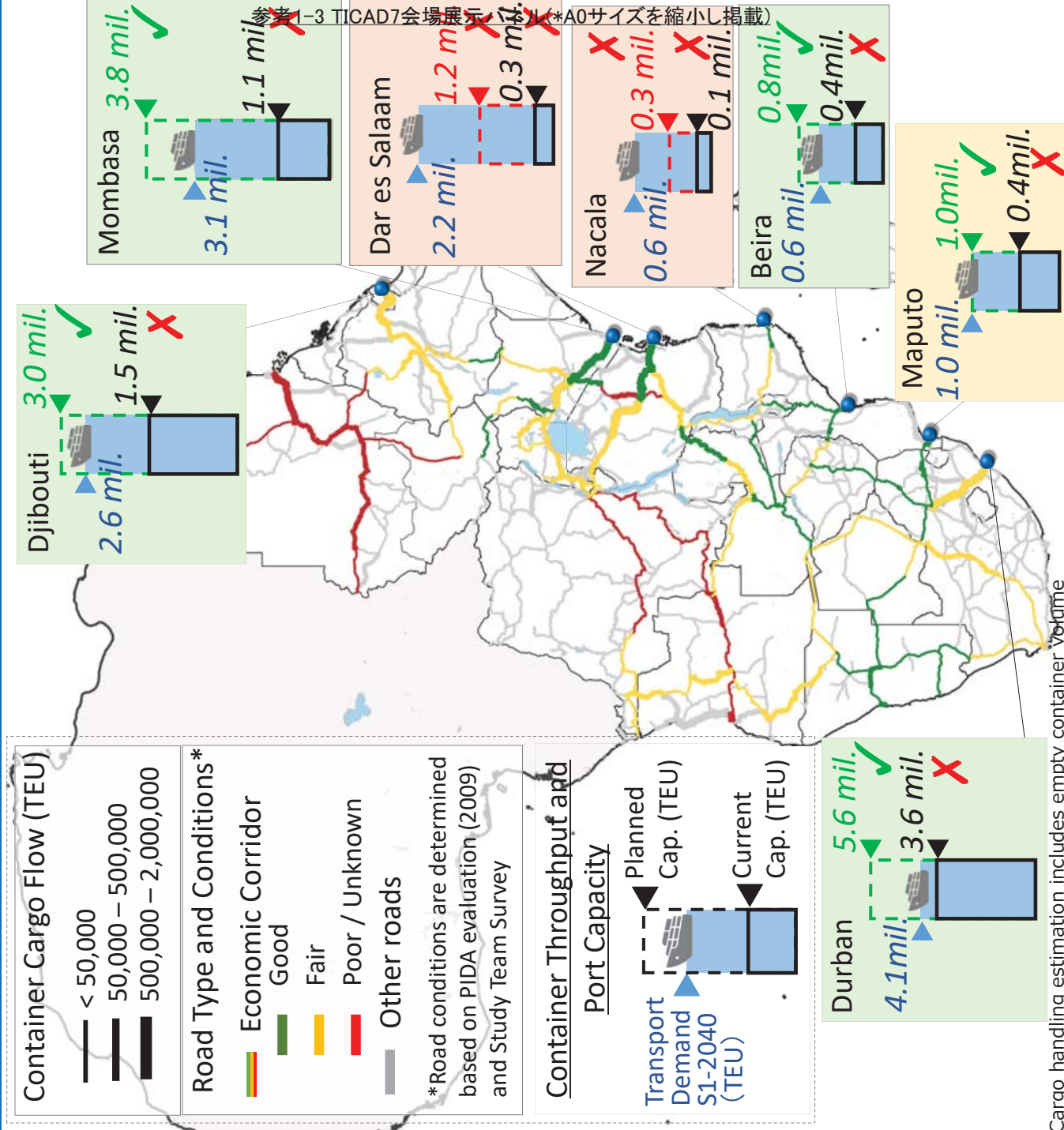
- Cargo transport demand would increase significantly in the region due to growth in population and economy.
- Transport demand for cargo is forecasted to exceed the current transport network development.

■ Demand for development of Economic Corridors connecting landlocked countries

- Gap between demand and capacity exists especially at Djibouti Corridor, Mombasa Corridor, and Dar es Salaam Corridor.

■ Port development plans need to be reviewed and implemented to meet future demand

- Cargo demand could exceed planned capacity, especially at Dar es Salaam Port



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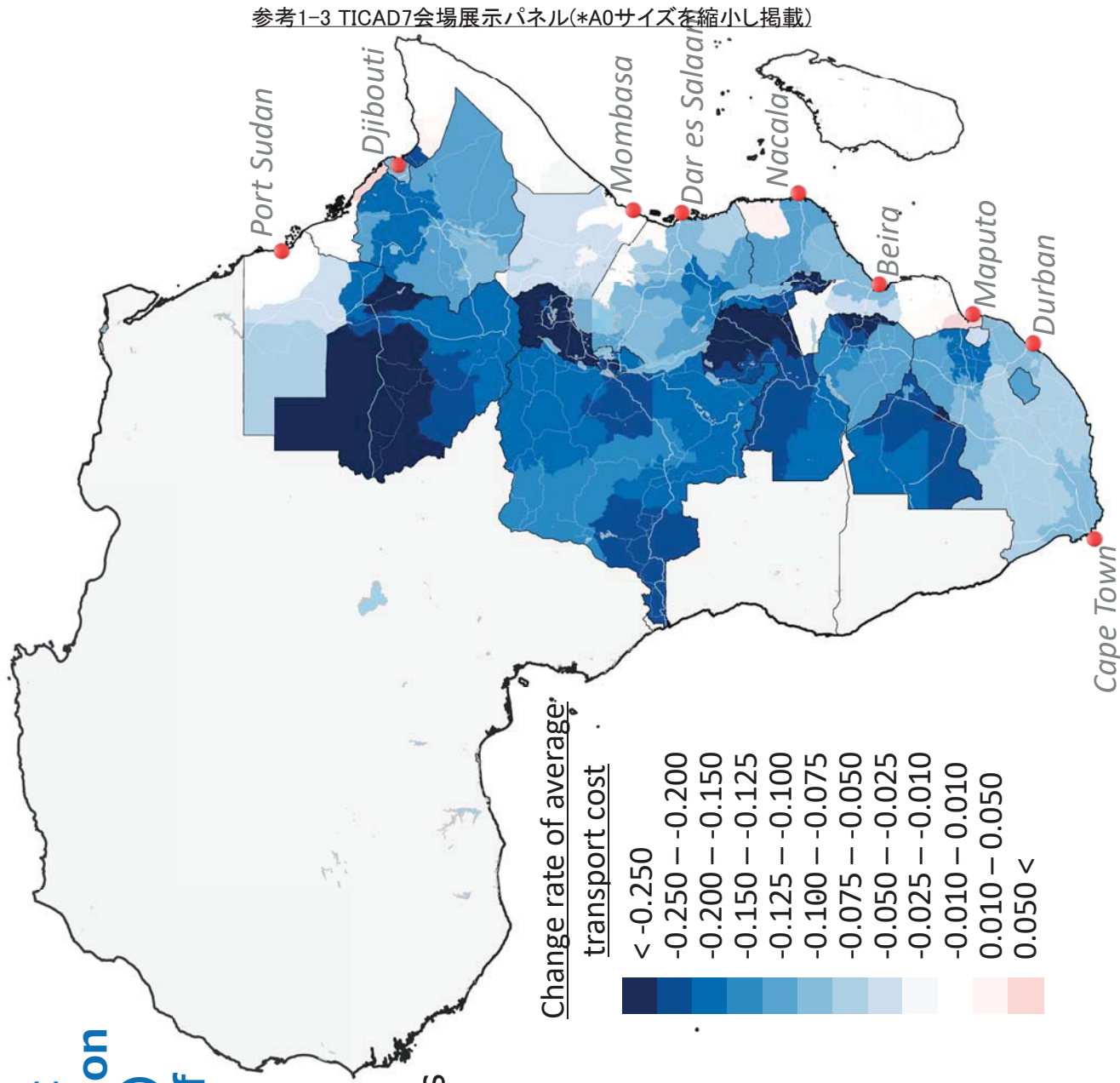
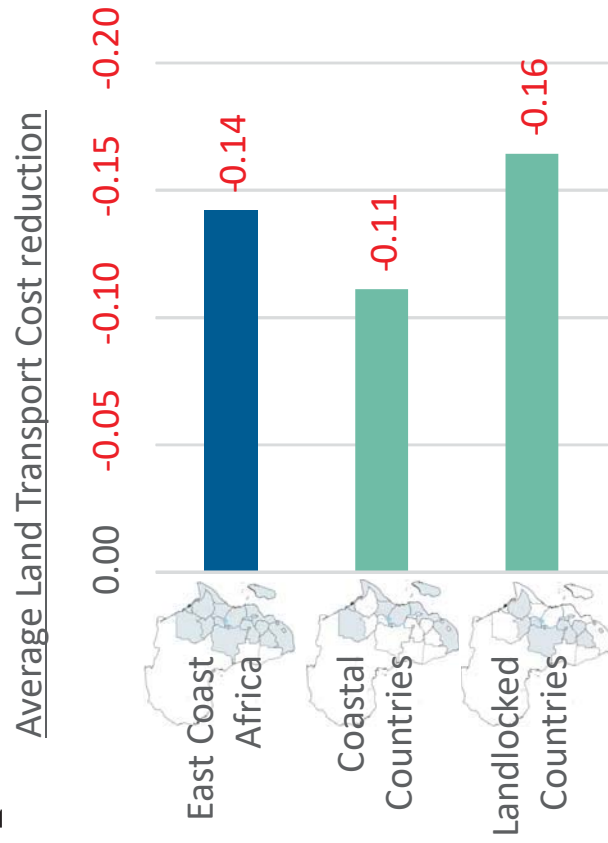
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What impact does the development of the economic corridors of the landlocked countries have on the landlocked countries?

- Economic Corridor development and Cross-border trade facilitation at OSBP (One Stop Border Post) would contribute to reduction of transport cost
- Benefit is bigger in landlocked countries.

➤ Cost reduction for coastal countries is 11%, whereas that of landlocked countries is 16%.

参考1-61



参考1-3 TICAD7会場展示パネル(*A0サイズを縮小し掲載)

参考 2. PIDA WEEK 2019 関連資料

Global Logistics Analysis in the future of Corridor development in Africa

PIDA WEEK 2019

in Cairo, Egypt

26th November 2019

 Pacific Consultants co., ltd. (PCKK)
Japan International Cooperation Agency (JICA)

Background and Objective

TICAD7

■ TICAD7, The Seventh Tokyo International Conference on African Development was held in Yokohama.

- Date : 28th - 30th August, 2019
- Place : Yokohama city, Japan
- Participant : More than 10,000 people



Thank you for Cooperation

Photo : Mistry of Foreign Affairs of Japan 2

TICAD7: Japan's contributions for Africa

August 2019



TICAD7 3 Pillars	Japan's contributions	
Economy	Positioning business at the center of TICAD to achieve over 20 billion USD private investment	Develop industrial human resources
		Promote innovation and investment
		Invest in quality infrastructure to enhance connectivity
		Ensure debt sustainability
		Diversify industries
Society	Achieving human security and SDGs	Promote UHC and Africa Health and Wellbeing Initiative
		Build disaster resilient society
		Provide quality education
		Ensure sustainable urban development
		Share the value of sport towards Tokyo 2020
Peace and Stability	Supporting Africa's own initiatives	Build institutions and enhance governance
		Support initiatives led by Africa
		Support refugees, IDPs and others

: Focus of Japan's contribution



TICAD7: Japan's contributions for Africa – Economy(1/2)

1 Positioning business at the center of TICAD :

To achieve over 20 billion USD private investment, Japan will contribute to the improvement of the business environment in Africa. Japan will also support economic transformation in Africa through promotion of Japanese private sector's advancement into Africa and innovation.

Develop industrial human resources	<ul style="list-style-type: none"> ◆ Develop 3,000 industrial human resources to promote business between Africa and Japan in 6 years under ABE Initiative 3.0 ◆ Train 140,000 people to diversify industries and create jobs in areas such as innovation, agriculture, blue economy and others through Kaizen Initiative and technical assistance through human resources training centers and trust fund of AfDB ◆ Empower women entrepreneurs by financial contribution to AFAWA through WeFi and JICA's Private-Sector Investment Finance ◆ Support African students in Japan and ABE Initiative graduates to find employment in Japanese companies
Promote innovation and investment	<ul style="list-style-type: none"> ◆ Launch Japan Business Council for Africa (JBCA) to promote Japanese companies' businesses in Africa through public-private partnership; organize the 2nd Japan-Africa Public-Private Economic Forum ◆ Launch bilateral committee on improvement of business environment in 7 countries to discuss improvement in institutions; improve the investment environment through Enhanced Private Sector Assistance for Africa (EPSA) with AfDB (EPSA4: Joint target with AfDB of 3.5 billion USD in 3 years) ◆ Introduce and match African start-ups with Japanese companies through JETRO Start-up Cooperation Promotion Desk and pitch events; collaborate with private funds for African entrepreneurs ◆ Promote Japanese SMEs and SDGs businesses in Africa; support formulation of digital public goods to accelerate innovation in public and private sectors ◆ Promote international joint research and actual use in the society of its outcomes with international organizations to implement STI for SDGs ◆ Support financing for Japanese private sector to expand business in Africa through Facility for African Investment and Trade Enhancement (FAITH) of JBIC (4.5 billion USD in 3 years) ◆ Enhance risk money supply for Japanese private sector by JOGMEC ◆ Launch NEXI's new trade insurance scheme covering 100% of import costs and project financing in cooperation with African Trade Insurance Agency and Islam Development Bank Group ◆ Promote JICA's Private Sector Investment Finance for African countries based on MoU to be signed between JICA and AfDB

: Focus of Japan's contribution
Mistry of Foreign Affairs of Japan 4

TICAD7: Japan's contributions for Africa – Economy(2/2)



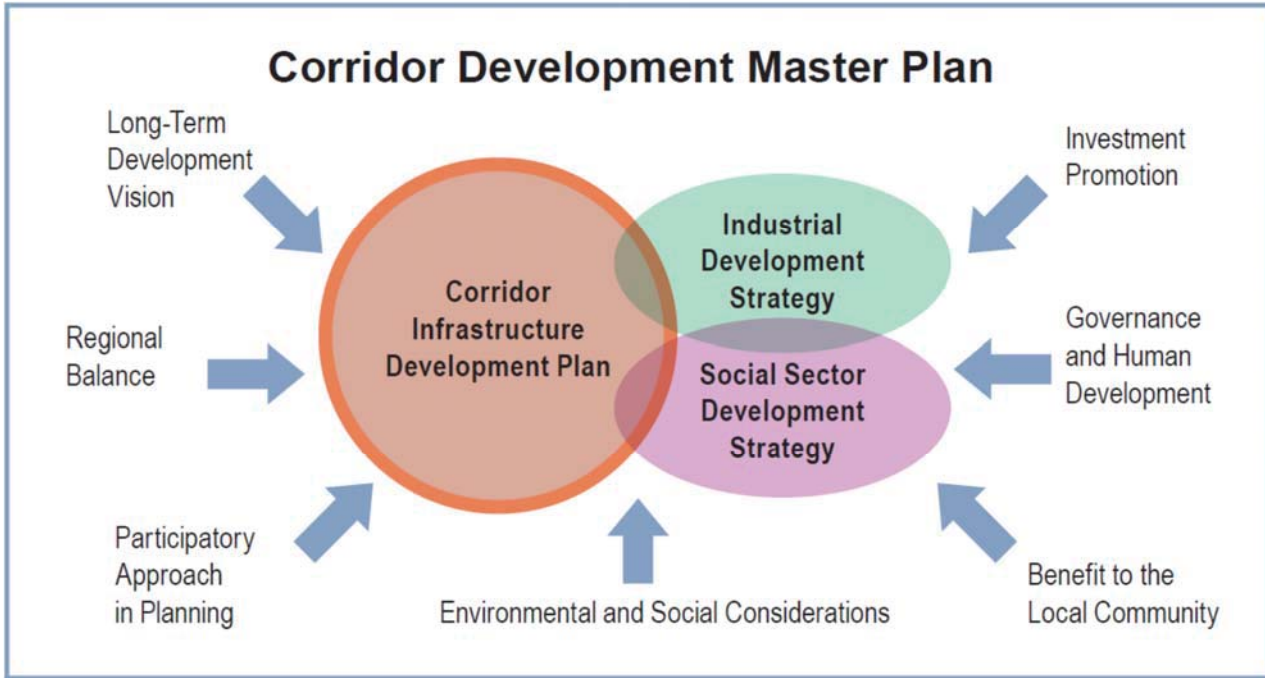
Invest in quality infrastructure to enhance connectivity	<ul style="list-style-type: none"> ◆ Promote quality infrastructure investment in line with the G20 Principles for Quality Infrastructure. Investment particularly in three priority areas (East Africa Northern Corridor, Nacala Corridor and West Africa Growth Ring) where master plans were completed ◆ Develop communication and postal network and infrastructure to improve connectivity ◆ Promote quality infrastructure projects in the public and private sectors through EPSA4 and other undertakings
Ensure debt sustainability	<ul style="list-style-type: none"> ◆ Conduct training on public debt and risk management in a total of 30 countries ◆ Dispatch debt management and macro-economic policy advisors to Ghana, Zambia and others ◆ Provide technical assistance for capacity building of recipient countries through new financial contributions to trust funds of the IMF and World Bank
Diversify industries	<ul style="list-style-type: none"> ◆ Blue Economy: Train 1,000 people in 3 years in the areas of maritime security, port enhancement and marine resource management; support port facilities improvement, ports management and operations; provide ships and equipments; participate in the Indian Ocean Commission (IOC) as an observer ◆ Agriculture: Double rice production (from 28 million to 56 million ton) by 2030 through Coalition for African Rice Development (CARD); support agriculture transformation to increase farmers' income through Smallholder Horticulture Empowerment & Promotion (SHEP); dispatch agriculture experts; support development of global food value chain; develop and expand agriculture technologies; promote innovation in agriculture by the public and private sectors ◆ Energy for manufacturing and service industries: Develop renewable energy including geothermal; promote off grid energy; revise MoC on Japan-US energy cooperation in Africa

: Focus of Japan's contribution 2

Planning Stage -Corridor Development Approach-



- Corridor development master plan draws inclusive growth scenario of the region



6

Project Implementation Stage



- Comprehensively support the realization of the economic growth scenario by making full use of a variety of cooperation tools

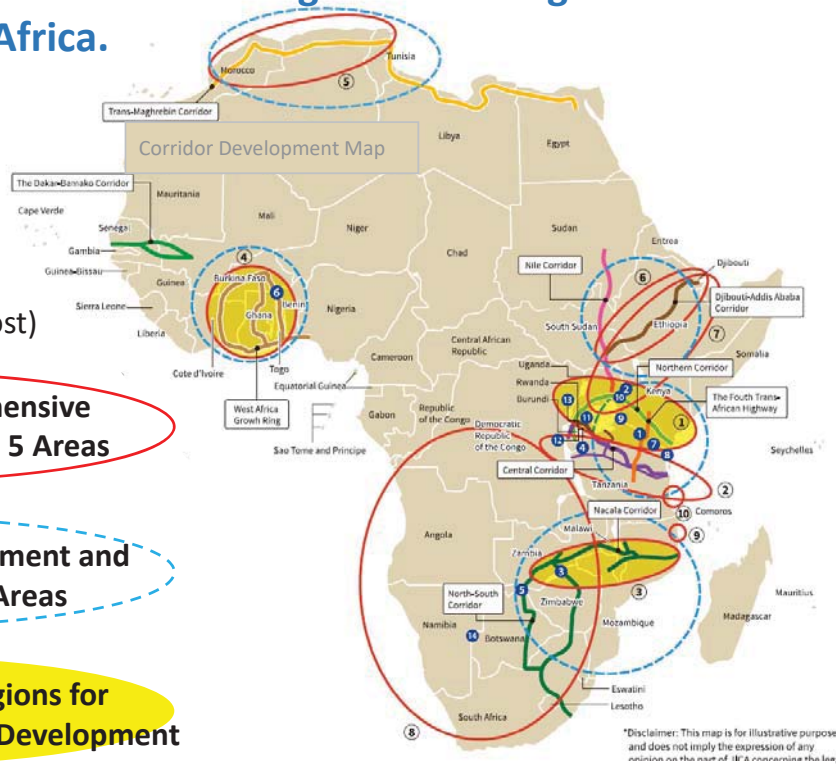
Corridor Infrastructure Development Plan	
Facility development/ Hard infrastructure	Institutional development and technology transfer/ Soft infrastructure
<ul style="list-style-type: none"> • Development of ports, roads, bridges, railways, etc. (grant/loan) • Energy supply facility development (grant/loan) • One-Stop Border Post (OSBP) facility development (grant/loan) • Special Economic Zone (SEZ) development (grant/loan) 	<ul style="list-style-type: none"> • Cross border facility and institutional building (technical cooperation) • Infrastructure operation and management capacity building (technical cooperation) • Financial assistance for private investment promotion (loan)
Industrial Development	<ul style="list-style-type: none"> • Mining Industry • Agriculture • Tourism • Technical Education
Social Sector Development	<ul style="list-style-type: none"> • Medical Care • Public Health • Education • Water Supply

- Loan
- Grant
- Technical Cooperation
- Public Private Partnership

7

JICA's Support through Corridor Development

■ JICA has been providing support for the development of Economic Corridors and ports towards achieving sustainable growth in the mid-to-long term in Africa.



● OSBP(One Stop Border Post)

Transport and Comprehensive Corridor Development in 5 Areas

Economic Corridor Development and Priority Corridors in 5 Areas

The Three Prioritized Regions for Comprehensive Region-Wide Development

Northern Corridor Development

Corridor Infrastructure Development Plan

Facility development/
Hard infrastructure

Mombasa Port



【Loan】
Mombasa Port Development Project, Kenya, 2007~

①

【Grant】
The Project for Improvement of Gulu Municipal Council Roads in Northern Uganda, Uganda, 2016~

②

Institutional development and technology transfer/
Soft infrastructure

Technical Transfer Meetings

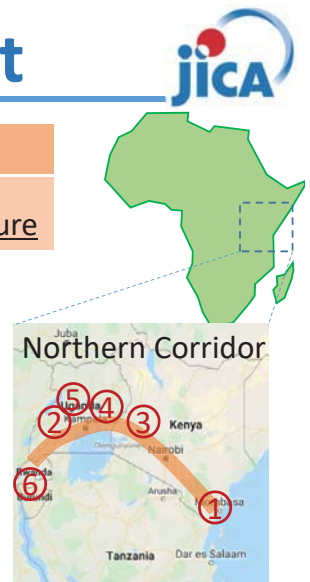


【Technical Cooperation】
Project for master plan on logistics in northern economic corridor Kenya, Uganda / 2017

③

【Technical Cooperation】
The Project for Capacity Enhancement of KCCA in Management of Traffic Flow in Kampala City Kenya, Uganda / 2017

④



Industrial Development

【Technical Cooperation】 Northern Uganda Farmers' Livelihood Improvement Project / Uganda, 2015~2020 ⑤

Social Sector Development

【Grant】 Project for Improvement of Health Facilities in Bujumbura City / Burundi, 2009~ ⑥

Background

Infrastructure Stock

- JICA has been active in assistance mainly through ODA for the development of the ports and logistics infrastructure, as gateways for corridors.

Make use of Infrastructure Stock

- In order to ensure that each individual project functions consistently and effectively, formulation of a comprehensive logistics development strategy is needed.

Need for Analysis

- It is therefore essential to analyze the global logistics taking into account region-wise economic growth potential and future uncertainties.

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Objective

1. To analyze the global logistics taking into account region-wise economic growth potential and future uncertainties

2. To draw policy recommendations for formulation of a logistics development strategy.

Approach

■ This research performs the quantitative analysis along 2 steps.

1. Scenario Planning

Scenario-based economic modelling with regards to uncertainty and risks.

2. logistics analysis

Analysis of global logistics with intermodal logistics model.

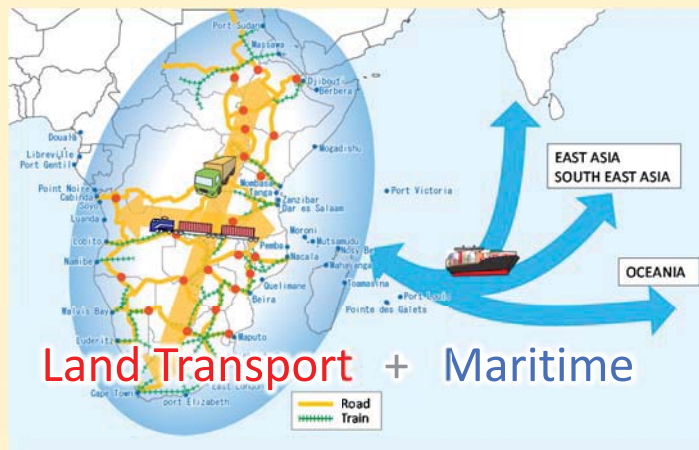


Fig. Image of comprehensive logistics analysis



Research Flow

Future Scenario Establishment

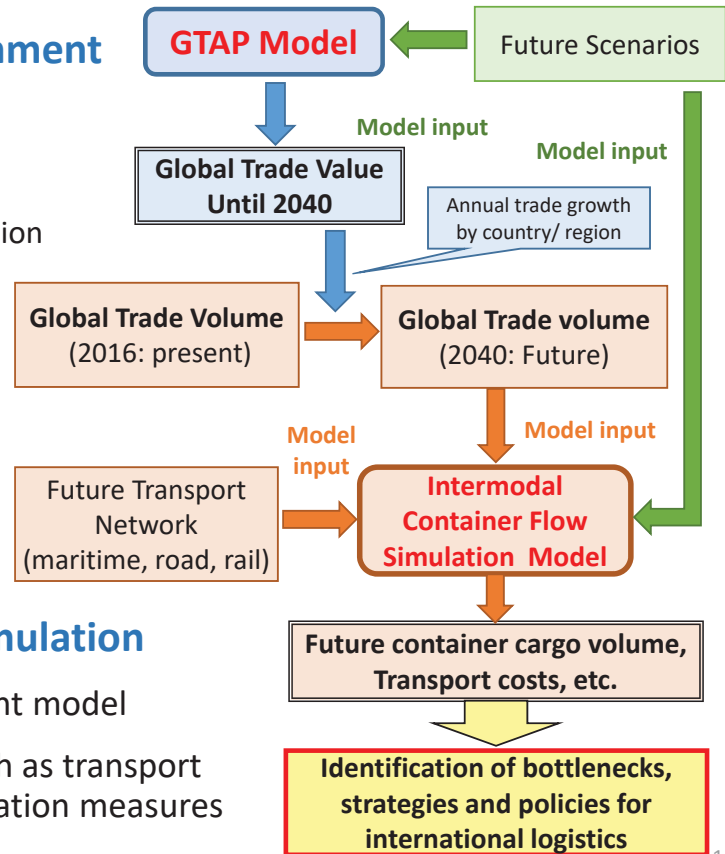
- Scenarios for 2040
 - ✓ 1) BL: Baseline
 - ✓ 2) S1: Economic Corridor Realization
 - ✓ 3) S2: Economic Corridor Failure

Forecasting Global Trade

- GTAP (Global Trade Analysis Project) Model
- Trade volume estimation by scenarios

Container Cargo Flow Simulation

- Intermodal network assignment model
- Impact of logistics policies such as transport infrastructure and trade facilitation measures

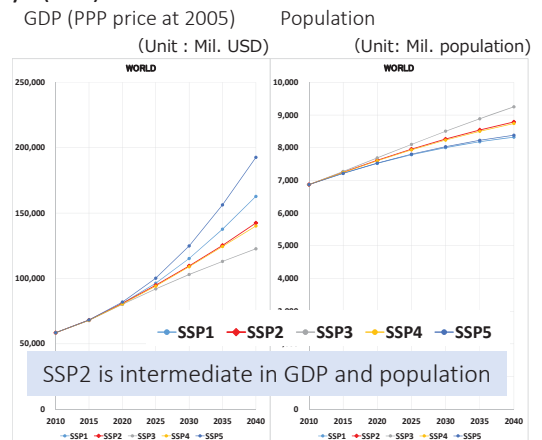


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Future Scenario

BL: Baseline scenario (Business As Usual scenario)

- Trends of socio-economic activities in a base year will continue until the target year
- Population and GDP growth rate are set based on the “SSP2 - Intermediate challenges: Middle of the Road” scenario from Shared Socio-economic Pathways (SSP)



S1: Economic Corridor Realization

- Successful development of Africa Economic Corridor catalyzing socio-economic activities, such as trade and investment facilitation

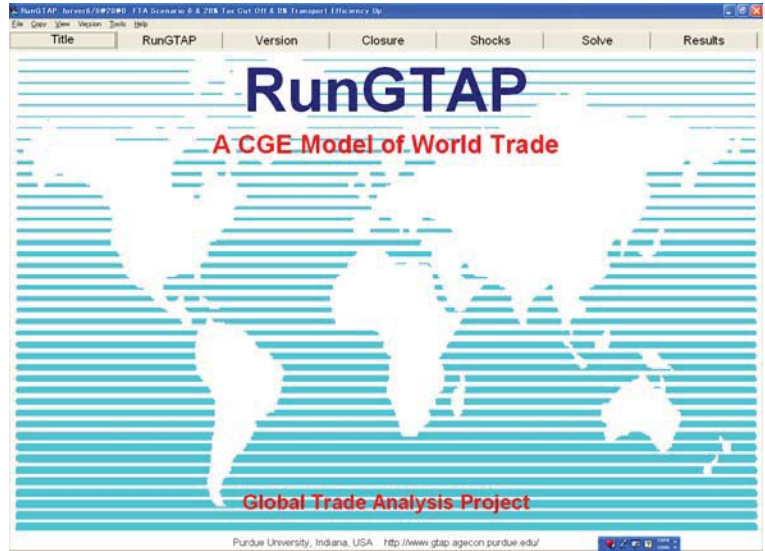
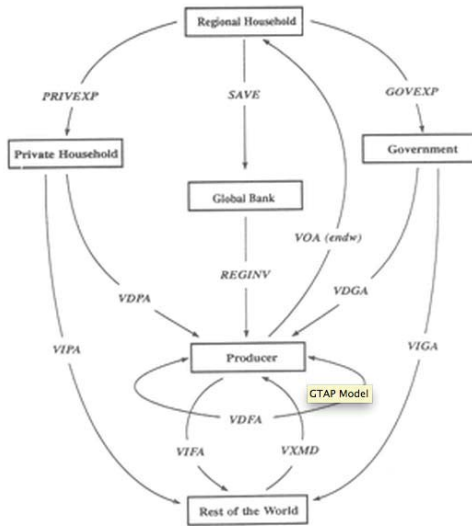
S2: Economic Corridor Failure

- Failed development of Africa Economic Corridor leading to protectionism and stagnation of socio-economic activities

Forecasting Global Trade

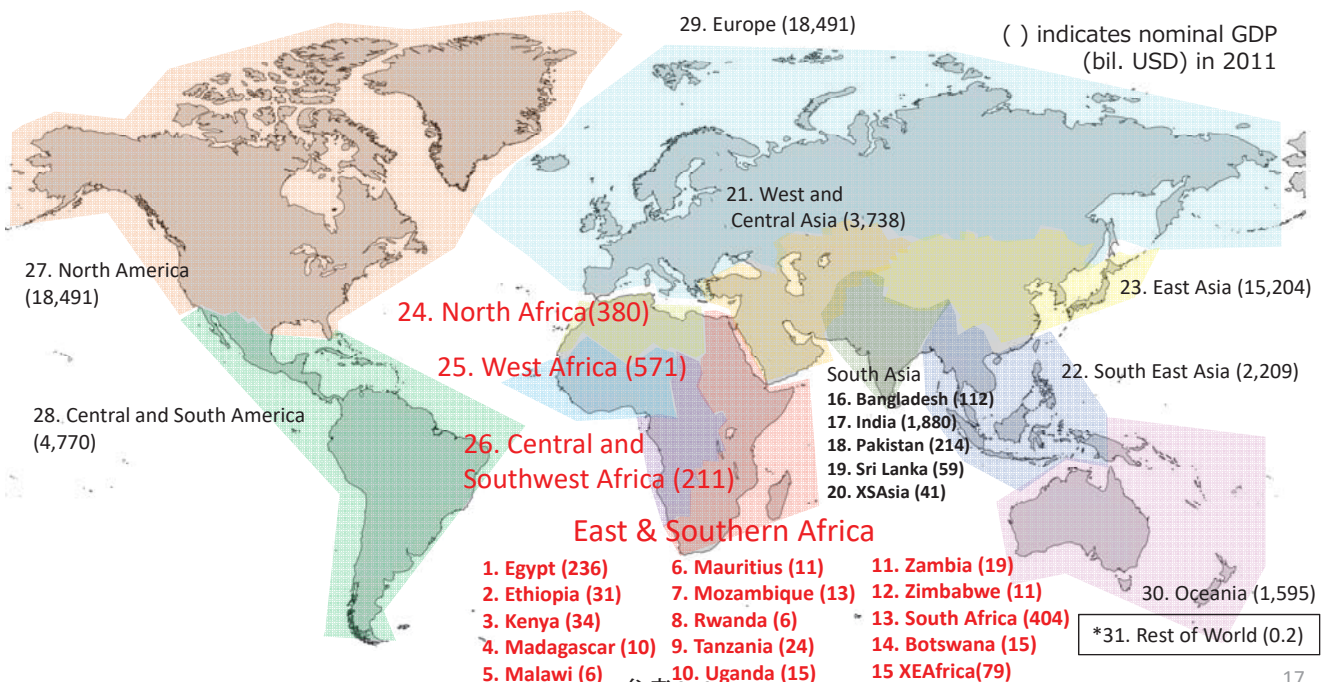
Global Trade Analysis Project (GTAP) Model

- Most popular model package among the world for trade forecast
- CGE (Computable General Equilibrium) framework based on microeconomic theory
- Developed by Purdue University
- Many applications in practical field



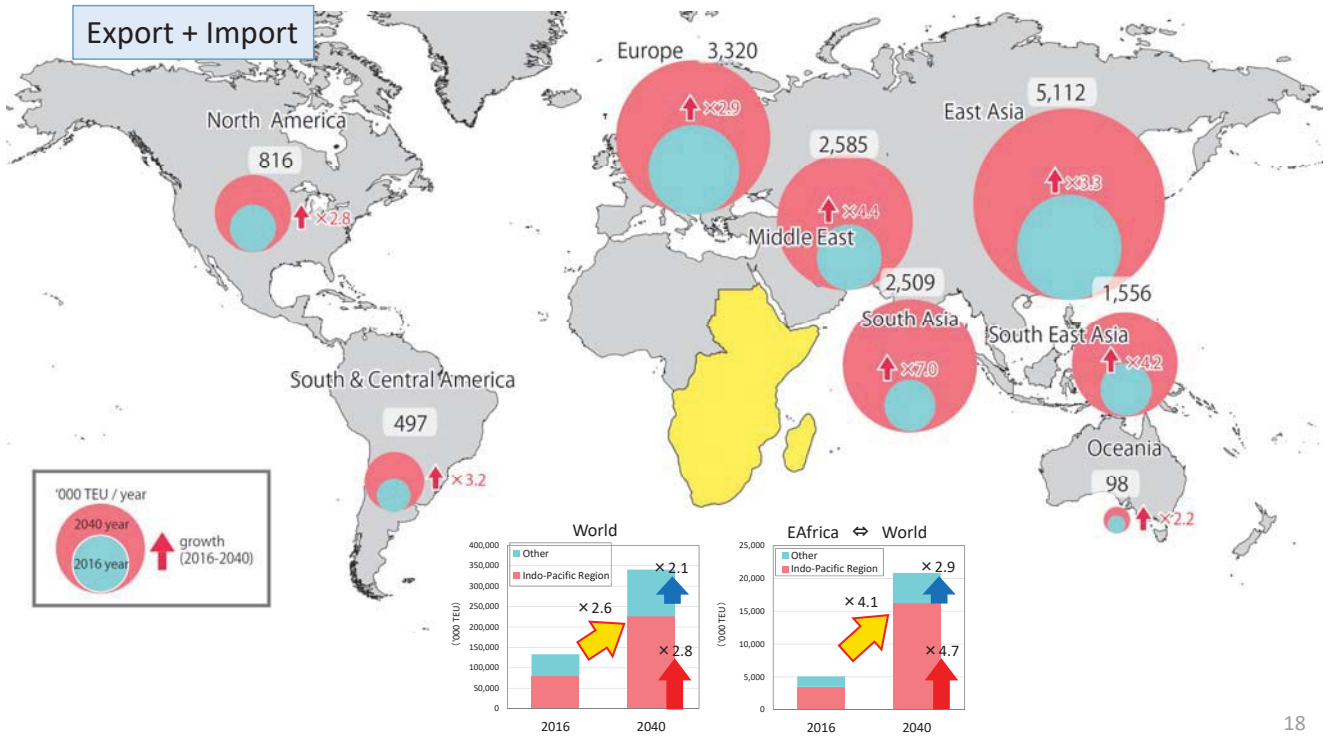
Regional Classification

- 18 countries including East/Southern Africa (14) and South Asia (4)
- Other 13 regions of the world



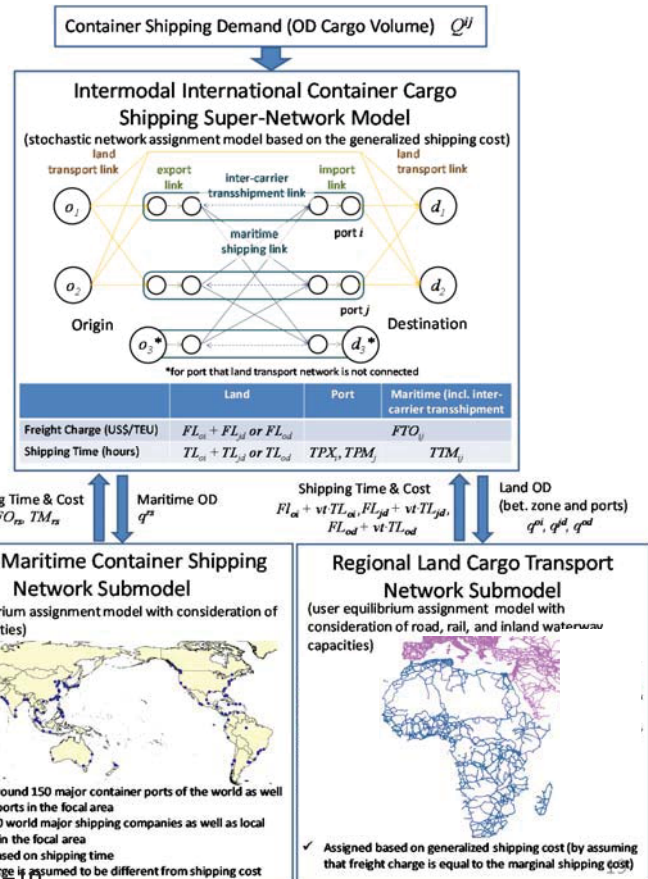
Estimated Trade Volume (GTAP model output)

Estimated increased volume of export and import container between East Africa and the world (2016 to 2040)



Container Cargo Flow Simulation

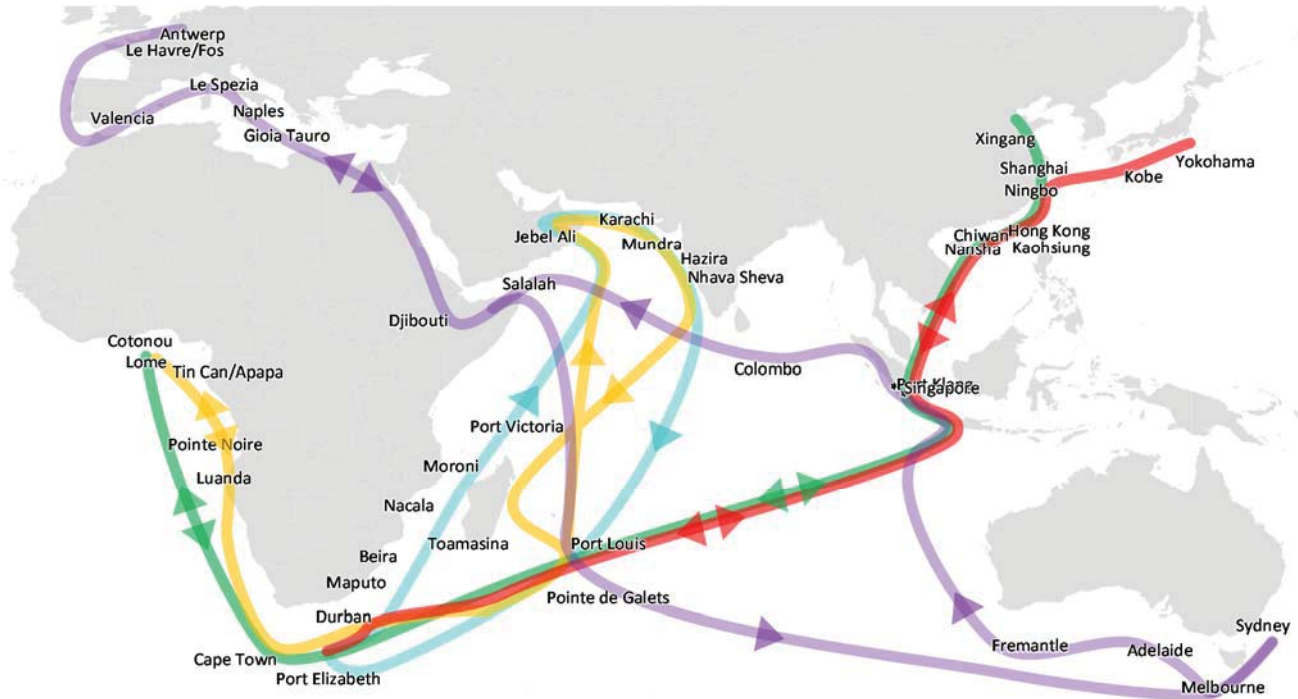
- Two-layered intermodal network assignment model describing shipper's behavior on transport mode and route choice
- Regional shipping demand and network are given
- Capacities of each transport mode (road, rail, ferry, and maritime shipping) is considered
- Developed by Shibasaki Lab, the Univ. of Tokyo
- Logistics policies can be input and evaluated



Liner Service Network

Example of Model Input

■ Liner services to call at Port Louis (as of 2016)

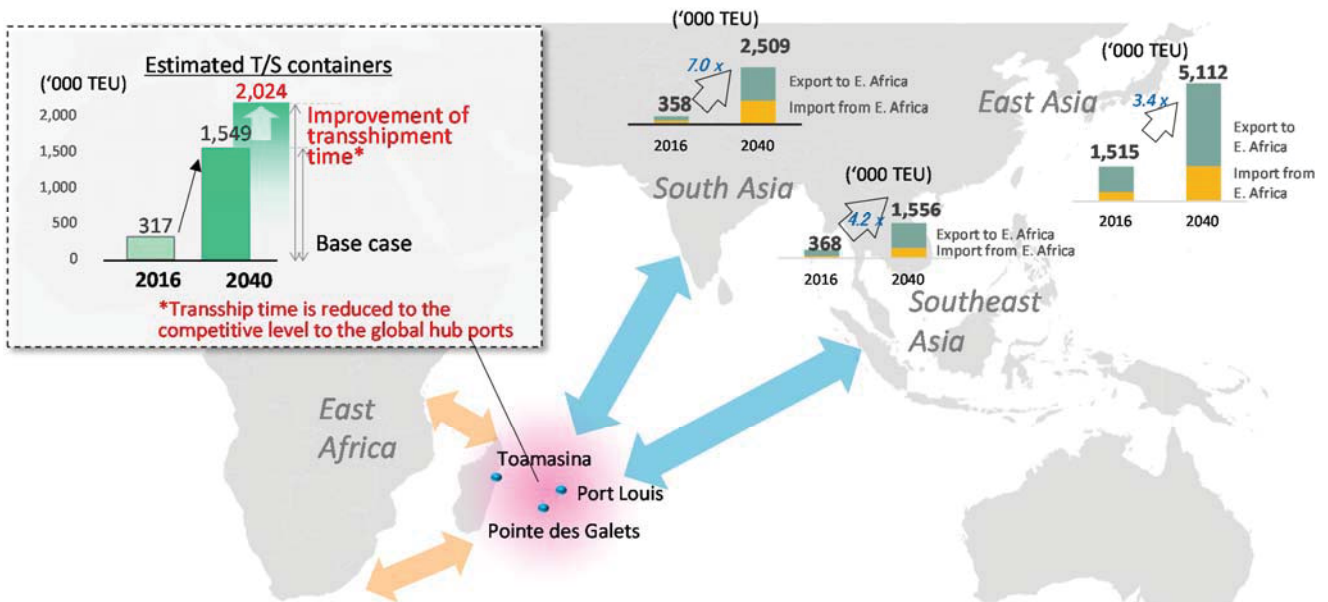


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Transshipment in Indian Ocean

Example of Model Input

- In 2040, the total number of T/S containers in Port Louis, Pointe des Galets, and Toamasina is estimated approx. 1.5 mil TEU
- If T/S time is reduced to 1/3 of the present level, it will increase by 0.5 mil TEU



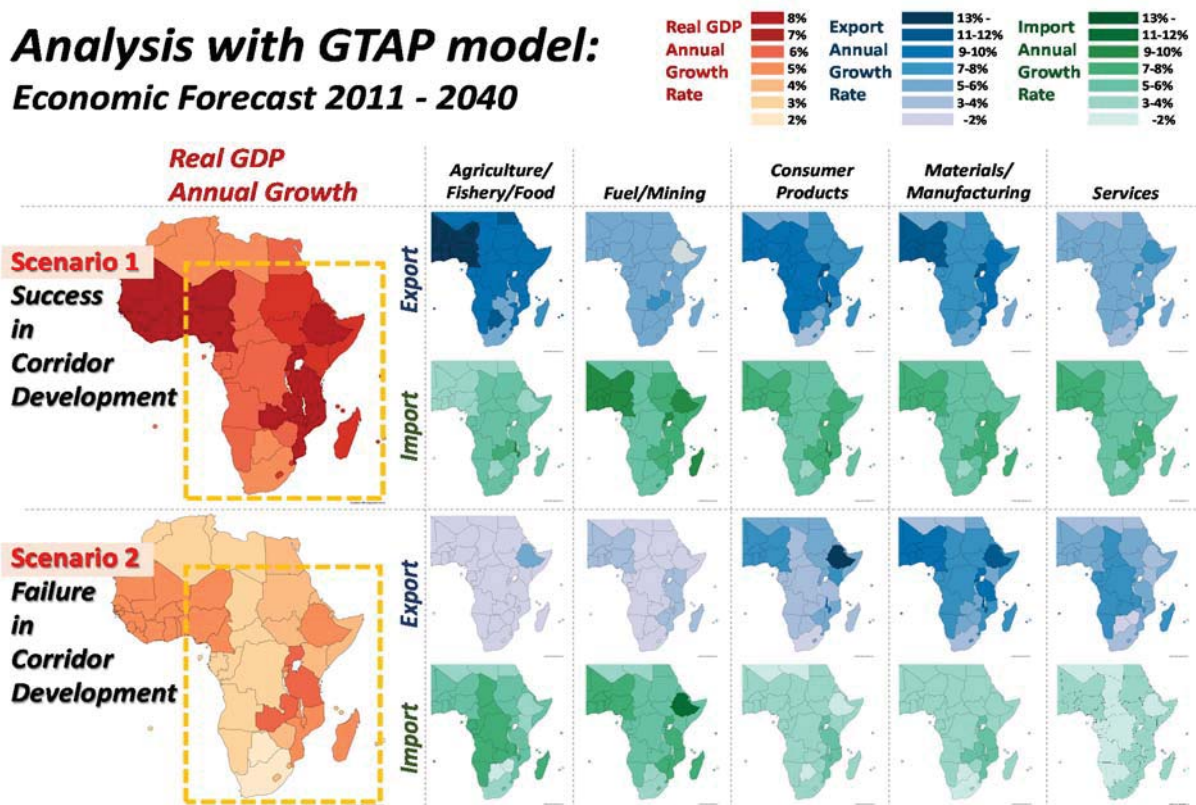
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Economic Impact by removal of trade barriers

What impact does removal of trade barriers through AfCFTA have on economies and industries?

Economic Impact (GTAP model)

**Analysis with GTAP model:
Economic Forecast 2011 - 2040**



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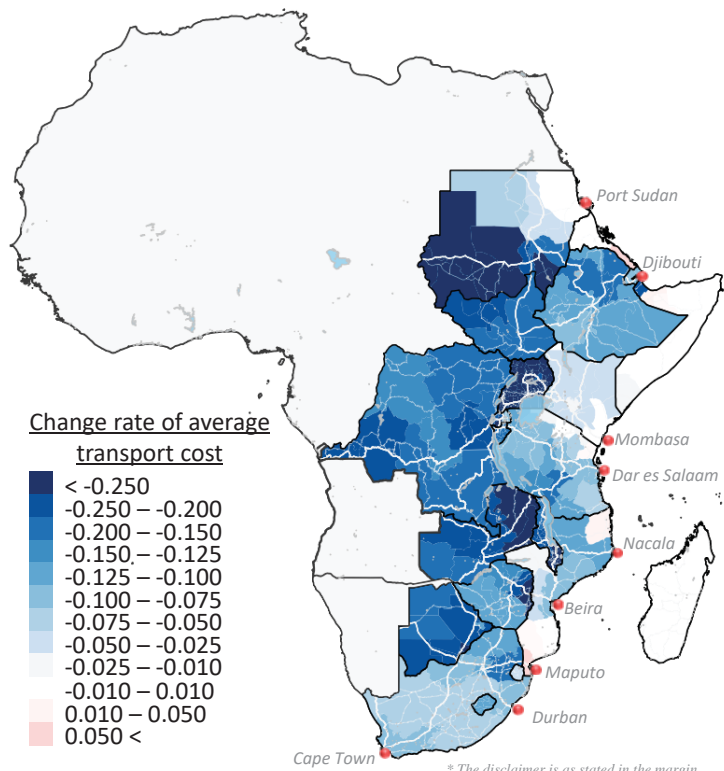
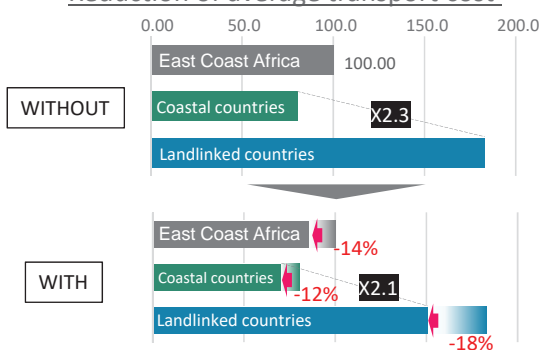
Economic Corridor Impact

What impact does Economic Corridor development have on landlinked countries?

Changes in Transport Cost

- Economic Corridor development and Cross-border trade facilitation at OSBP would contribute to reduction of transportation cost
- Benefit is bigger in landlinked countries.
 - Cost reduction for coastal countries is 12%, whereas that of landlinked countries is 18%.

Reduction of average transport cost



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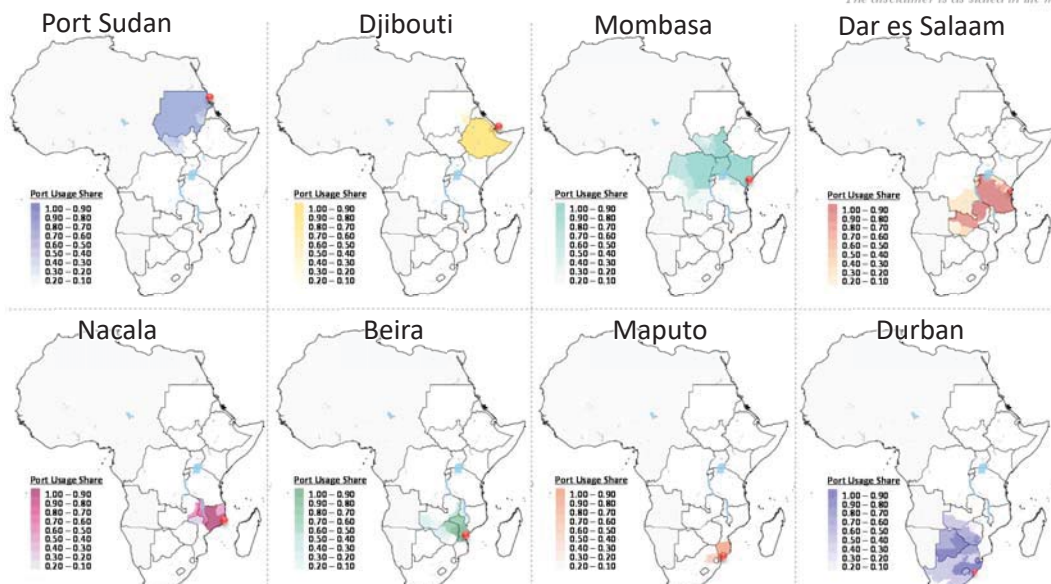
Port Usage Share

Which ports are important for each of East Coast African Country?

Port Usage Share

in 2040 (S1 scenario)

- Port usage are in principle consolidated into 8 major ports in the region.
- Importance of Economic Corridor development is amplified as the ports are all connected by the Corridor.
- ✓ Result shows inland countries such as D. R. Congo, Zambia has multiple choices of ports



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Port Usage Share

in 2040 (S1 scenario)

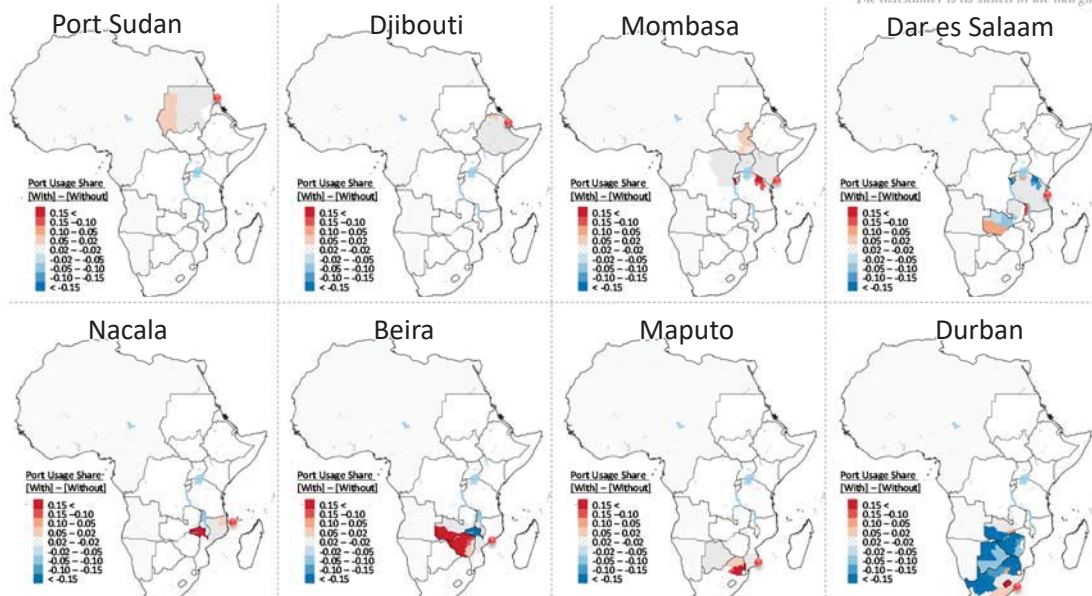
- Several ports cover vast areas including inland countries:
- ✓ Djibouti, Mombasa, Dar es Salaam, Nacala, Beira, Durban
- Improvement of these ports and ensuring connectivity through Corridor and OSBP is important.



Port Usage Share Change

in 2040 (S1 scenario)

- Port usage are in principle consolidated into 8 major ports in the region.
- Importance of Economic Corridor development is amplified as the ports are all connected by the Corridor.
- ✓ Result shows inland countries such as D. R. Congo, Zambia has multiple choices of ports



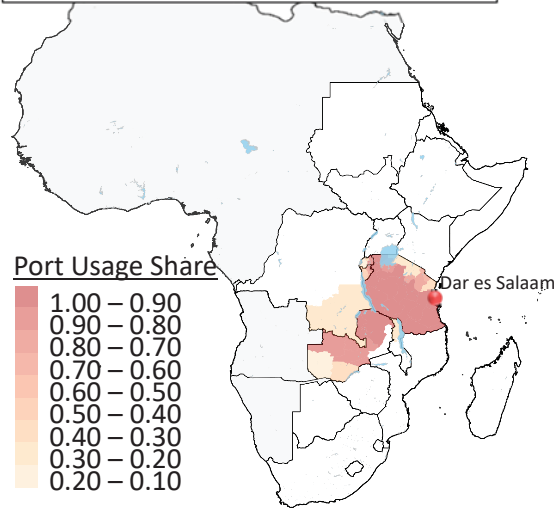
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Case Study: Dar es Salaam Port

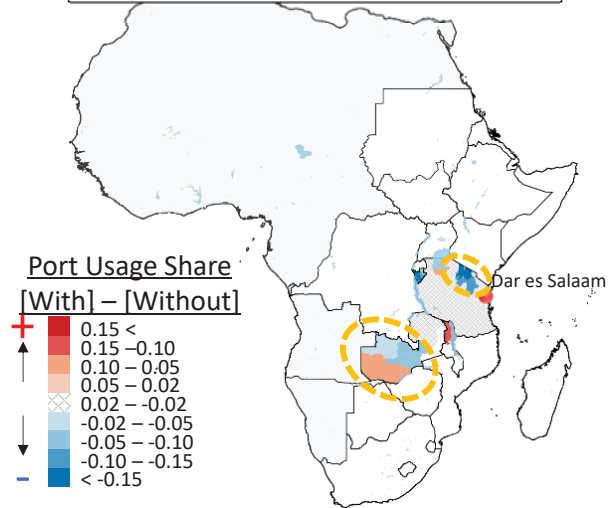
with-without Economic Corridor and OSBP – in 2040 (S1 scenario)

- Dar es Salaam Port’s hinterland covers vast regions including inland countries: Rwanda, Burundi, Zambia, the northern part of Malawi
- Corridor and OSBP development could lead to increasing the share in Malawi, however losing its share around the border with Kenya, and in Zambia

Dar es Salaam: Share by region



Share Change: with - without



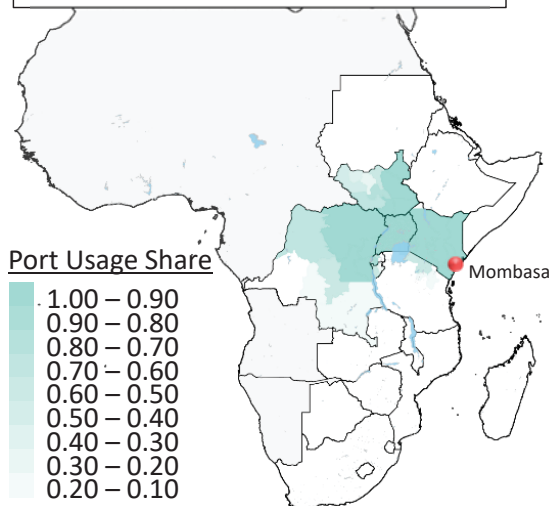
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Case Study: Mombasa Port

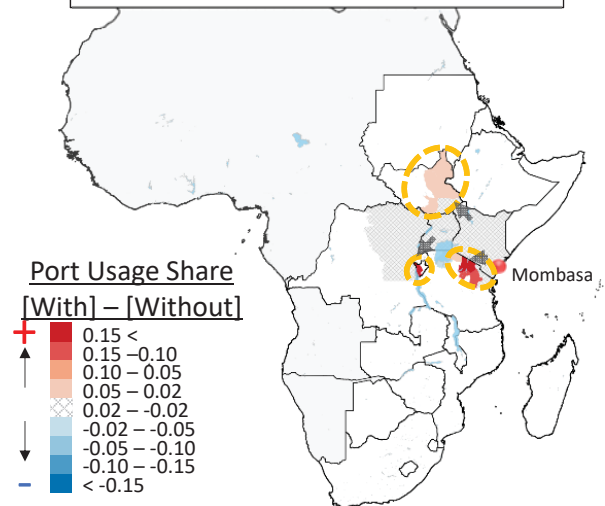
with-without Economic Corridor and OSBP – in 2040 (S1 scenario)

- Mombasa Port’s hinterland covers vast regions including inland countries: Uganda, South Sudan, and D.R. Congo
- Corridor and OSBP development would contribute to broadening its hinterland to Tanzania border, eastern part of South Sudan, and Burundi.

Mombasa: Share by region



Share Change: with - without

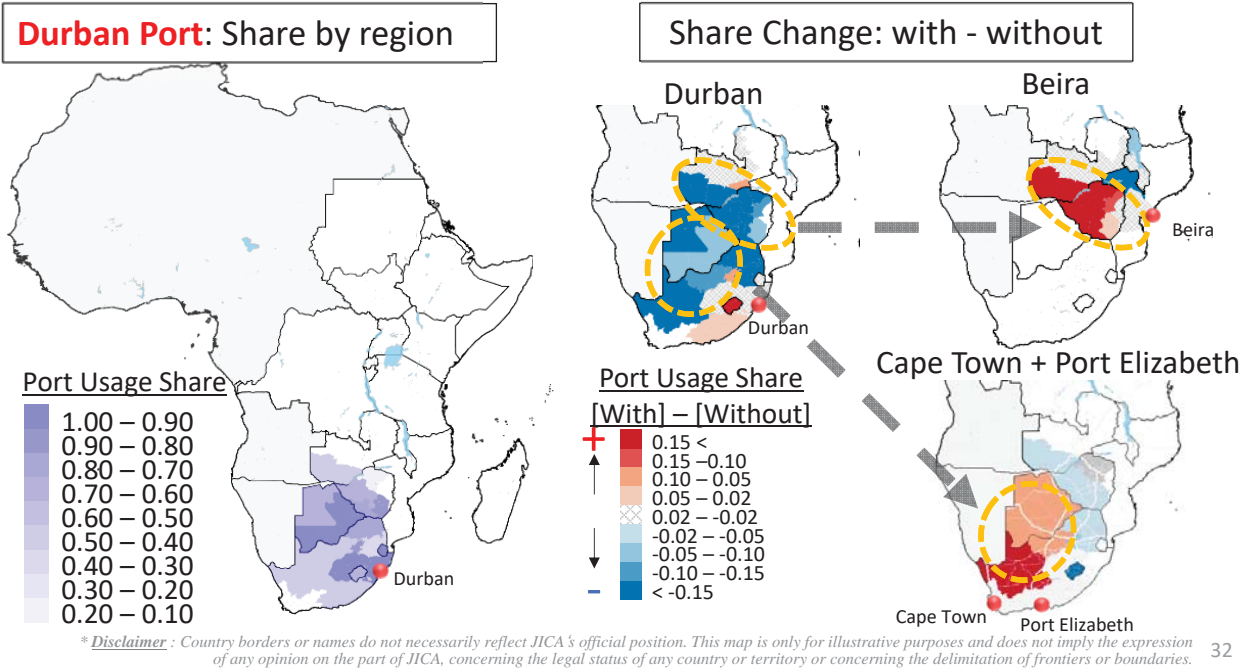


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Case Study: Durban Port

with-without Economic Corridor and OSBP – in 2040 (S1 scenario)

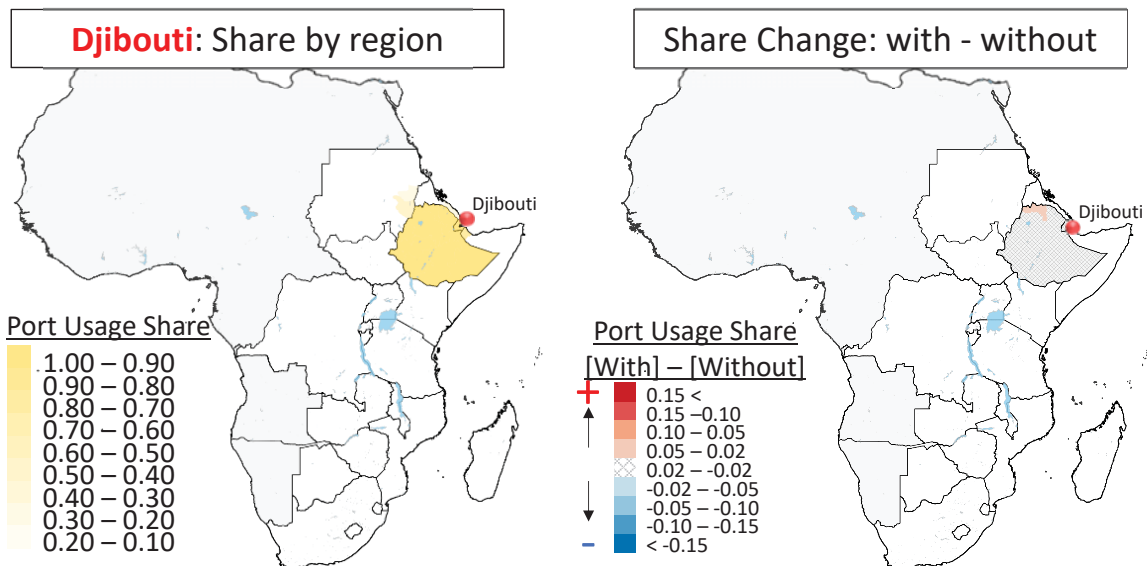
- Durban port continues to be an influential port with vast hinterland.
- However, with corridor and OSBP development, Durban may lose its hinterland due to competition with ports in Mozambique as well as domestic ports.



Case Study: Djibouti Port

with-without Economic Corridor and OSBP – in 2040 (S1 scenario)

- Djibouti Port would be a primary port for Ethiopia, handling most of its cargo
- Change for Djibouti Port's hinterland area is limited regardless of development of corridor and OSBP



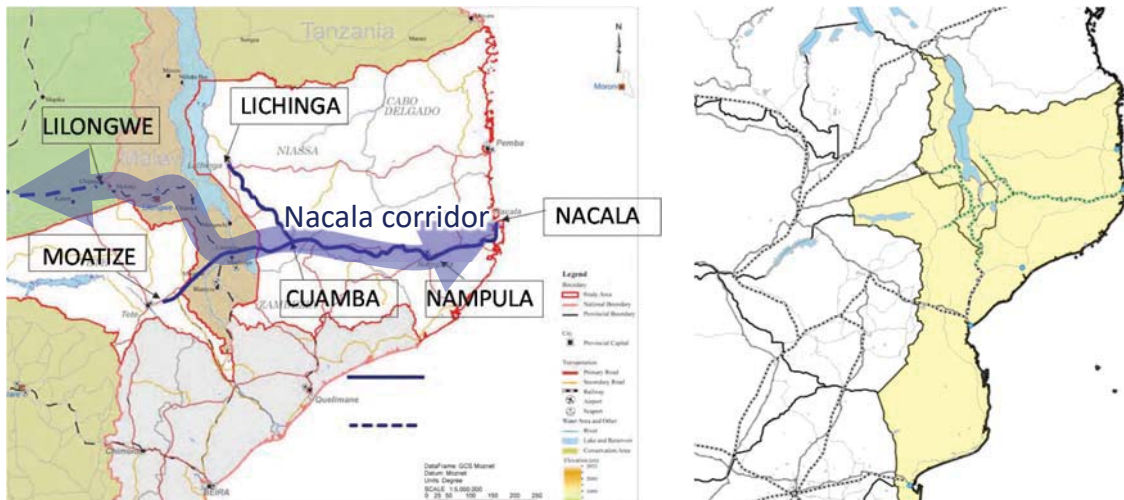
Railway Impact

Case Study

How would railways impact the port hinterland?

Case Study: Nacala economic corridor

- Previous JICA Study emphasize the importance of Moatize – Nacala rail in transportation of coal.
 - Importance of cargo transport other than coal is also highlighted in ensuring multimodal transportation.
- The case study examines the impact and potential of Nacala railway when it is used for container cargo transport
 - Analysis with logistics model for the year 2040 under S1 scenario.

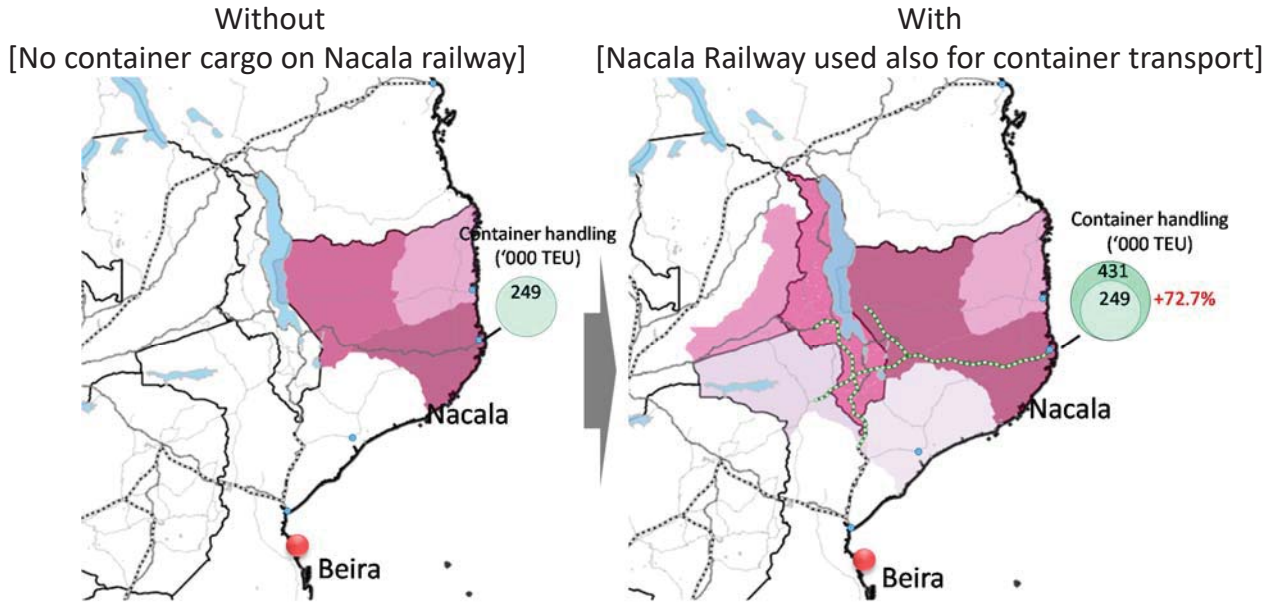


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Port Hinterland Area Change: Nacala

Change of Nacala port hinterland area (with – without comparison)

- The result implies hinterland of Nacala port could cover Malawi, and southeast region of Zambia
- Cargo handling (laden container) estimated to grow more than 70%

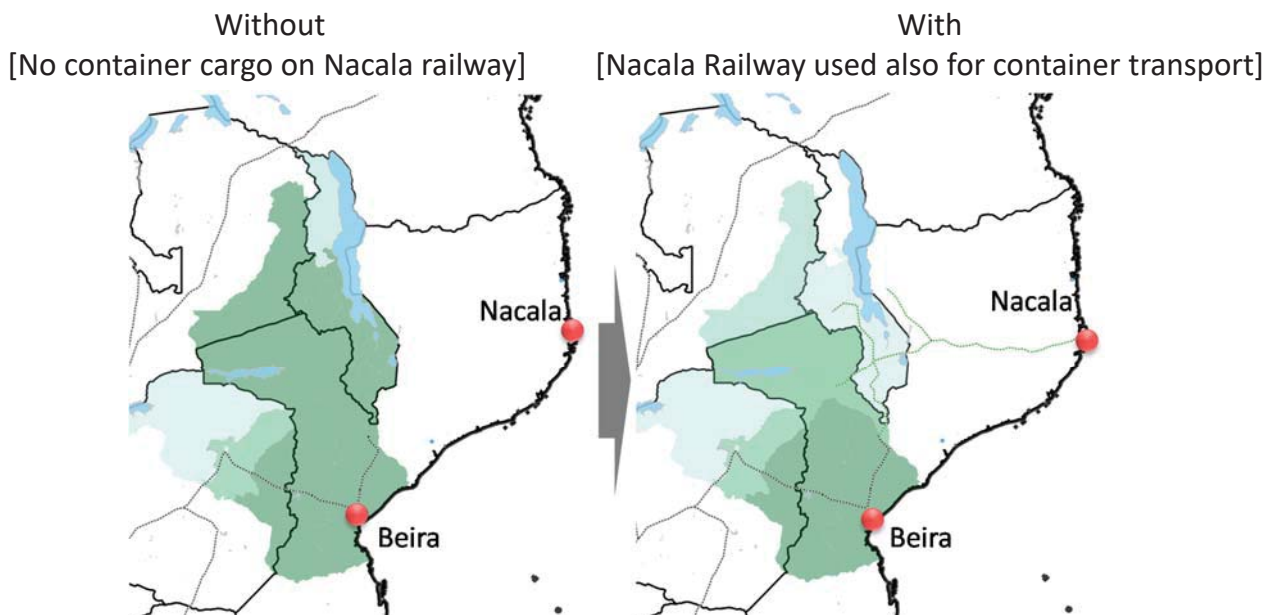


on 36
es.

Port Hinterland Area Change: Beira

Change of Beira port hinterland area (with – without comparison)

- The result implies influence of Beira port would remain, but would be reduced to a lesser extent.



Infrastructure Gap

Does the current infrastructure development plan sufficiently address the future demand?

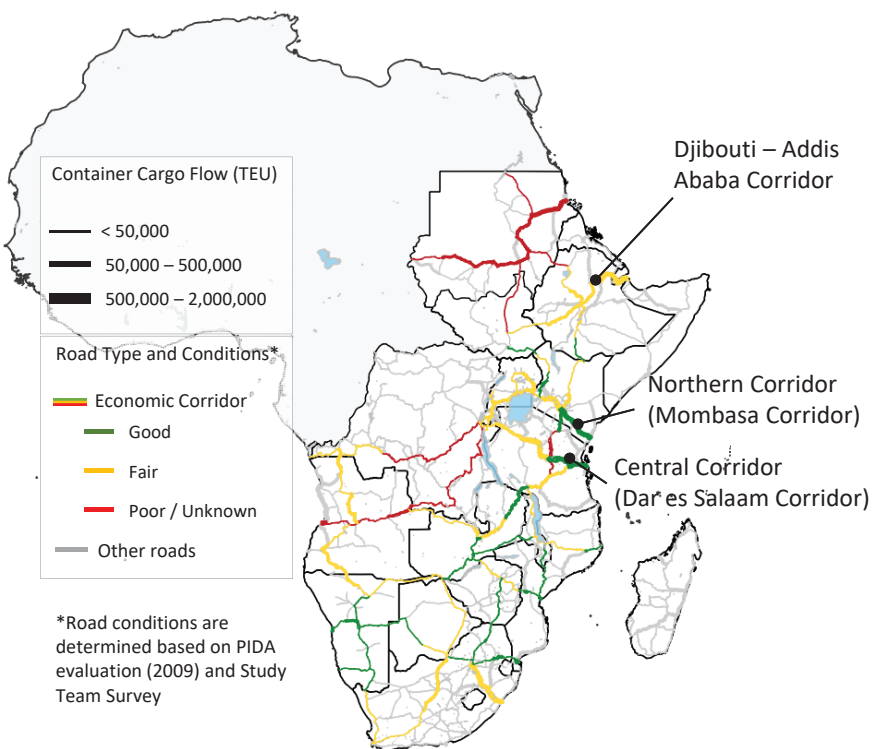
Infra-Gap for Container Cargo Flow

■ PIDA report points out concerns for infrastructure gap

- Cargo transport demand would increase significantly in the region due to growth in population and economy.
- Transport demand for cargo is forecasted to exceed the current transport network development.

■ Demand for development of Economic Corridors connecting landlinked countries

- Gap between demand and capacity exists especially at Djibouti Corridor, Mombasa Corridor, and Dar es Salaam Corridor.



* Container volume on land network excludes empty container and includes only laden containers

Future Port Plan

Dar es Salaam Port

- In the master plan of Dar es Salaam Port, the construction of a container terminal for Berths 12-14 is planned.
- After completion of the port will be reached a handling capacity of 1.2 million TEU.
- Although Bagamoyo Port was planned to be built about 60km north of Dar es Salaam Port, construction has been suspended now.

Nacala Port

- The handling capacity of Nacala port will be reached 250,000 TEU in 2020 from 18,000 TEU in the current.

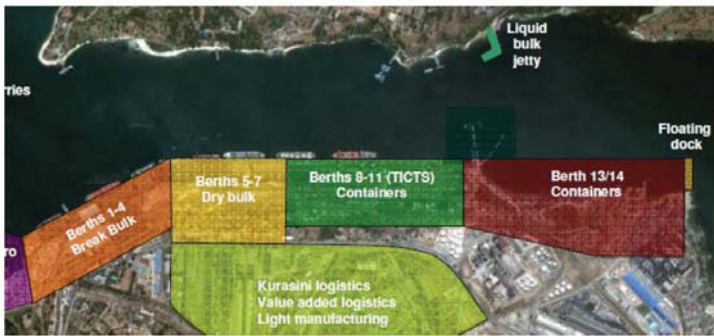


Fig. Dar es Salaam Port



Fig. Nacala Port

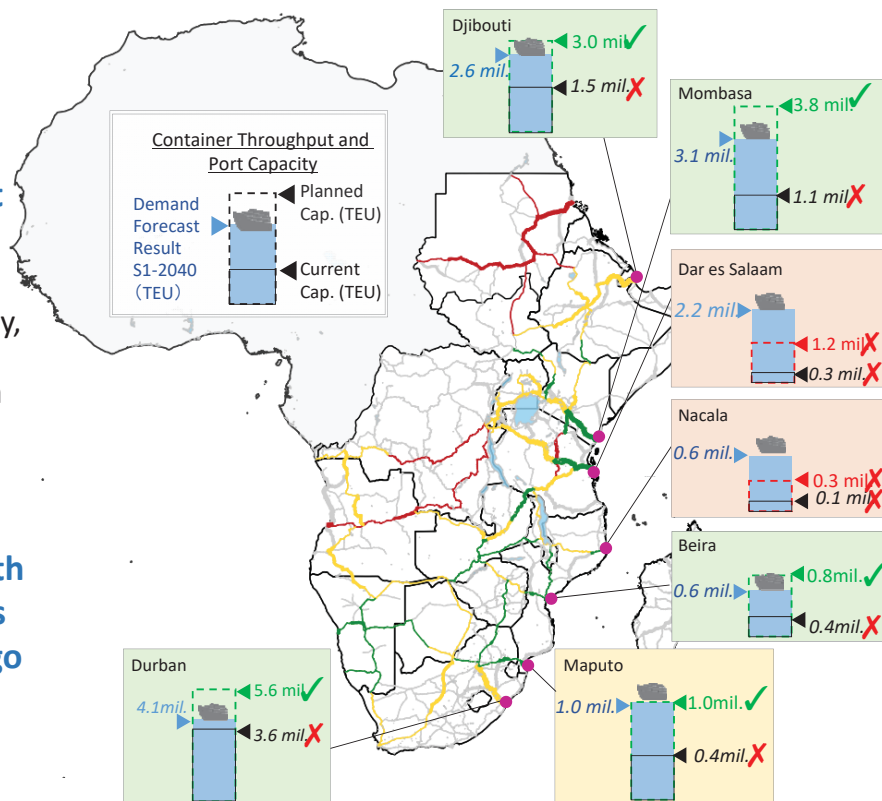
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Infra-Gap for Port Development

Port development plans needs to be reviewed and implemented to meet future demand

- Cargo demand could exceed planned capacity, especially at Dar es Salaam Port and Nacala Port.

It is important to provide strategies for port development with special considerations for the growth of cargo transport demand at hinterland.



* Cargo handling estimation includes empty container volume

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Study Result

Results 1



■ *Demand for Integrated development of economic corridor and OSBP to advance further economic growth*

- Integrated development of economic corridor and OSBP promote increase of products with competitive advantage, such as agricultural production.
- This research requires further accurate analysis and development projects should include control of gap between cargo demand and supply

■ *Infrastructure development to sufficiently address future cargo transport demand*

- Mombasa Port, Dar es Salaam Port, Beira Port, Nacala Port, and Durban Port are important for the region, especially for inland countries
- Cargo throughput demand in 2040 at Dar es Salaam Port and Nacala Port is estimated to exceed the planned capacity
- Development of ports which includes inland countries in its hinterland is important for sustainable and inclusive development for the region

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Thank you for your kind attention.

- Speakers -

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