MAPPS 2020

Sustainable transport

Presentation from Louise Naudé of WWF South Africa's Transport Low-carbon Frameworks project

Sustainable transport

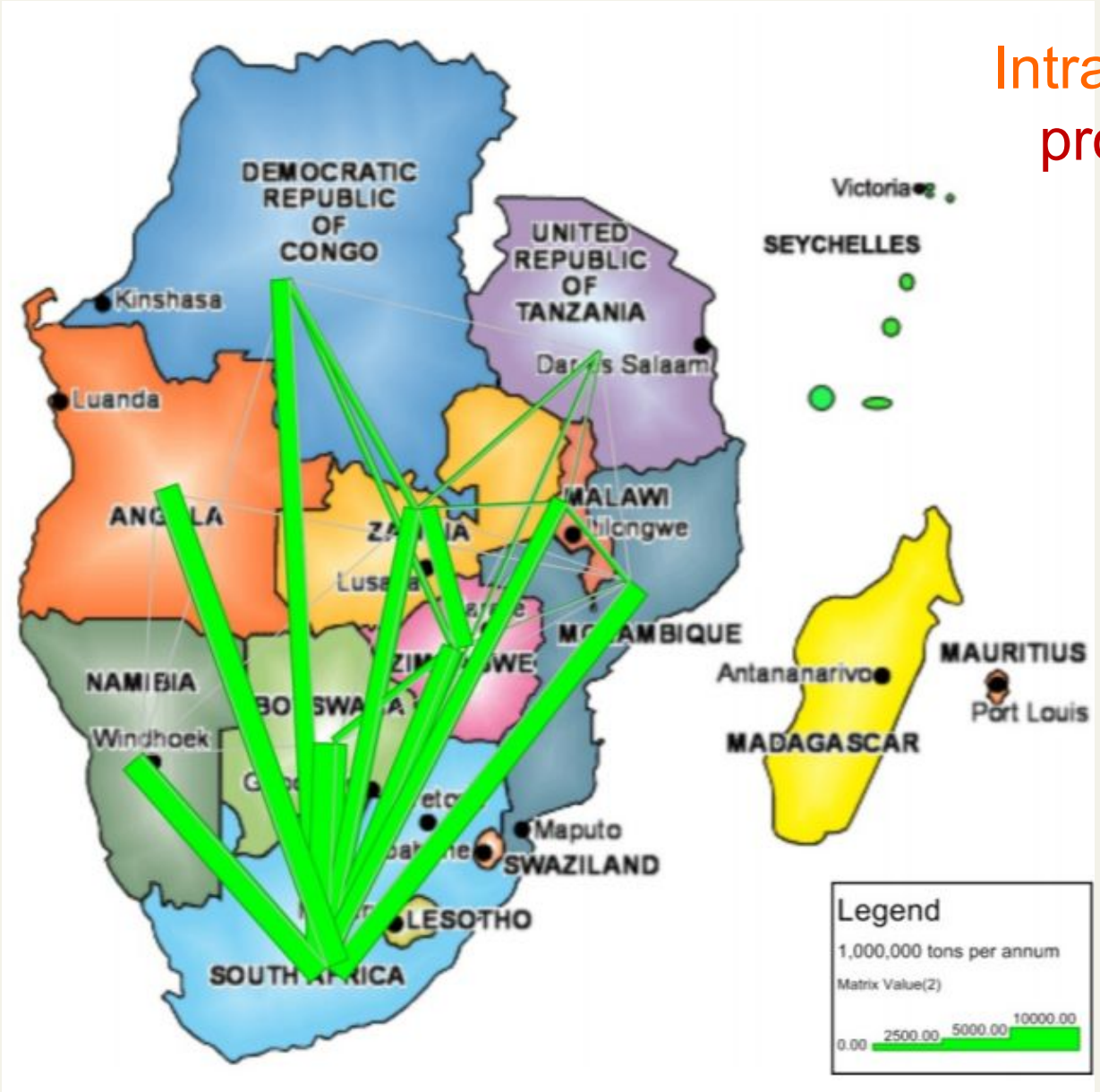
1 Economic geography

Transport is not an end in itself, it enables/blocks development, trade and access.

Transport infrastructure inscribes economic history.

In Africa, the mine-to-port pattern reflects economies founded on resource extraction for export to colonial powers. Domestic industrialisation and intra-regional trade remains underdeveloped.

Intra-regional trade projected in 2027



AU Agenda 2063 Flagship Projects:

African Commodity Strategy

African Continental Free Trade Area (AfCFTA)

Freight costs for business ± 5 x USA

Increasing transport demand in SADC

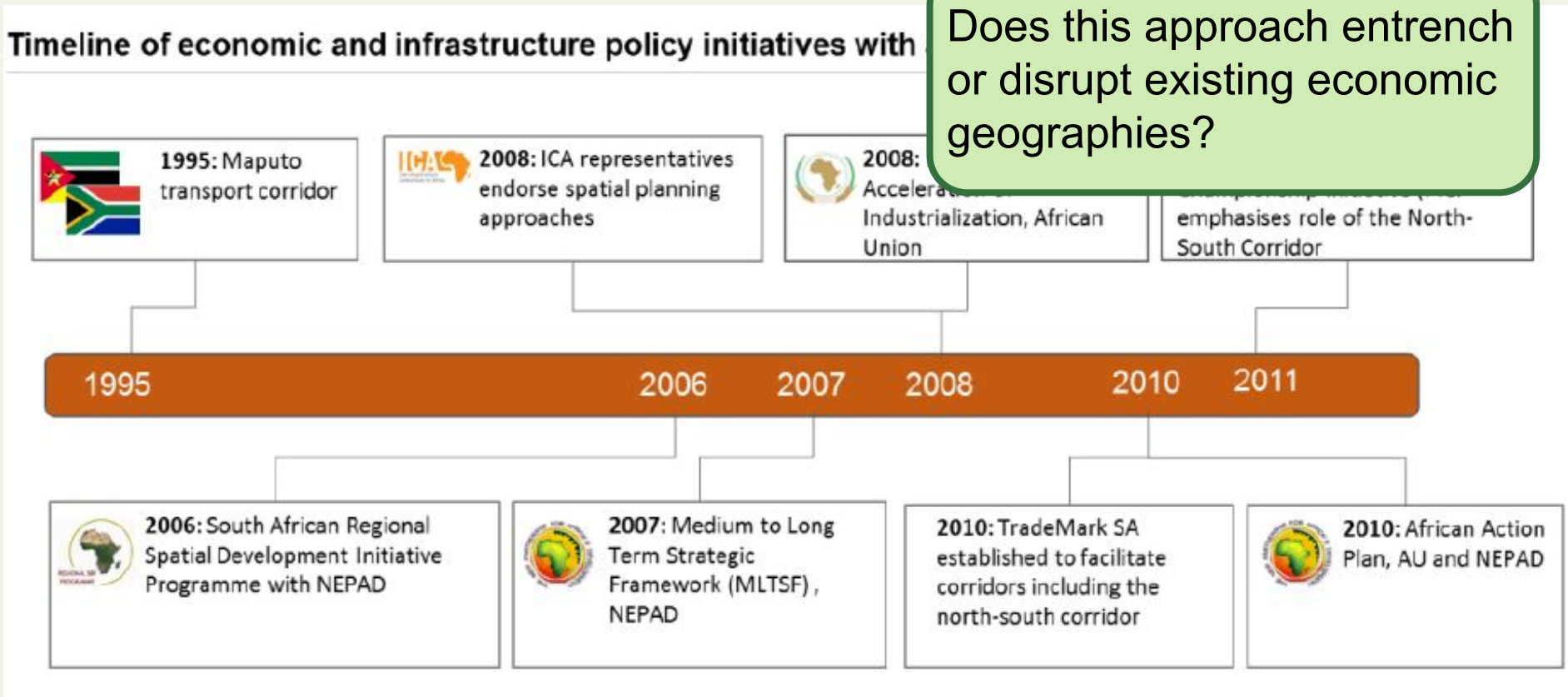
- 8.2% annual growth in goods traffic for landlocked SADC countries:
  - 50 million tonnes by 2030
  - 148 million tonnes by 2040
- Port traffic from 92 million tonnes to 500 million tonnes by 2027
- OR Tambo International Airport in Johannesburg (SA) will add 2 million passengers a year by 2030 and 3 million a year by 2040
- N'djili International Airport in Kinshasa (DRC): traffic to expand well over 100% of capacity by 2020


Sustainable transport
2
Spatial planning

Nodes and corridors spatial approach to infrastructure development

"Corridors are not politically neutral concepts nd their political economy needs to be interrogated. They often involve a ttempt to re-order land use (and sometimes rights), reconceive natura source management and change market access dynamics. The imp . can be positive but are also often contested."

Does this approach entrench or disrupt existing economic geographies?



SADC Spatial Development Initiative model

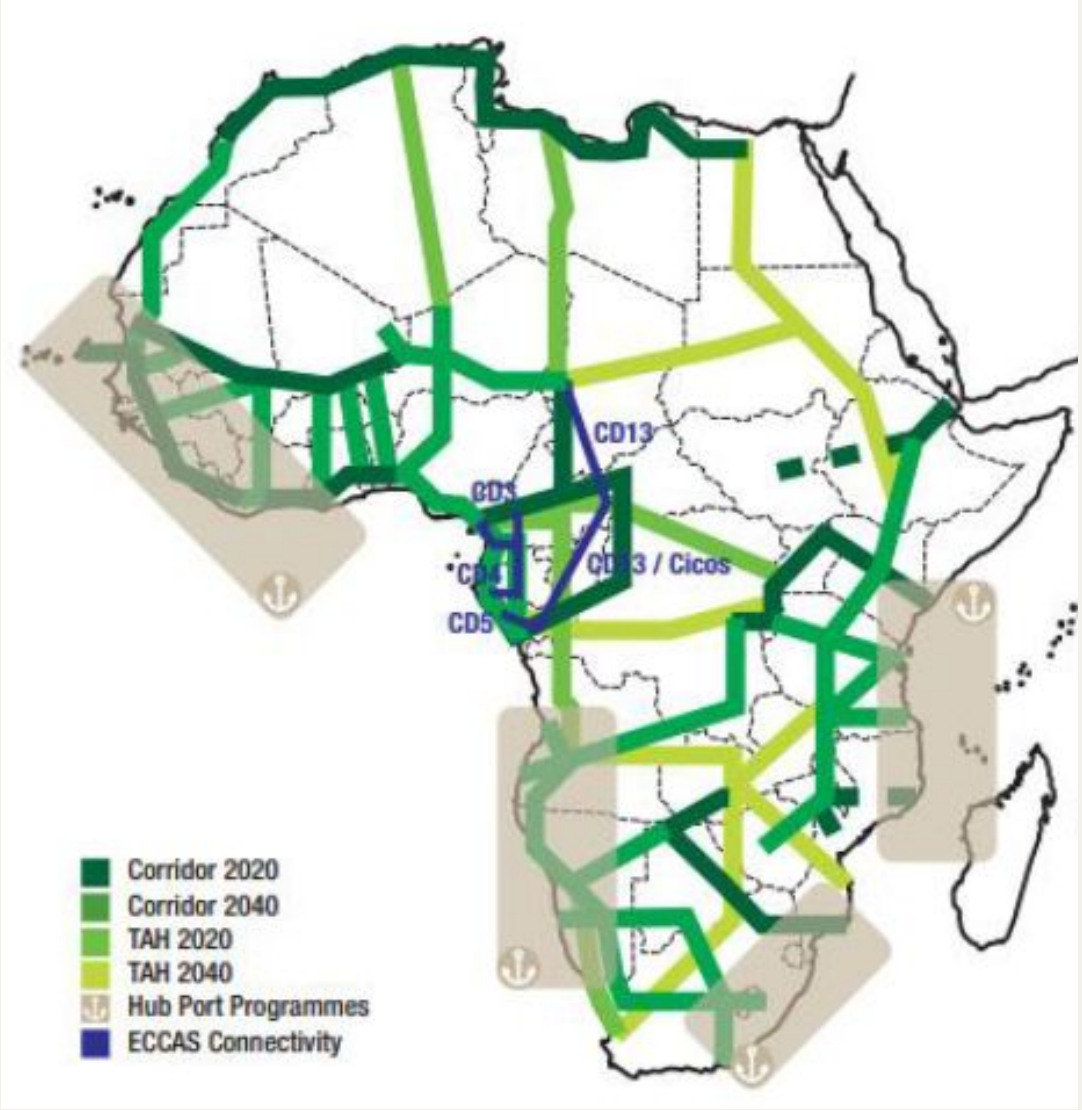
- Integrated planning for regions that exhibit strong growth potential
- Public sector crafts conditions attractive to private investment and public-private partnerships, rather than heavy government intervention

Maputo Development Corridor seen as most successful

- Governments of South Africa and Mozambique signed protocols
- Improved road, port and dredging, electricity, border post
- Initial infrastructure upgrades proved profitable which in turn spurred further public and private investment
- Exports coal, vanadium, stainless steel, cement; also carries sugar, maize, fruit, chemicals, machinery
- Goods per year via South Africa/Mozambique border post:
  - 29 000 tons in 1997 • 2.25 million tons (400 trucks/day) in 2007
- Industrial projects e.g. BHP Billiton Mozal aluminium smelter in Maputo

SADC High priority corridors: • North-South • Dar es Salaam
Medium priority corridors e.g. Beira–Nacala Multimodal

Continental transport corridors



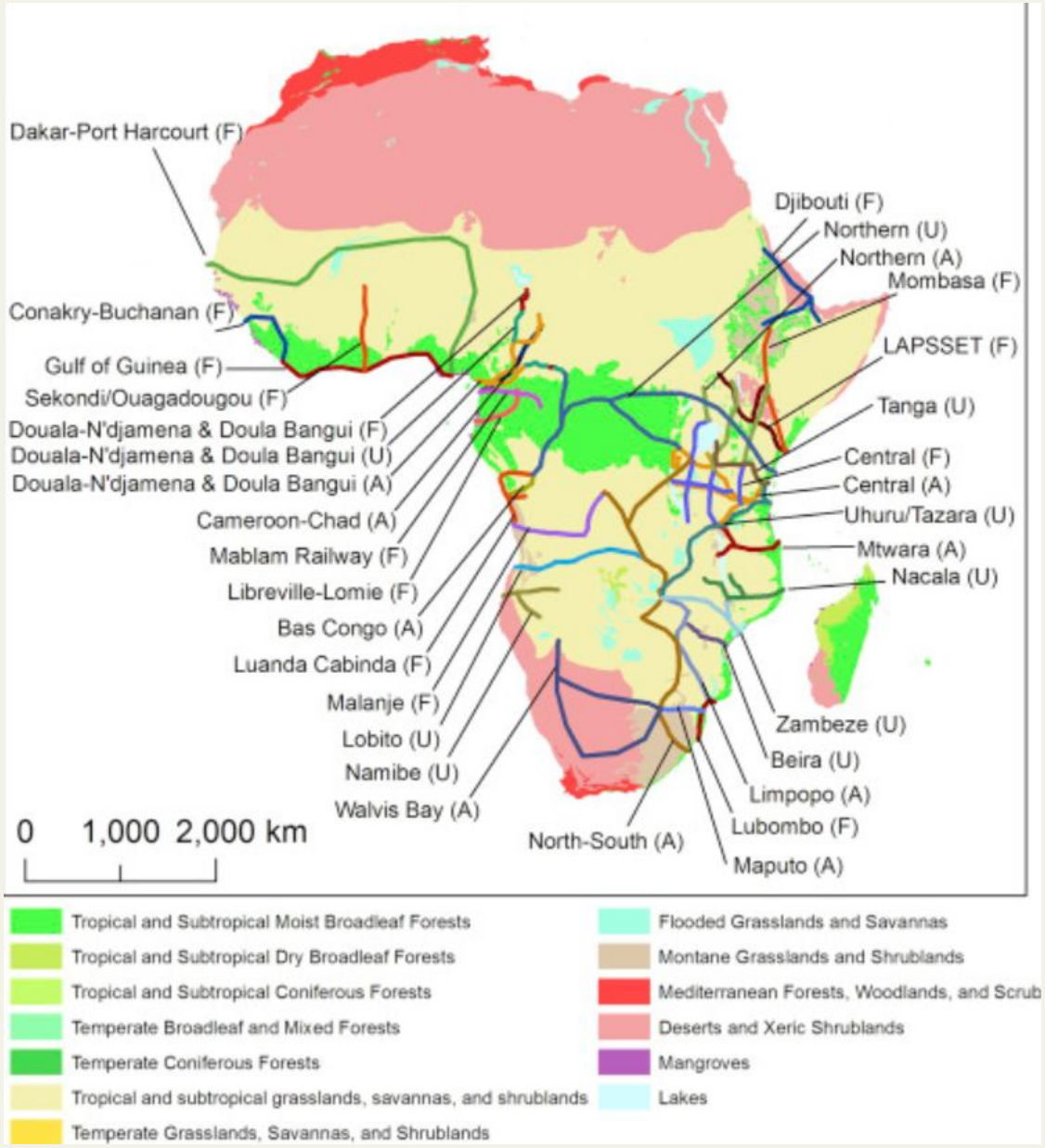
PIDA

- 40 corridors identified
- 24 priority projects

SADC

- 17 key corridors
- cross-border Corridor Planning Committees of transport and infrastructure authorities, customs authorities, trade and industry bodies, and users of the corridor

Transport corridors overlaid on biomes



Sustainable transport

3 Grand transport plans

African Union Agenda 2063
Flagship projects related to transport

Single Africa Air Transport Market (SAATM)

Continental High-Speed Train Network

Free Movement of all Persons and African Passport

Pan-African E-Network

SINGLE AFRICAN AIR-TRANSPORT MARKET
liberalisation of air transport services in terms of market access for African airlines

INTEGRATED HIGH SPEED TRAIN NETWORK
freight and people between African capitals and commercial centres

AFRICAN PASSPORT AND FREE MOVEMENT OF PEOPLE
lift restrictions on Africans' ability to travel, work and live in Africa

PAN-AFRICAN E-NETWORK
intra-African broadband terrestrial infrastructure and cyber security

...ion PIDA
...t projects

Project: Luanda Port Expansion
Sector: Transport; Sea Port
Type: Upgrade
RECs: SADC
Stage: S1: Project Definition (2013)
Location: Angola

Project: Nyamapanda/ Cuchimano OSBP
Sector: Transport; Border Post
Type: Upgrade
RECs: SADC
Stage: S1: Project Definition (2013)
Location: Mozambique,Zimbabwe

Project: Zobue/Mwanza OSBP
Sector: Transport; Border Post
Type: Upgrade
RECs: SADC
Stage: S1: Project Definition (2013)
Location: Malawi,Mozambique

Project: Colomue/Dedza OSBP
Sector: Transport; Border Post
Type: Upgrade
RECs: SADC
Stage: S4A: Tendering (20
Location: Malawi,Mozamb

North-South Multimodal Transport Corridor

Project: Forbes/Machipanda OSBP
Sector: Transport; Border Post
Type: Upgrade
RECs: SADC
Stage: S1: Project Definition (2013)
Location: Mozambique,Zimbabwe

Project: Nacala Railway Line
Sector: Transport; Railway
Type: Upgrade
RECs: SADC
Stage: S4B: Construction (2013)
CAPEX Cost: 3500.00 million USD
Location: Mozambique

Project: Walvis Bay Port New Container Terminal
Sector: Transport; Sea Port
Type: Upgrade
RECs: SADC
Stage: S2B: Feasibility (2017)
Preparation Cost: 8.00 million USD
CAPEX Cost: 275.00 million USD
Location: Namibia

Project: Beitbridge OSBP
Sector: Transport; Border Post
Type: Upgrade
RECs: SADC
Stage: S4B: Construction (2019)
Preparation Cost: 0.71 million USD
CAPEX Cost: 7.10 million USD
Location: South Africa,Zimbabwe

Project: Tete Toll Bridge
Sector: Transport; Bridge
Type: New
RECs: SADC
Stage: S1: Project Definition (2013)
CAPEX Cost: 97.00 million USD
Location

Project: Sena Railway Line Rehabilitation
Sector: Transport; Railway
Type: Upgrade
RECs: SADC,COMESA
Stage: S4C: Operation (2019)
Preparation Cost: 0.30 million USD
CAPEX Cost: 156.00 million USD
Location: Mozambique

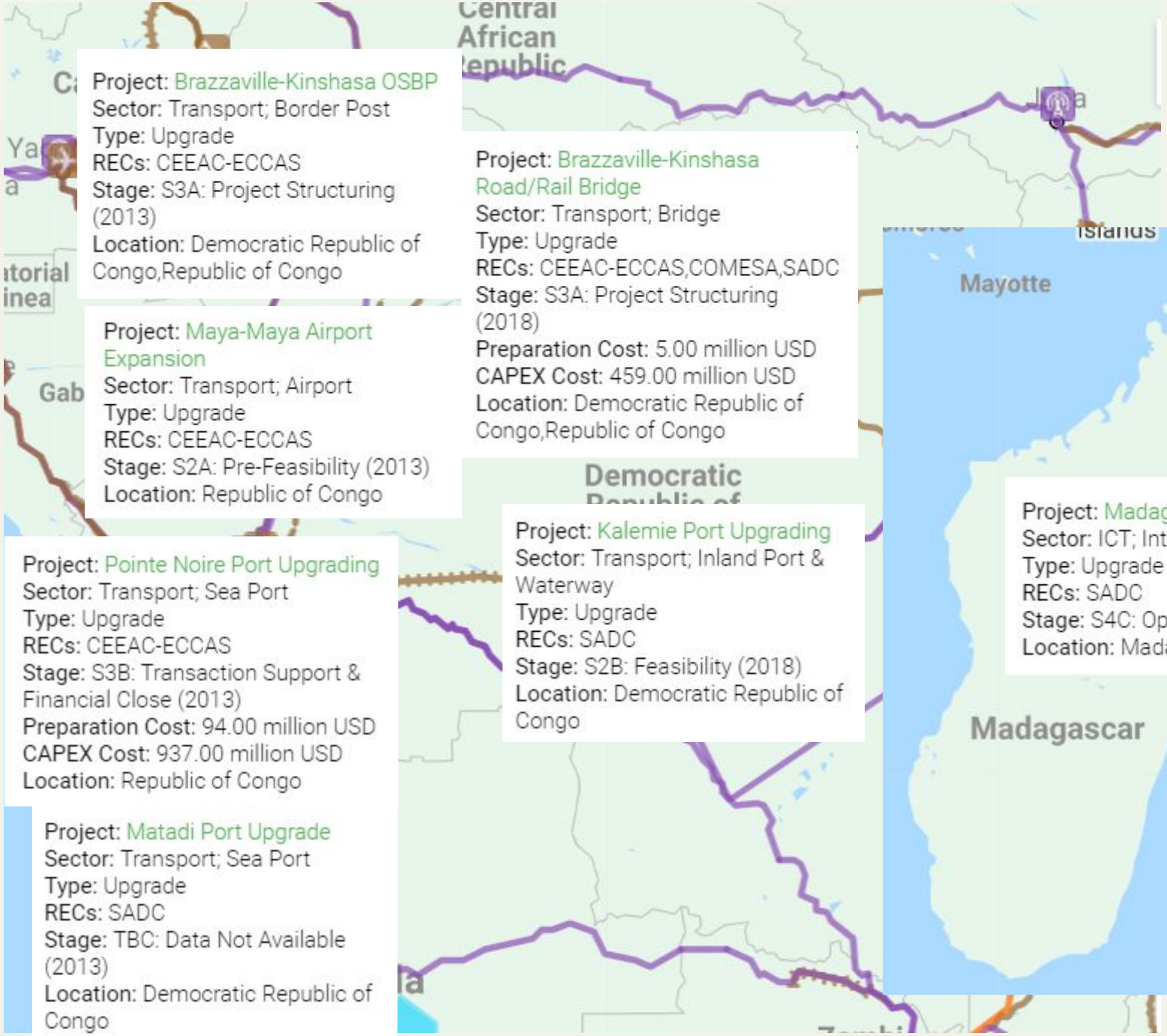
Project: Martin's Drift OSBP
Sector: Transport; Border Post
Type: Upgrade
RECs: SADC
Stage: S1: Project Definition (2013)
Location: Botswana,South Africa

Project: Durban Port Expansion
Sector: Transport; Sea Port
Type: Upgrade
RECs: SADC
Stage: S4B: Construction (2013)
CAPEX Cost: 2910.00 million USD
Location: South Africa

Project: Maputo Port Expansion
Sector: Transport; Sea Port
Type: Upgrade
RECs: SADC
Stage: S4B: Construction (2013)
CAPEX Cost: 1700.00 million USD
Location: Mozambique

...al Terminal Development
Sector: Transport; Sea Port
Type: Upgrade
RECs: SADC
Stage: S2A: Pre-Feasibility (2017)
Preparation Cost: 3.05 million USD
CAPEX Cost: 200.00 million USD
Location: Mozambique

AU PIDA projects



Project: Brazzaville-Kinshasa OSBP
Sector: Transport; Border Post
Type: Upgrade
RECs: CEEAC-ECCAS
Stage: S3A: Project Structuring (2013)
Location: Democratic Republic of Congo,Republic of Congo

Project: Brazzaville-Kinshasa Road/Rail Bridge
Sector: Transport; Bridge
Type: Upgrade
RECs: CEEAC-ECCAS,COMESA,SADC
Stage: S3A: Project Structuring (2018)
Preparation Cost: 5.00 million USD
CAPEX Cost: 459.00 million USD
Location: Democratic Republic of Congo,Republic of Congo

Project: Maya-Maya Airport Expansion
Sector: Transport; Airport
Type: Upgrade
RECs: CEEAC-ECCAS
Stage: S2A: Pre-Feasibility (2013)
Location: Republic of Congo

Project: Kalemie Port Upgrading
Sector: Transport; Inland Port & Waterway
Type: Upgrade
RECs: SADC
Stage: S2B: Feasibility (2018)
Location: Democratic Republic of Congo

Project: Madagascar IXP
Sector: ICT; Internet Exchange Point
Type: Upgrade
RECs: SADC
Stage: S4C: Operation (2019)
Location: Madagascar

Project: Pointe Noire Port Upgrading
Sector: Transport; Sea Port
Type: Upgrade
RECs: CEEAC-ECCAS
Stage: S3B: Transaction Support & Financial Close (2013)
Preparation Cost: 94.00 million USD
CAPEX Cost: 937.00 million USD
Location: Republic of Congo

Project: Matadi Port Upgrade
Sector: Transport; Sea Port
Type: Upgrade
RECs: SADC
Stage: TBC: Data Not Available (2013)
Location: Democratic Republic of Congo

SADC plans and Protocol

Some debates

- Transport engineers design infrastructure to deliver volumes and speed. Others say this is not the best way to measure whether transport is delivering sustainable development.
  What aims and indicators would you use for transport performance?

- SADC's Transport Sector Plan speaks of "commercialisation" of transport infrastructure and services, meaning they should be run as profit-making companies are. The shift from the term "parastatal" to "state-owned company" reflects this idea.
  What is your thinking on this? How should the financial sustainability of transport services be ensured?

- Road freight transport is run by private companies on infrastructure built and maintained by the state. Rail is run by a parastatal on infrastructure built and maintained by the state.

Performance of passenger transport systems (1 of 2)

Efficiency

- Cost-benefit • Return on government investment • User pays …

Mobility

- Number of kilometres built e.g. bicycle lanes
- Passenger numbers • Person-km moved (not: suppressed demand)
- Travel speeds • Congestion, measured in vehicle delays
- Level of service e.g. frequency, distance to public transport
- Average travel time
- Affordability

Access

- Ability to reach desired activities and destinations
- Includes mobility substitutes e.g. electronic communications
- Levels of access • Essential / lifeline access for basic needs

Performance of passenger transport systems (2 of 2)

Equity

The “fairness” with which transportation benefits and costs are distributed, with two approaches:

- equal shares
- favour the disadvantaged

Considers:

- Potential mobility
- Social inclusion (people’s ability to adequately participate in society and obtain a decent standard of living)
- Quality of life benefits (reduced isolation, feeling of security, reduced incidence of crime, urban regeneration)

Sustainable transport

4 Engineering and sustainability issues

SADC Transport Sector Plan: concerns re roads

Heavy trucks tear up roads, at high cost to the state

- Roads not maintained due to high cost of maintenance
- Poor condition due to damages of conflict and neglect in the DR
- Few tarred roads which are suitable for heavy trucks

Continuity

s in Angola, Tanzania and the DRC

Most freight should run on rail (climate, water, land)

Tar is made from oil or coal (climate change)

onges n between Gaute urban

Delays at cities w e bypasses have not yet been built (Lusaka, Ndola and Harare)

Bypasses starve local businesses and small towns

- Capacity constra on roads with significant grades where climbing lanes have not been provided
- Delays at bord congestion at border posts between South Africa and Lesotho

Highways divide communities and biomes

SADC Transport Sector Plan: concerns re railways

Need guaranteed freight loads to build new rail or maintain, and to guarantee operational service

Condition:

- Lack of maintenance and investment
- Damage as result of conflict
- Theft of operating equipment

Capacity:

- Poor track condition (Kigoma, Nacala, Harare, National Railways of Zimbabwe, Beitbridge-Bulawayo Railway, Zambia, DRC)
- Poor locomotive and wagon availability (Kigoma, Harare, Maputo, National Railways of Zimbabwe, Beitbridge-Bulawayo Railway, DRC, Trans-Namib, Botswana)
- Collapsed marine services on Lake Victoria
  Discontinuity as a result of railway condition

Rail is BY FAR more sustainable (climate, water), but little goes by rail

Operational

- Long delays on rail and at ports
- Can't provide door-to-door service lik
- Not providing reliable timetables for f

Railways divide communities and biomes

Issue of branch lines to serve local economies

frog underpass, California


tortoise tunnel, Japan


wildlife bridge, Singapore


elephant underpass, Kenya

SADC Transport Sector Plan: concerns re sea ports

/road and port/rail

bito)

Port **location**, **construction** and **operation** can have bad effects on

- coastal hydrology (currents, tides, groundwater, erosion)
- water quality
- air quality
- bottom contamination
- waste management
- marine and coastal ecology
- noise and vibration

SADC Transport Sector Plan: concerns re airports

Condition:

- Inadequate runways (Angola, Blantyre, Zimbabwe, Le
- Inadequate terminals (Angola, Dar-es-Salaam, Ndola,

Aviation fuels (climate change)

Operational issues

Physical infrastructure issues are not the main cause of transport delays
- **75% of delays are from poor facilitation of existing infrastructure**
- Disparate and complicated border procedures and customs regulations cause delays of up to 24 hours
- Inefficient operations cost regional businesses US$50 million in 1996
- Makes final price of many foods and products internationally uncompetitive, less money to producer, more to logistics

- One-stop border posts, instead of checks by both countries
- SADC Protocol on Trade recommends harmonising customs practices
- All SADC countries support a regional free trade agreement
- Southern African Customs Union signed by Botswana, Lesotho, Namibia, Swaziland, South Africa – revenue constitutes a substantial share of the state revenue of B,L,N,S