



**Western Cape
Government**

Environmental Affairs and
Development Planning

BETTER TOGETHER.

ECOLOGICAL INFRASTRUCTURE INVESTMENT FRAMEWORK

Alien Biomass to Bio-Jet Fuel



05 March 2020

The effect - Day Zero



Assessment of responses - EIF

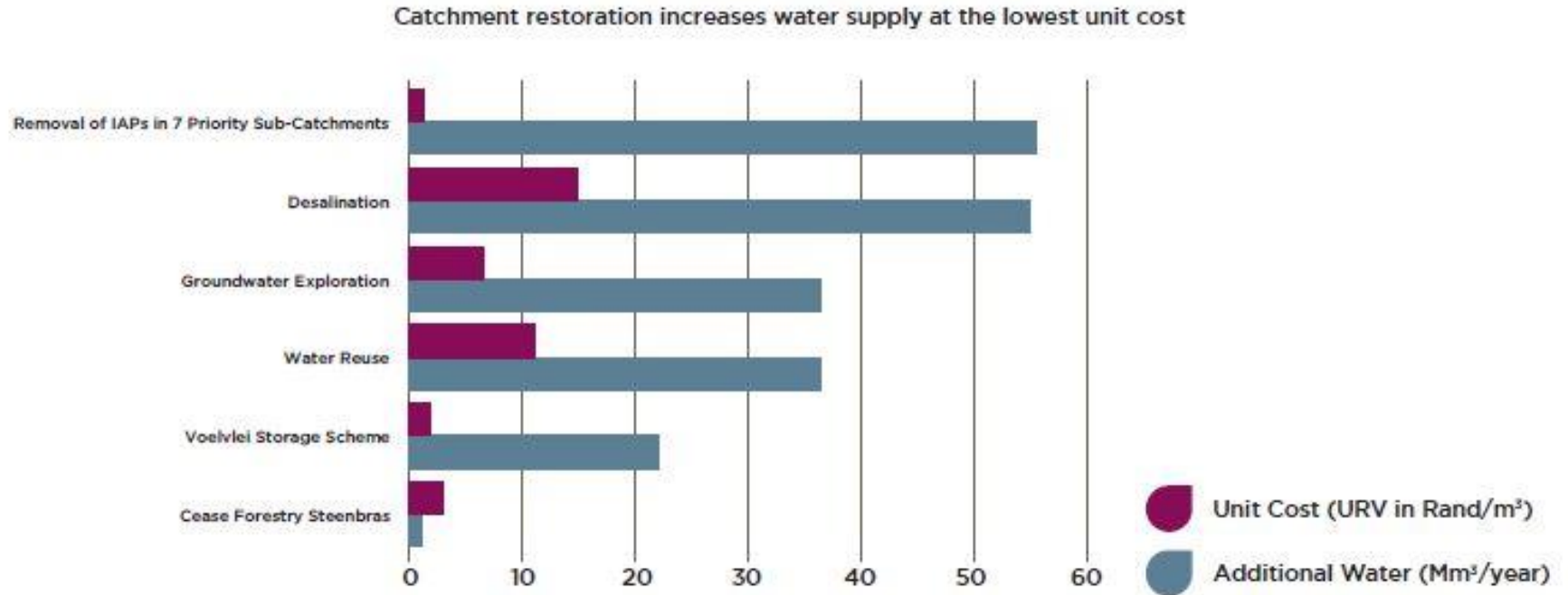
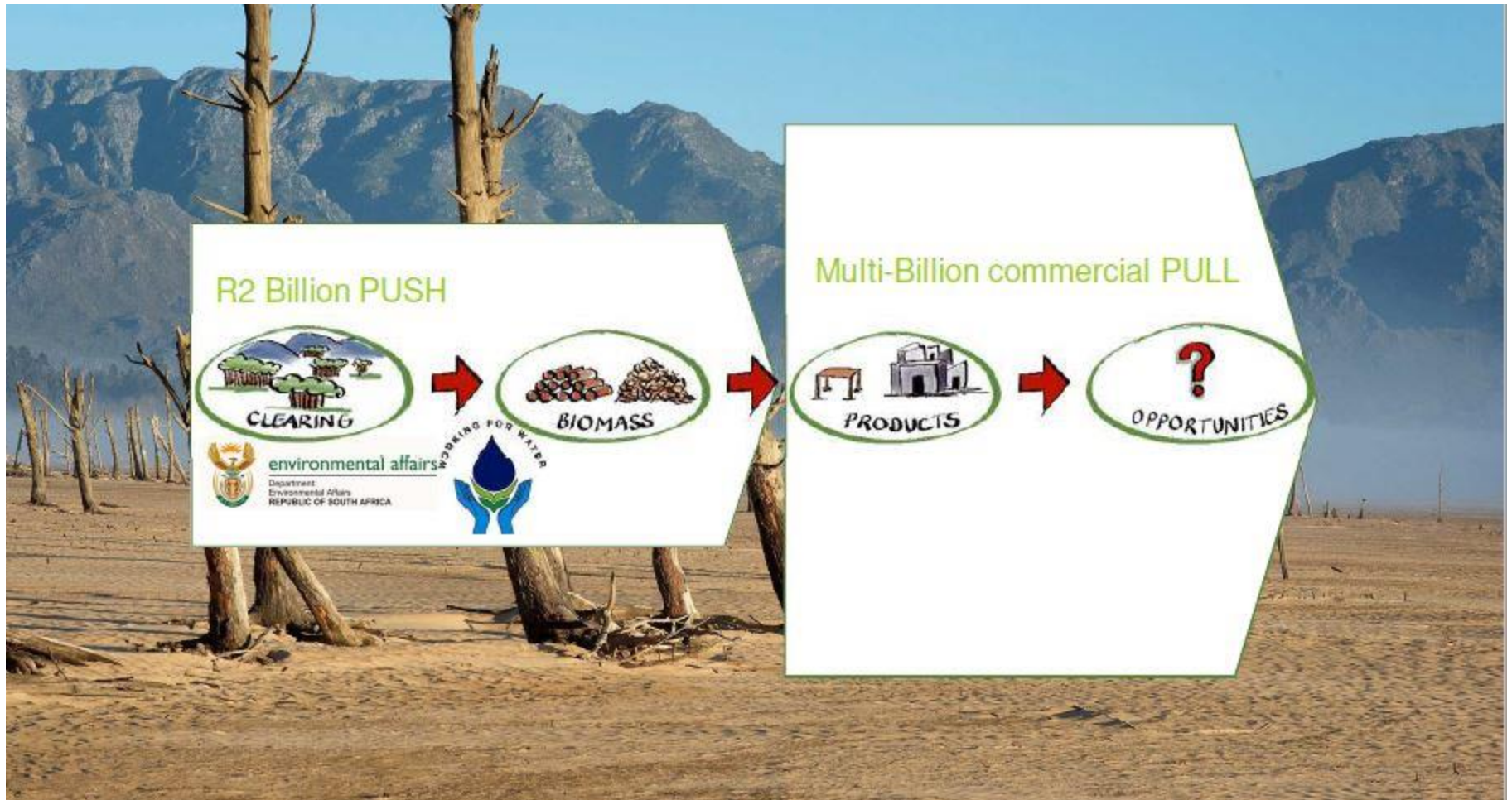


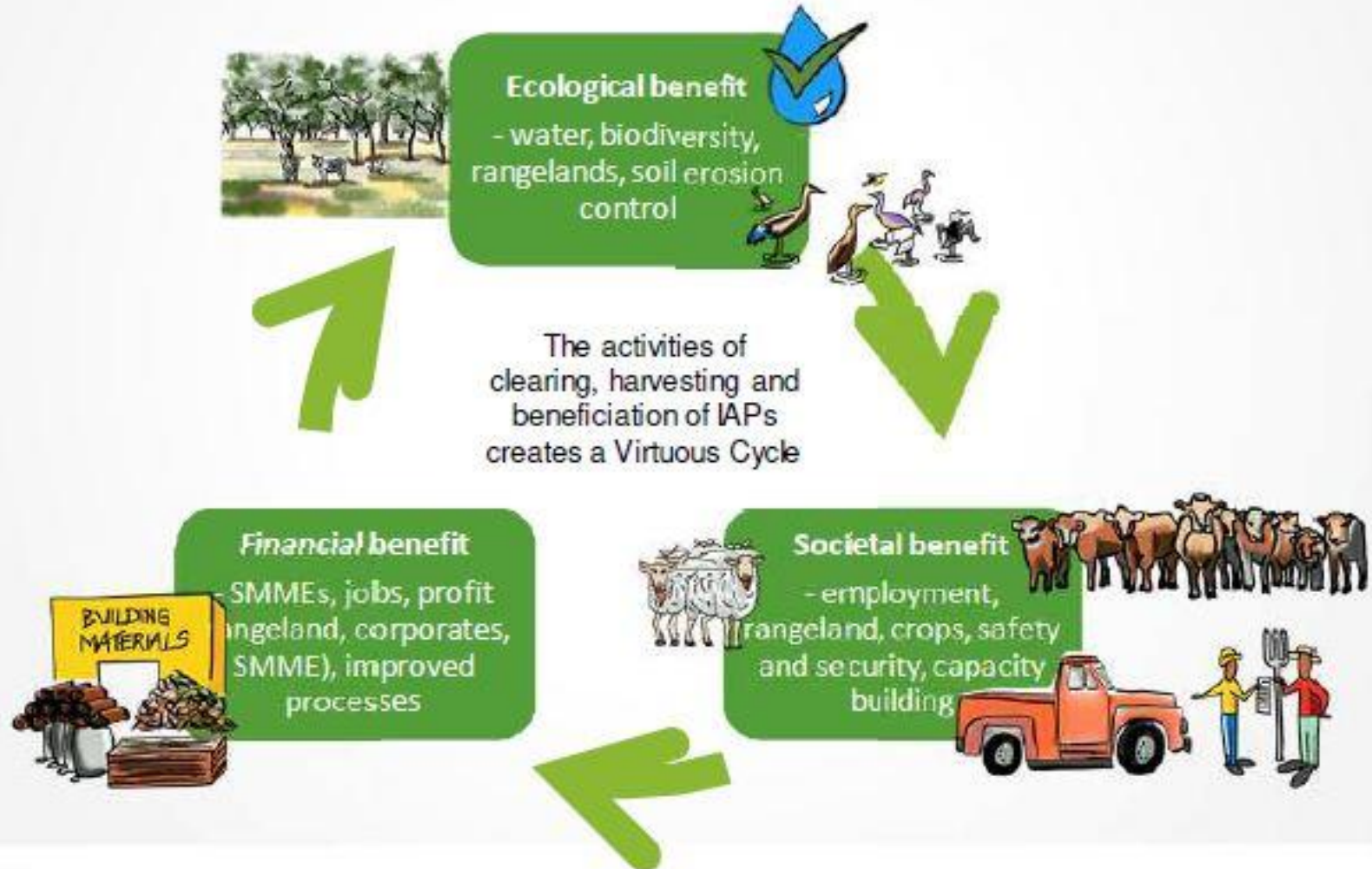
Figure 3: Water supply gain and unit cost (URV) comparison between different catchment restoration and other supply options in the Western Cape (including raw water treatment costs where applicable) (TNC 2018)

Solution development



Conceptual flow

Restoring Landscapes: Securing Livelihoods



Alien produce

Energy products

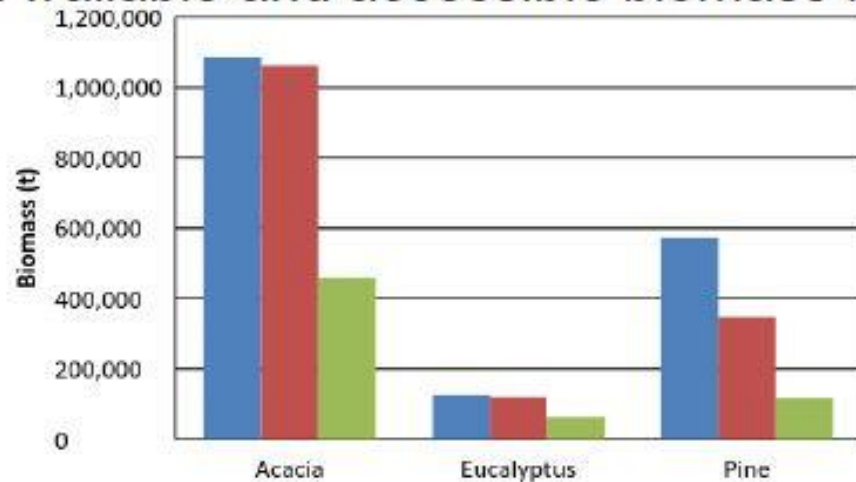


Material products



Prioritisation

Available and accessible biomass for VAI



Total

Available: slope $<20^{\circ}$

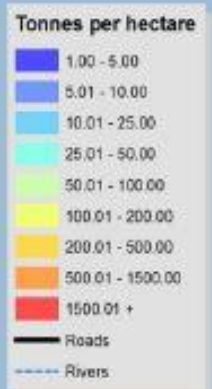
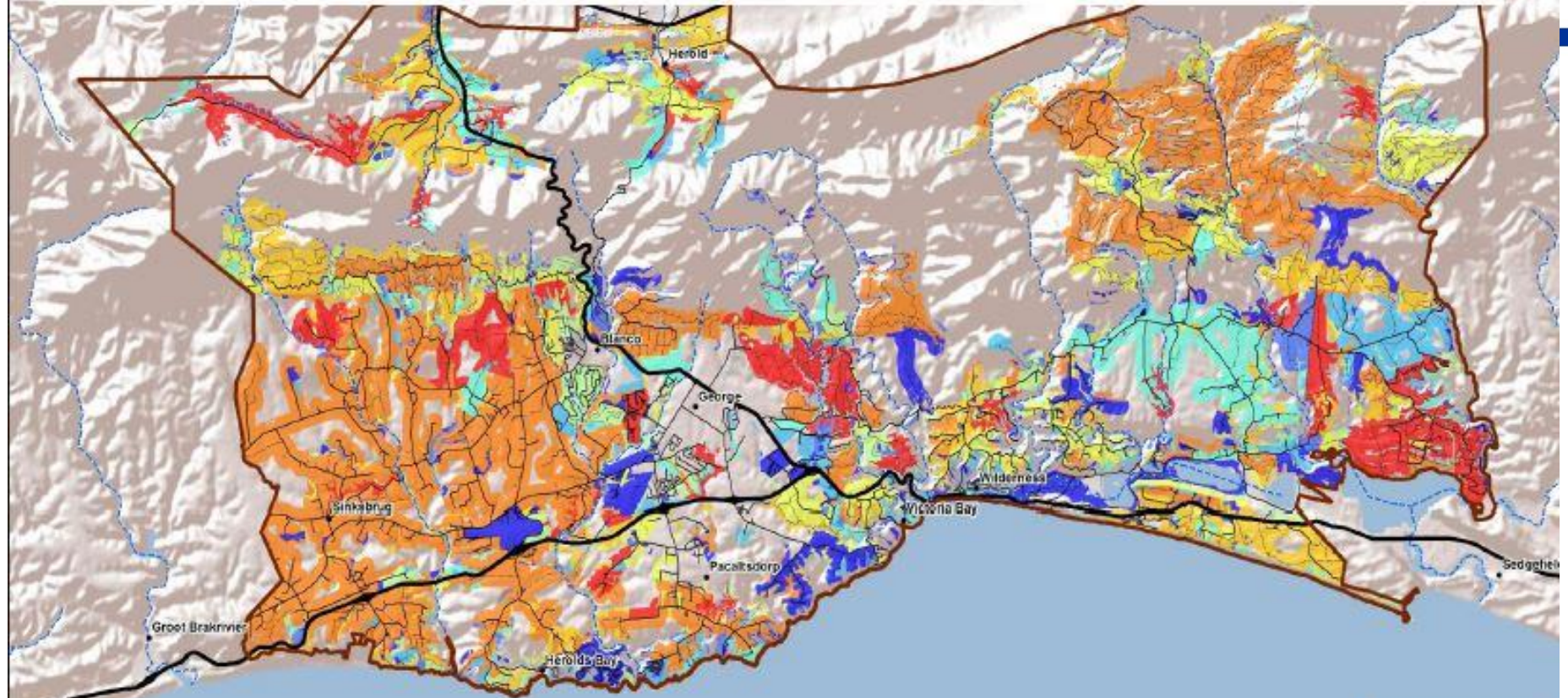
Accessible: $<200\text{m}$ from road/track

**Only ca. 30% biomass
available and accessible for VAI**



Potential available invasive alien plant biomass for the George municipality:

274,521 tonnes



Secondary industry opportunities:

- Energy generation
- Building material to potentially construct hundreds of houses (DEA Lighthouse project)
- Job creation and skills development

Potential available biomass: 274,521.80 tonnes

Stakeholder engagement



Clearing and chipping



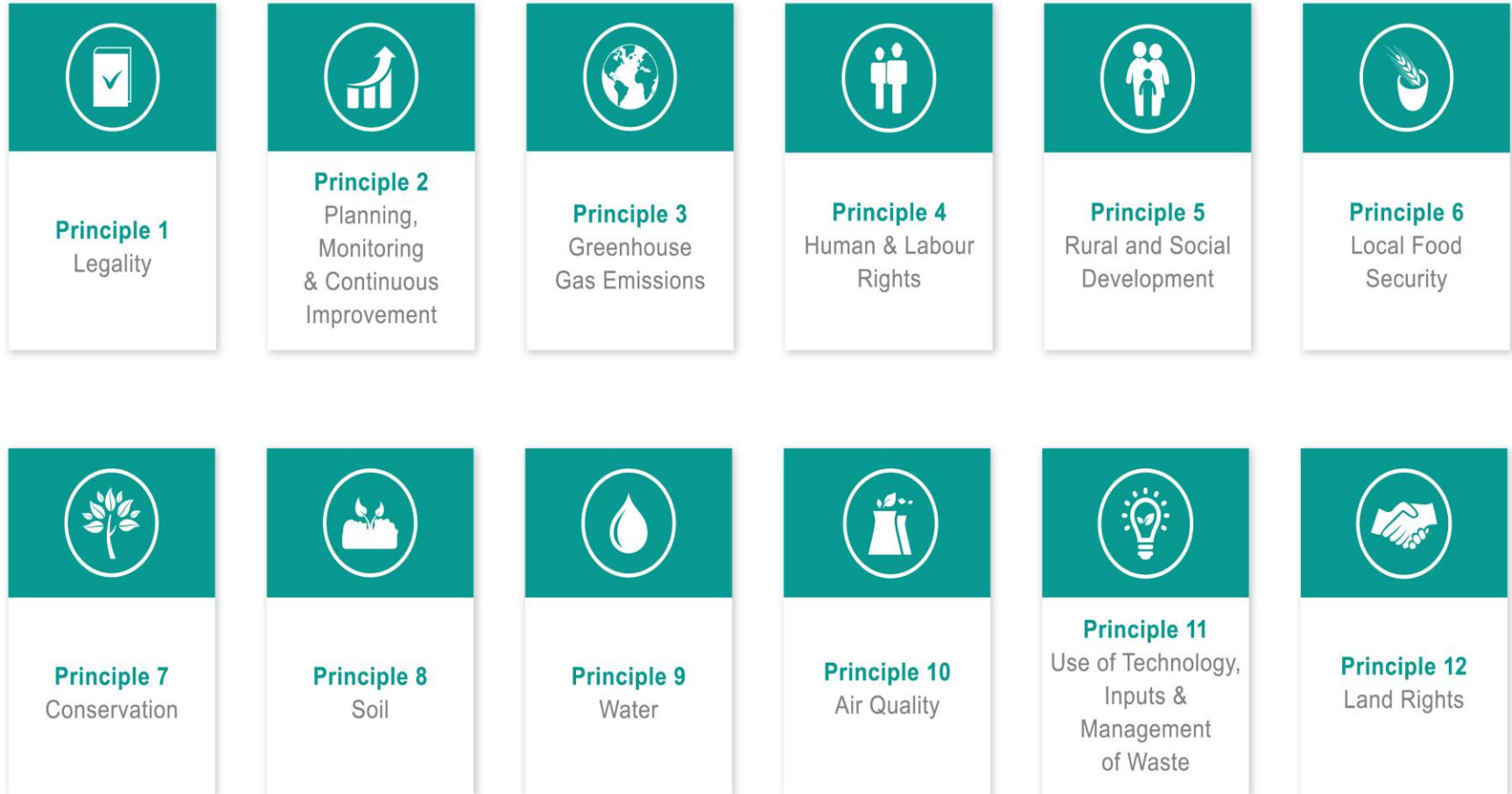
Pelletisation:



Synthgas – Ethanol - Refinery



RSB - Certification



Sustainable Aviation Fuel (SAF) is a drop-in fuel for aviation that can be used in existing infrastructure and engines

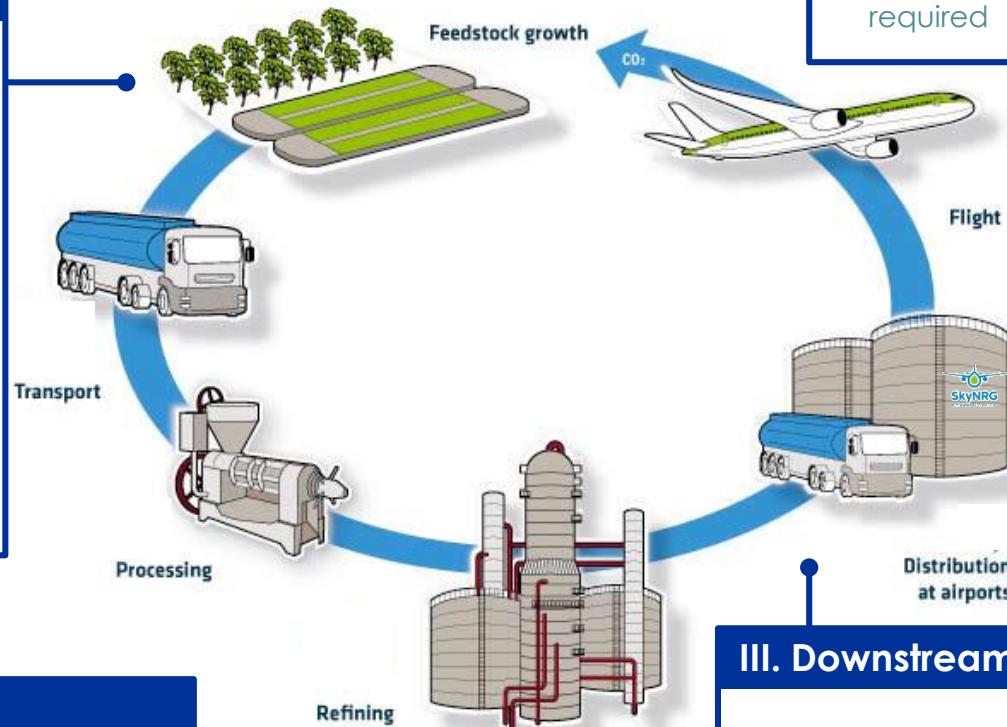
I. Feedstock



- ▶ SAF can be produced from a wide variety of feedstocks
- ▶ From left to right: sugar cane, used cooking oil (UCO), jatropha, municipal solid waste, and forestry residues

II. Conversion

- ▶ Refining of sustainable aviation fuel
- ▶ **5 technologies certified** to supply commercial aviation to date (2017)



IV. End-use

- ▶ Fuel is a drop-in fuel and can be used in existing engines
- ▶ No infrastructure modification required

III. Downstream

- ▶ **Blend** with conventional Aviation Fuel
- ▶ Max. 50% blend, depending on the conversion process

Partners



PetroSA



RSB
Roundtable on
Sustainable Biomaterials
www.rsb.org



Supporting the business case for Sustainable Air-Fuels

Excellent resource base with multiple benefits of utilisation

Supporting landfill diversion

Reducing fire hazard for cleared alien plants

Renewable resource for production of green/renewable fuel

Knowledge and skills base for advanced fuels

Good resource mapping (BioEnergy Atlas, WWF work, CSIR, W2W)

Historical experience with Fischer-Tropsch processes

Macroeconomic benefits

Trade balance & balance of payment – Export potential

Potential lifeline to state companies and sectors in trouble

- **PetroSA**
- **Alien clearing**
- **Sugar cane/energy crops**

Leverage position of regional aviation hub

Opportunity for new green sector

Thank you

Contact Us



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