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South African Hemp Sector: Update on Developments

By

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UNCTAD Workshop on Industrial Hemp

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FRIENDS OF HEMP SOUTH AFRICA

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Context of cannabis in Africa

Cannabis on our continent is primarily about agriculture, the mainstay of several African economies, with many rural farmers depending on the commodity as a cash crop. A cannabis-sufficient region, it offers several features that serve as a foundation for future growth regionally and internationally.

1. ROLE OF AGRICULTURE

Centrality of agriculture to African economies with nearly 2/3 of Africans deriving livelihood from agri (World Bank). Large untapped resources such as arable land and high potential for bridging gaps in yields and irrigation.

2. UNIQUE GENETICS READY FOR IP

High quality (indigenous landrace) African genetic selection, breeding, and supply underpinned by plant science R&D and local seed banks needed.

3. AFFORDABLE, EXPERIENCED LABOR FORCE

Low cost production at large scale supported by large pool of experienced growers in ag-dominated economies

4. SUPPLY SMOOTHING

Many regions within the continent are suitably located to be able to provide year-round supply of cannabis that can meet Our growing regions provide fresh supply in off-months.

5. IDEAL CLIMATE

Highly suitable agri-climate including geography, optimally high altitude, fertile soils, high rainfall and access to large water resources, lots of sunshine.

South African cannabis history

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South Africa, much like the African continent, boasts a long provenance of whole cannabis cultivation dating back at least 600 years. 100 years after leading global prohibition, SA is now seeking to leverage the cannabis sector to drive economic growth and re-industrialization.

Over 900,000 "legacy" cannabis farmers (Duval, SA government, FOHSA) with centuries' worth of experience and among largest producers of cannabis globally (UNODC) over last 50 years. Deriving a livelihood from cannabis and heavily criminalized, they lend South Africa its national heritage in cannabis.

Source: GroundUp South Africa

Pre-1652

Pre-Colonial Times

Long history of cannabis cultivation and multi-purpose applications across South Africa (especially in Eastern Cape and Kwa-Zulu Natal). Cannabis likely imported during Middle Ages but suggestions of earlier usage among indigenous populations.

1652 to 1960

Colonial Period

Prohibition enforcement in 19th century (e.g., 1870 Natal Colony, 1891 Pharmacy Act) driven by racist ideology and corporate interests. This is further edified after SA becomes union in 1910 and leads broad-based cannabis criminalization globally (1922).

1961 to 1991

Apartheid + War on Drugs Era

Key legislation aligned to global narcotics prohibition with 1965 "Medicines Act" and 1971 "Drugs Act" for whole-plant criminalization with highly punitive consequences. No distinction made between hemp/"dagga". Region among highest producers of cannabis globally but large-scale bio-piracy of local genetics occurs.

1992 to-2000

Democratic South Africa

Recognition of cannabis as critical for national reconstruction with investment in market feasibility assessment (early 1990s), hemp adaptation trials across various geographies (late 1990s), hemp breeding programmes (1999). Continued cultivation under research-only permits (issued by Department of Health).

2001 to Today

21st Century

Liberalization driven by Constitutional Court ruling in 2018, with SA establishing medical cannabis programme (same year), decriminalizing/de-scheduling hemp (2020), establishing full hemp liberalization (2021) under still challenging enabling environment. Cannabis as a whole is now one of several priority sectors.

Contents: Current Situation

Regulatory environment

All-use cannabis forms part of South Africa's priority sectors with executive sponsorship from the President. Various regulatory initiatives are underway to liberalize industrial hemp and ensure an enabling environment for its development. In 2023, we expect harvests from 1st commercial production and on drawing lessons based on outcomes for future improvements.

Regulatory Framework

- **Current legislation:** **industrial hemp regulated under the Plant Improvement Act** (Department of Agriculture) since October 2021 and defines hemp as cannabis below 0,2% THC threshold (and not for human or animal ingestion)
    - CBD defined as intoxicating substance/narcotic and thus regulated under the Medicines Act (Department of Health) while cannabis is still wholly scheduled under Drugs Act (Department of Justice)
    - Drive towards an overarching **single, whole-plant, all-purposes** regulatory framework for cannabis, driven by Office of the Presidency

- **Interim measures**: given time required for constitutionally-compliant legislative amendments, sets of interim measures and **exemptions** are being implemented **as incremental steps towards the single all-purposes bill**

- **Masterplan process**: **new sector development process** underway outlining industrial policy and competitiveness program, **leveraging reciprocal commitments among social partners** (business, government, labor, and civil society) to drive industrial growth and development locally and across the African continent.

- **Cannabis for Private Purposes Bill**: given that industrial hemp was exempted from Medicines Act, this bill will ensure full liberalization as well as consistency with Drugs Act by **removing hemp** (<1-2% THC) **entirely from narcotics schedules.**

2022/2023 Hemp Season

- **~300 of permits issued since October 2022** by Department of Agriculture, Land Reform, and Rural Development with only estimated 25% of these have grown on less than 1,000 ha.
    - **Various challenges** include slow permit approval processes (4-6 months), involvement of security cluster, requirement of fencing, limits to hectarage (50 ha), permit durations (3 years), THC limits (0,2%), no approved seed registry etc.
    - Discussions underway on exemptions to minimize risks and potential losses

- **First planting season began in September 2022**, with **first harvests expected in early Q1 2023**
    - **Demonstrated markets** for flower (CBD production), seeds (export for foods and local bio-diesel), hurds (local construction, bio-fuels, agro-forestry), and fibers (woven and non-woven textiles),

- **Focus of first year** cultivation has been on **adaptation** of new (imported) genetics **and production trials** alongside technical assistance / extension support

From challenges to opportunities

Despite regulatory amendments over the last few years, there remain several challenges including more appropriate regulations as well as access to markets and finance. While some will take several years to address, there are already examples of how these are being turned into opportunities for positive exploitation.

Key Challenges

Regulations

Challenge of coordination among key government departments and a relatively low evidence-based resulting in **incoherent and inconsistent regulations**. Critically, Drugs Act not yet updated to remove hemp from schedules.

Markets

Insufficient historical focus on demand-led industrial planning. **Access to legal addressable market** continues to be challenging (given) and in some cases there is a need to focus on local demand stimulation and minimizing barriers to exports.

Finance

Access to finance / capital is critical and several barriers to unlocking investment remain (e.g., hemp scheduling). With a constrained fiscus, it is critical to establish crowd-in participation by multiple actors to de-risk and provide inclusive finance.

Competitiveness

Historically, prohibition has meant less focus on stimulating areas of real competitive advantage and instituting measures (policies, incentives) to build up key capabilities especially in processing.

Sample Opportunities

- Development of a **single set of regulations** governing whole-plant, all-purposes cannabis sector anchored on inclusive participation and ownership by local communities (particularly legacy farmers)
- **Local market stimulation and increasing trade**, particularly within the African region (given regional integration and harmonization efforts) but including also with "global south"
- Development of **financing mechanisms** (e.g., blended finance schemes) with more appropriate and balanced risk-sharing and that are accessible to marginalized communities
- **Improving utilization of already-existing asset base** including large tracts of land as well as irrigation schemes across the country
- **Investment in genetic development and protection of indigenous landrace strains** (part of our national heritage) linked to appellations of origin (e.g., Dagga Belt)
- **Contribution to just transition for post-mine economies** to rehabilitate degraded lands while decarbonization industrial value production)

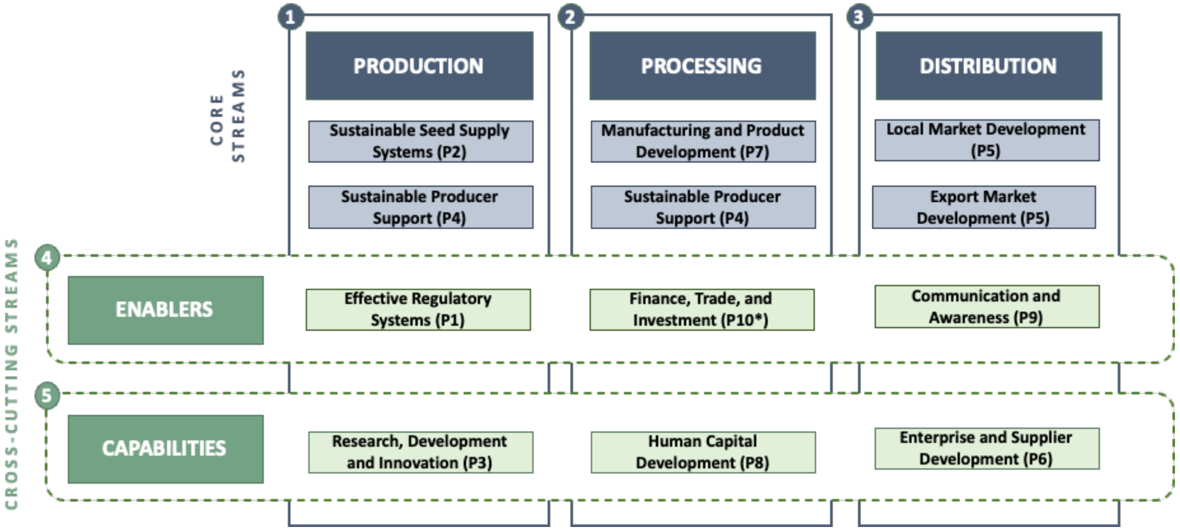
Industrial policy framework

However, translating these challenges into opportunities requires an industrial policy framework that is relevant to the South African context and that balances people, profit, and planet. In so doing, the SA government aims to kick-start a ZAR 28 billion industry with potential for 130,000 new jobs.

Whole-plant, all-purposes industrial strategy based on competitiveness...

- Industrial policy framework informed by **set of competitiveness-related strategic / cascading choices** (goals, where to play, how to win, how to configure)
- Critical to **ensure alignment between hemp and national growth and development initiatives** (including job creation, re-industrialization, economic recovery, just transition, inclusion and transformation etc.)
- Clear **drive to avoid the structural, resource extraction and commodity export dependence** that afflicts many African countries

Anchored by 5 key (core + cross-cutting) pillars



1. **Production**: local production (including seeds) focused on marginalized farmer inclusion and whole-plant use
2. **Processing**: downstream intermediation intervention transforming supply into demand
3. **Distribution**: access to markets locally, regionally, and internationally and requirements

4. **Enablers**: critical supporting measures, instruments, and intervention to enable sector strategy
5. **Capabilities**: underpinning capacities and capabilities to drive competitiveness

Building the foundation

Implementing an industrial policy framework also requires a strong foundation of evidence and know-how to inform policy choices and direction. Given the nascence of the formal cannabis/hemp industry in South Africa, this is a critical foundational block from which other capabilities will be built over time.

Building a comprehensive evidence base (value-chain analysis) to inform interventions and policy choices downstream, mid-stream, and upstream of production to ensure competitiveness. Key opportunity to learn from other markets. Also includes establishing **mechanisms for systematic collection of data/information** including by leveraging digital technology.

Mapping the multiple (existing and potential) **demand pathways** (textiles, automotives, construction etc.) **for hemp products** including in adjacent markets/industries. Identification of (local and regional) markets, sizes, key players, products, **and enablers/requirements**. Focus on leveraging existing national capabilities initially and then build up the stack as experience and scale improve.

Initial work underway driven by the Department of Trade, Industry and Competition (dtic) alongside the South African Bureau of Standards (SABS), National Treasury and other research to **undertake conformity assessments and establish broader national product categories and standards**. Criticality for data gathering and access to markets are key considerations.

R+D and innovation activity mapping (given fragmentation even within institutions) with aim of developing **integrated sectoral strategy** aligned to market needs and national priorities. This is understood as **key to ensuring long-term competitiveness**

Given the fragmented nature of cannabis regulations (governed across +10 laws across 8 national departments), there is an **effort to develop "The Single Bill"** which would cover **whole-plant, all-purposes under one coherent regulatory framework**, with delegated authorities to provinces under a non-federated structure. Draft Bill expected in late 2023.

The "economic cluster" of SA **investigating options** for **interlocking financing and investment schemes and instruments** (e.g., incentives, technology support, blended-finance, procurement) **to support sector development and de-risk capital intermediation** in the sector. Many are not new but are being expanded to include hemp, while others are under investigation.

Public (extension, small-farmer support) **and private sector** (incubators/accelerators, employee training, demos) **investment into human capital development**. Relevant educational authorities have accredited (and continue to accredit) multiple courses with universities (including agri colleges) offering hemp-related material.

Big **focus on enhancing existing and building new trade** (in products, technology transfer, investment) **partnerships including BRICS, EU, and** increasingly a big focus **the African continent** through the African Continental Free Trade Agreement (AfCTA) alongside key regional integration and harmonization policies.

Contents: Looking Ahead

Investing in a seed supply system

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Given historical restrictions, there is only a nascent seed supply system for hemp in SA and there is a large import-dependency (or access via informal markets, with associated risks). As such, genetic development of industrial hemp in South Africa is focused on three key pillars, underpinned by an enabling regulatory environment, that aim to develop a local system that is accessible to farmers, suitable to local conditions, and aligned to output/end-use requirements.

1 Adaptation

- There are **currently no registered cultivars** of industrial hemp **in South Africa**, **although several European varieties** (e.g., focus on fiber-dominant crops e.g., Kompolti, Fedora, Finola etc.) have been **trialed** (public and private) **over 20 years** in 4 (of 9) provinces.
- **Expanded public investment in adaptation trials** underway across 6 (of 9) provinces focusing on 12 imported European, Chinese, and Canadian varietals across CBD, fiber, and grain (including dual crop).
- **Private investment by 4 multi-national seed companies** with subsidiaries in South Africa to trial 6 cultivars across 10 nodes. **Partnerships** in development **with companies in MERCOSUR** with similar latitudes and agri-climates.

2 Mapping + Protecting

- Contrary to popular belief, **South African farmers have also grown non-intoxicating cannabis varieties** and developed indigenous knowledge and (unprotected) IP. Historical prohibition has limited investment in this area.
- **Various genetic mapping, sequencing, and re-stabilization trials** of local breeds driven by research institutions such as Center for Scientific and Industrial Research (CSIR), Agriculture Research Council (ARC), University of the Free State (UFS) **in equity partnerships with business and indigenous communities**.
- Finalization of **update to Plant Breeder's Rights Act** and implementation of the national **Bio-prospecting Act** and its strategy and guidelines to ensure protection of intellectual property

3 Breeding

- **Local breeding efforts** have historically been **led by** the publicly-funded **Agriculture Research Council**, which has developed SA Hemp 1 and 2 (fiber-dominant) cultivars.
- With liberalization, **now new local breeding efforts underway driven by private sector companies** hybridizing both local and international cultivars (very early stage). **Focus on expanding breadth of cultivars** covering more end-uses including dual-purpose crops.
- **Currently, nnly SA Hemp 1 and 2 multiplication schemes underway**, this exacerbated by delays in regulatory registrations.
- Pending **promulgation of a seed certification scheme** overseen by National Seed Organization of South Africa (SANSOR).

Clustering for development

The Eastern Cape Bast Fibers cluster aims to play the eco-system orchestration role, intermediating across. Supported by government and international donor investments, this cluster focuses specifically on the post-cultivation (i.e., processing) stages ensuring alignment between supply and demand and developing pathways for SMME commercialization.

Context for bast fibers cluster

Demand	Demonstrated demand across textiles, construction, and bio-refinery driven by consumer preferences and industrial policy
Location	EC is traditional home of cannabis as well as center of textiles and automotives in SA.
History	Long history of growing – intial hemp trials focused on EC – and networks + capabilities
Partners	Proximity and availability of several partners (including key anchor) with complementarities

Solving for

Fragmentation

Lack of coordination to enhance synergies and gain economies of scope and scale

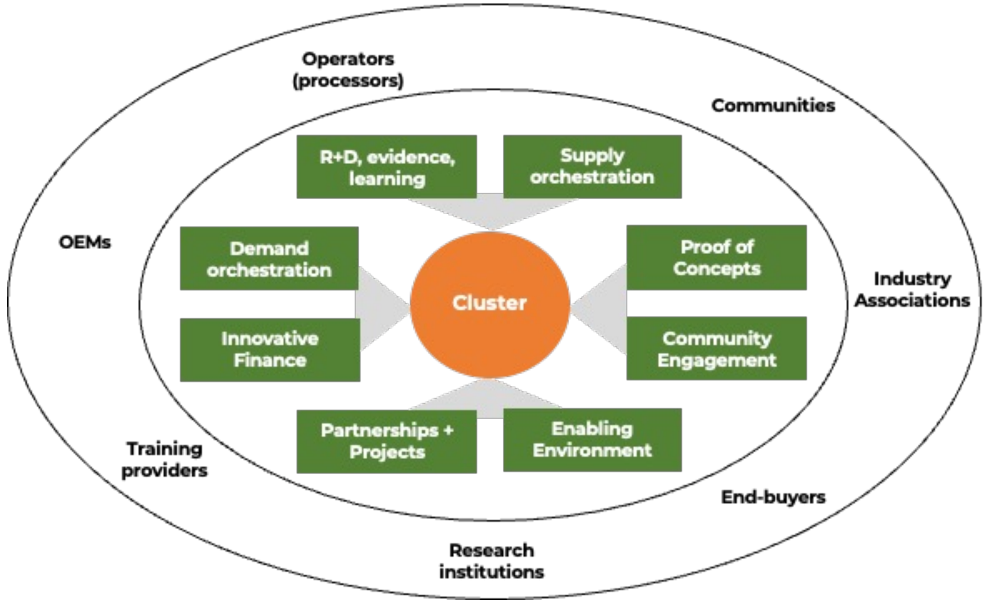
Bridging

Bridging the gap between supply and demand through key capabilities

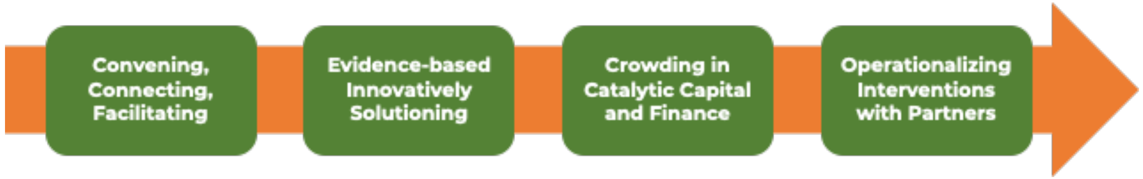
Rationalization

Already potential biomass oversupply and need to diversify build demand pathways

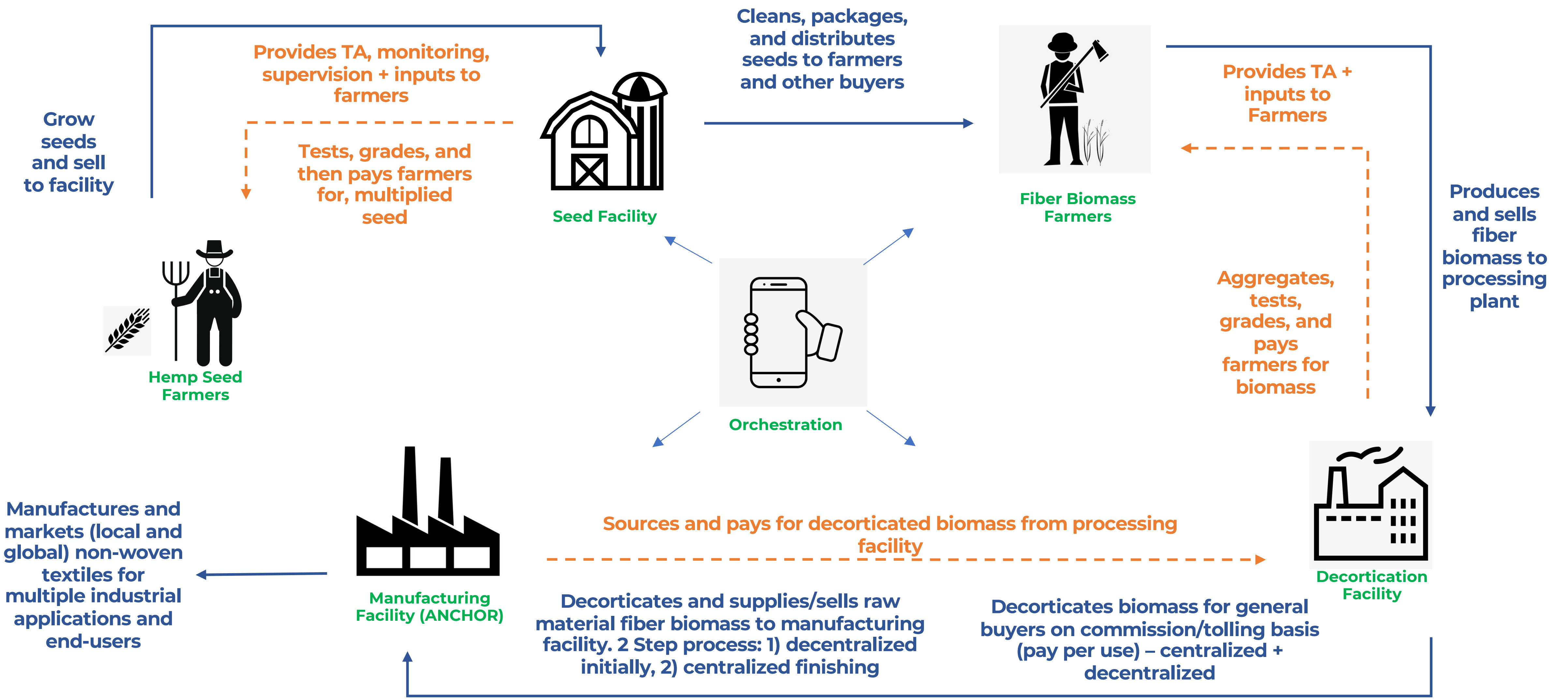
...By orchestrating the eco-system...



...and leveraging several modalities



Cluster Intervention Example



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Hemp in a post-mine economy

Mining is a key contributor to the economy and responsible for over half a million jobs (or 2.5 million individuals). Under the context of ESG frameworks, legally-binding rehabilitation obligations, and a just transition. The mining industry in South Africa is increasingly looking at the role that hemp (other complementary fibrous crops) can play in the dual role of remediating mined lands while fuelling a livelihoods-intensive, multi-product value-chain for post-mine economies.

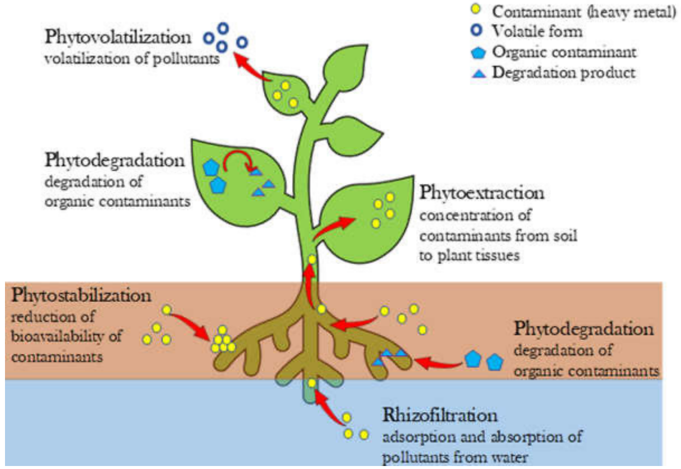
Context

- **Mining** has historically been **mainstay of SA economy,** (contributing to GDP, employing over half a million people) **but has devastated significant tracts** (100,00s) of **the landscape.**
- Mining has also been a **major contributor to greenhouse gas emissions** (especially in coal belt in the north-eastern region), with soils no longer able to act as carbon sinks.
- **Mining communities are highly dependent on mines** (in some cases up to 85% of communities employed in mining value chain) **which have finite lives.**
- Previously, mines would simply abandon operations leaving **6,000 abandoned mines across the country** with adverse consequences to health and safety
- **Mines now legally (and financially) obligated** to rehabilitate mined lands and to make provisions for transitioning communities to other economic activities.
- This **has proven challenging** in terms of costs, complexity, and scale **but bio-based solutions potentially provide a viable solution**.

The Science

Hemp and other fibrous crops (kenaf, flax, sisal) **can** generally survive the harsher conditions of degraded mined lands as well as **extract heavy metals from soils**, either removing them entirely through their biomass or stabilizing them, **without adverse impacts on the harvested biomass fibers** all **while sequestering carbon from the atmosphere.**

While the science is proven at small scale, the **many variables** (metals targeted, soil type, hemp genetics, biomass uptake etc.) means the **solution must be localized.**



Proof of Concept

- Currently, a multi-stakeholder consortium is testing the **ability of hemp and flax to simultaneously phyto-extract** heavy metals (Cd, Mn, Ni, As, Pb) from soils **and sequester carbon sequestration (in soil and biomass)** on half hectare plots on mine sites in the Mpumalanga.
- **Trial operating alongside holistic TA project focusing** on sustainable production practices, market development, R+D for new products, legal and compliance, community engagement, and learning and influencing to inform post-mine options for the communities.
- **R+D efforts also focused also on** extraction of metals from "contaminated biomass" (**phyto-mining**) **and** critically on **new product development leveraging innovative technologies** (including for bio-refinery).

Picture Source: "Bio-remediation Methods for the Recovery of Lead-Contaminated Soils: A Review", Monia Rigoletto et al, Applied Sciences 10(10):3528 (May 2020).

The End

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