The Fibrous Plant Industry in South Africa: A Sectoral Profile

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FIBROUS PLANTS IN SOUTH AFRICA: A BRIEF OVERVIEW

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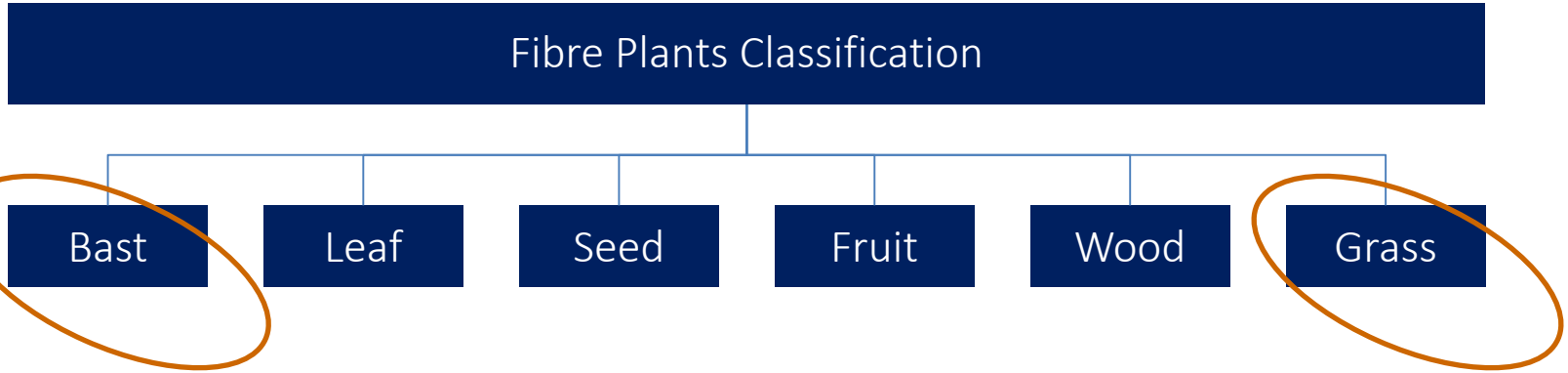
The Fibrous Plant Classification



Hemp

Sisal

Cotton

Coir

Bamboo

Kenaf

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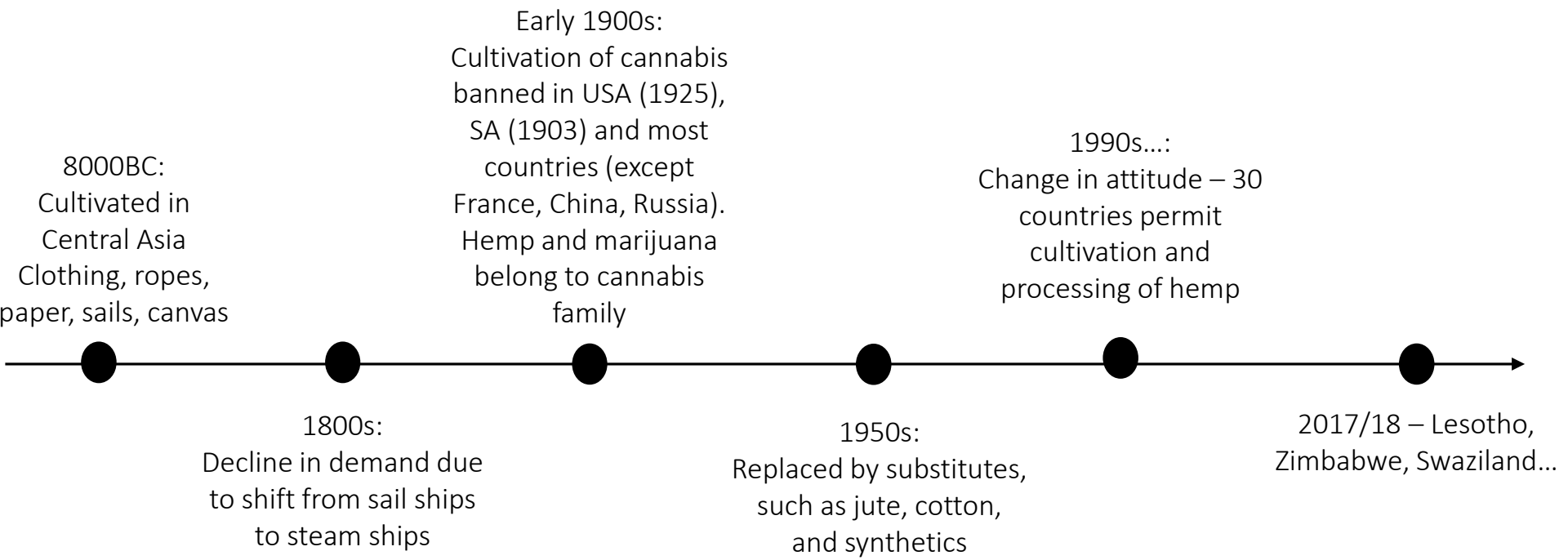
Source: Minerals to Metals and CeBER

Hemp in South Africa



- Domestic production of hemp is restricted by legislative barriers – require permit from Dept. of Health.
- Difficult to gauge the extent and value of the domestic hemp market (Coogan, 2016)
  - Net importer of hemp fibre (HS 5302), seeds and raw hemp (DAFF, 2016)
  - Imports used to manufacture clothing, soap, shampoo (DAFF, 2016)

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Hemp in South Africa (cont…)

- This is not new. There has been interest in hemp for some time.
  - Agronomic feasibility tests (1994/1996) initiated by SAHC and implemented by ARC
  - PG Bison, Masonite Africa, ARC & SAHC – potential of hemp to replace high-carbon materials such as pulp
  - SA Bast Crop Consortium (1998-2005) – develop localised hemp cultivars
  - Eastern Cape Hemp Pilot Project Initiative Part 1 (1999-2005) – feasibility of growing hemp as a bast fibre
  - Commercial feasibility trials Part 2 – prove commercial feasibility of hemp
- Coogan (2016) notes that it is agronomically feasible to grow hemp in EC and WC, but there are barriers:
  - Current regulatory environment
  - Small-scale farmers versus commercial.
  - Coordination of R&D
- The re-emergence of industrial hemp offers economic opportunities, but South Africa is not set to exploit these opportunities

Kenaf in South Africa

Used for centuries as a source of fibre for twine, cloth etc. in India and Africa

1800s: India produced and used kenaf

1902: Russia started producing kenaf and introduced it to China in 1935

1940s: US research and production during WWII to supply cordage Excellent source of cellulose fibres (paper)

1950s: Commercially cultivated in SA, but discontinued from 1960s to 2000s

2000s: Renewed interest in western hemisphere

2006: Winterton (KZN) – bio-composites for auto industry

- Brits Automotive Systems and Sustainable Fibre Solutions contract farmers in Winterton to cultivate kenaf for the purposes of processing (Kayembe, 2015)
  - Brits Automotive Systems to use kenaf to reinforce car headliners, door panels, boot trims, wheel arches and parcel shelves
  - But, this failed…
- IPAP project – Commercialisation of Natural Fibre Reinforced Composites (DTI, 2015)
  - Trial manufacture of the Nedbank sign and Eco-wash machine by Global Composites using locally grown Kenaf
  - Discussions with Mercedes-Benz regarding introduction of locally-grown kenaf into door-liner of C-class vehicle
  - Toyota SA and Smiths Auto Moulders – short natural fibre injection moulded components for automotive and appliance applications.

Bamboo in South Africa

- The have been a number of efforts exploring the potential development of a bamboo industry in South Africa:
  - The IDC has explored this potential for some time: 1) sent study tour to China to learn bamboo growing and processing; 2) commissioned value chain opportunity study
  - Bamboo Symposium, East London, 2011 hosted by IDC and ECDC – 1) 5ha sites funded and 2) Bamboo steering committee
  - *EcoPlanet Bamboo* selected Eastern Cape as location for SA subsidiary – 485ha farm near Bathurst, EC
  - *DGB* launched 10ha project in Mooiplaas -CSR programme
  - *Broad Based Bamboo Solutions* negotiated with local farmers in KZN to grow bamboo for processing purposes (furniture and flooring)
  - *Food and Trees for Africa* sources CSR funding for 20ha Blue Disa bamboo carbon sequestration project in Lawley, JHB. Cooperative business model.
  - Green Grid in KZN (320ha) – plantation, nursery and gasification plant (national demonstration project)
  - Several farmers have entered into agreements with *Brightfields Natural Trading*
- There are a number of nurseries developing plants
  - Dube AgriLab at Dube Tradeport – propagate high quality plants (nursery); Hortus Capensis; R&S Tissue Culture Laboratories
- The retail element of the value chain is focused on furniture, flooring and other home products (Brightfields, Bamboo Wharehouse, Moso Africa)

Bamboo in South Africa

- Government has taken an interest in various forms
  - Dept. Environmental Affairs – funded Green Grid Beema Bamboo project in KZN (bioenergy)
  - Dept. of Water Affairs – consultation regarding water consumption of different bamboo species
  - IDC and ECDC
  - Other departments that has expressed interest in the bamboo industry, include, DAFF, Dept. of Rural Development and Land Reform, DTI

TRADE IN FIBROUS PLANTS

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Trade in Hemp: Global

- Trade in hemp (530210: true hemp fibre, raw or retted) is valued at $7.72 million in 2017
  - 4567th most traded product out of 4776 products (bottom 5% of traded products)
- Trade concentrated in developed country markets

Top importing countries from 2013-2017		
Rank	Country	Share
1	Czech Republic	46.0%
2	Germany	17.0%
3	Slovenia	6.8%
4	United Kingdom	3.8%
5	South Korea	2.8%

Top exporting countries from 2013-2017		
Rank	Country	Share
1	France	52.0%
2	Netherlands	17.0%
3	Germany	10.0%
4	China	4.0%
5	Romania	2.8%

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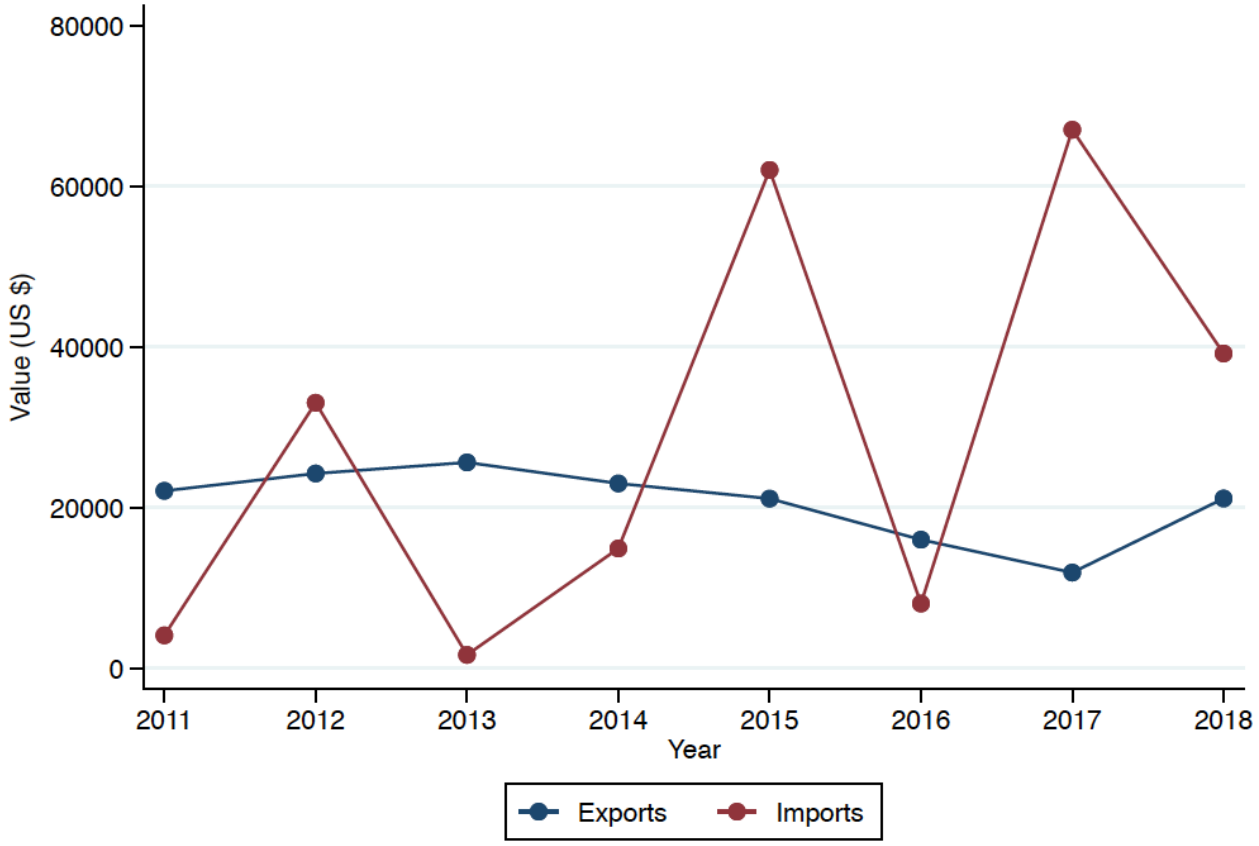
Trade in Hemp: South Africa

- South African trade in hemp (fibre, raw or retted)
  - Imports (∽40k) > exports (∽ 20k) in 2018
  - Fluctuate over time
  - Primarily sourced Philippines (51%), USA (42%), China (4.8%) and UK (1.9%)
  - Exports to Tanzania



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Trade in Kenaf: Global

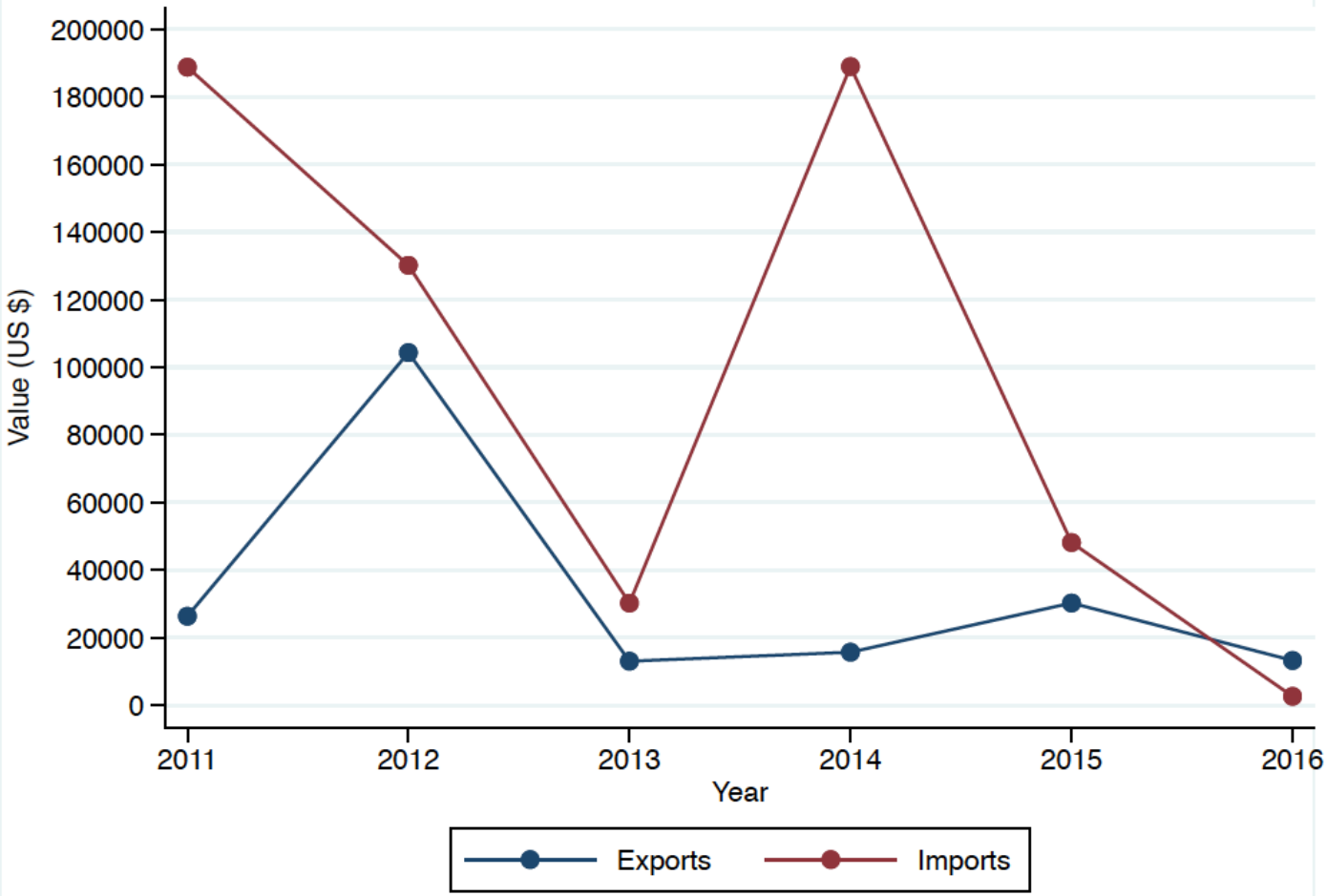
- Trade in kenaf (530310: Jute and other textile bast fibres, raw or retted) is valued at $184 million in 2017
  - 3628th most traded product out of 4776 products (bottom 25% of traded products)

Top importing countries from 2013-2017		
Rank	Country	Share
1	India	25.0%
2	Pakistan	21.0%
3	China	15%
4	Nepal	10%
5	Cote d'Ivoire	2.5%

Top exporting countries from 2013-2017		
Rank	Country	Share
1	Bangladesh	71.0%
2	Tanzania	13.0%
3	India	8.9%
4	China	1.6%
5	Kenya	1.3%

Trade in Kenaf: South Africa

- South African trade in Kenaf (Jute and other textile bast fibres, raw or retted)
  - Imports (180k) > exports (∽ 20k) in 2014
  - Fluctuate over time
  - Primarily sourced from China (95%) and Belgium (5.1%)
  - Exports to the region (Zambia, Angola, Mozambique, Tanzania, Zimbabwe)



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Trade in Bamboo: Global

- Trade in Bamboo is valued at $164.9 million in 2017
  - Bamboos for plaiting: 3941st out of 4776 (bottom 20% of traded products)
  - Rattans for plaiting: 4408th out of 4776 (bottom 10% of traded products)

Top importing countries from 2013-2017		
Rank	Country	Share
1	China	14.0%
2	USA	9.9%
3	India	8.9%
4	Hong Kong	6.1%
5	Italy	5.4%

Top exporting countries from 2013-2017		
Rank	Country	Share
1	China	56.1%
2	Malaysia	8.9%
3	Indonesia	5.7%
4	Vietnam	5.4%
5	Singapore	4.9%

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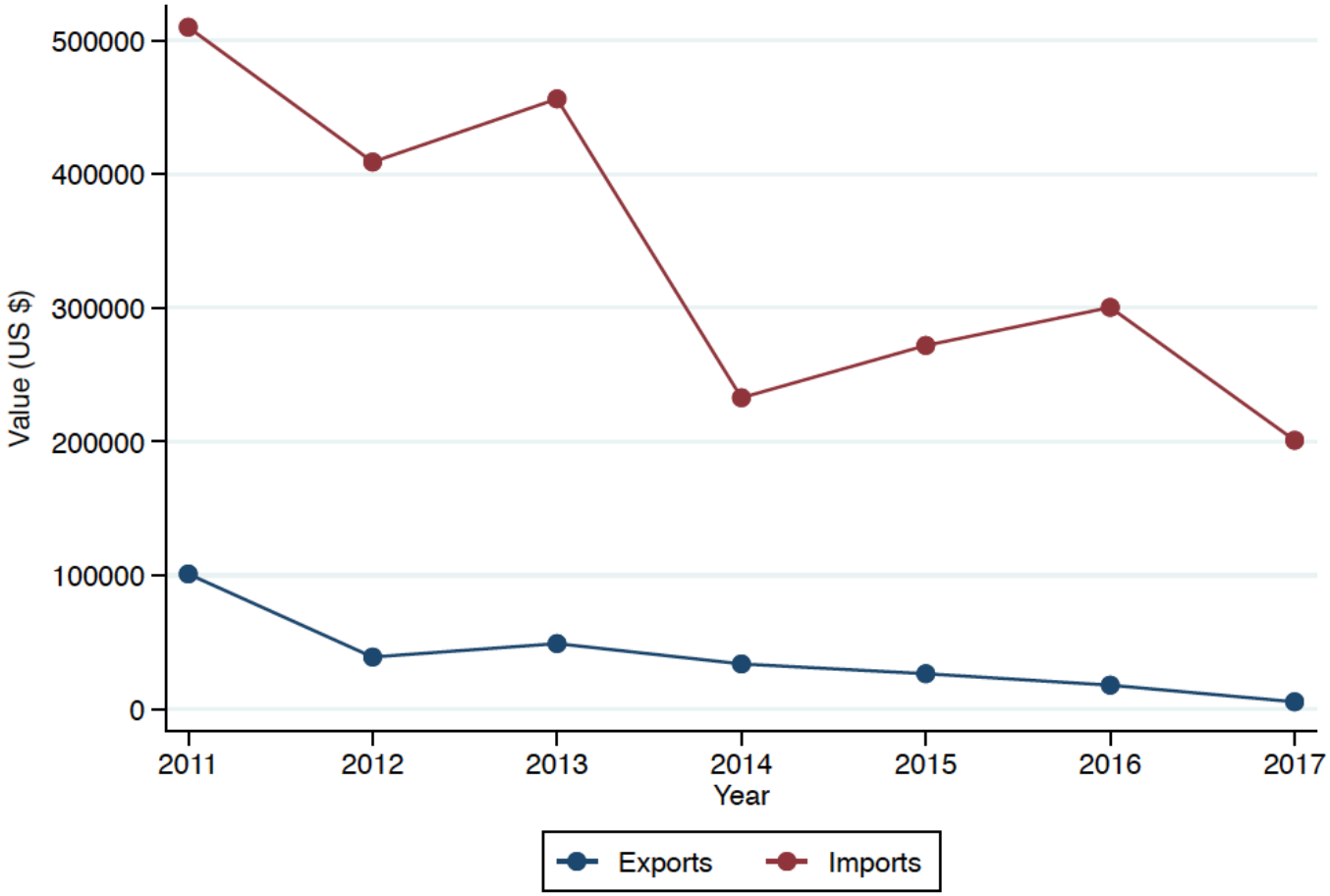
Trade in Bamboo: South Africa

- South African trade in bamboo
  - Imports (∽ 200k) > exports (∽ 10k) in 2017
  - Bamboo sourced from Asia (China, Singapore) and rattan sourced from Singapore, Malaysia, China and Madagascar
  - Bamboo exported to region (Tanzania, Seychelles, Malawi, Mozambique, Israel) and rattan exported to UAE, USA and Italy



CHALLENGES AND OPPORTUNITIES FOR FIBROUS PLANTS IN SOUTH AFRICA

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Challenges and Opportunities

Bamboo	Kenaf	Hemp
Opportunities		
Able to generate a diversity of downstream products		
Clean degraded land		
Niche markets and local banding strategies – cannot compete with China (Scheba, et al., 2017)	Bio-composite automotive components. Links with policy (APDP)	Bio-composite automotive components. Links with policy
Flooring, furniture, kitchen counter-tops, home decor		Natural building materials, medicinal applications, CBD, eco-friendly paper production
Challenges		
Access to land and tenure security – negotiations with communities and traditional authorities		
Access to finance		
The need for knowledge creation and dissemination		
Technical challenges and capabilities – e.g. processing, species selection, high costs of investment and management, water use requirements		Association with cannabis and legislative environment
Regulation – Invasive species, water licenses, legal status – tree or grass?		Licensing and regulatory requirements as a barrier to entry, especially for small firms/farms

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Concluding Remarks

- These fibrous plant industries are small
  - Primary production is certainly at the early stages of development
  - Downstream firms importing intermediates and final goods – evidence of demand, albeit small.
- While the broader project aim is for primary production to take place on degraded mining land, the supply of the raw input for downstream manufacturing can be met by global markets.
- There are a number of products that can be manufactured using fibrous plant inputs [provided by the engineering team]. But, which products? In the next session, we provide, and implement, a data-centric approach to identifying growth opportunities in the fibrous plant economy.

Thank you

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