

KET AMIX

Morocco's Industrial Standard for Cannabinoid Biomass

Structuring an industrial supply chain for therapeutic cannabis
National biomass standardisation via the KETAMIX framework

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01 · STRATEGIC CONTEXT

Law 13-21: A Historic Window of Opportunity

The legalisation of cannabis for medical and industrial use under Law 13-21 opens a historic window of opportunity: transforming a centuries-old Rif cultivation tradition into a modern agricultural and pharmaceutical industry, fully integrated into international markets.

Structuring the supply chain requires one critical, currently missing link: the industrial standardisation of biomass produced by licensed cooperatives. Without this pivot, production remains agricultural and cannot access regulated international markets.

02 · THE MISSING LINK

Standardisation: The Pivot of Every Botanical Industry

In every plant-based industry destined for transformation — tea, coffee, cacao, tobacco, medicinal herbs — a structuring intermediate step exists: the standardisation and classification of the raw material. The therapeutic cannabis supply chain is no exception.

01

Biomass Sorting

Separation of seeds, flowers and woody biomass. Foreign matter removal and lot homogenisation.

02

Quality Classification

Grading of lots by cannabinoid profile, moisture content and physical characteristics.

03

Extract-Ready Prep

Conditioning for direct pharmaceutical extraction. Certified, reproducible industrial lots.

03 · THE PROJECT

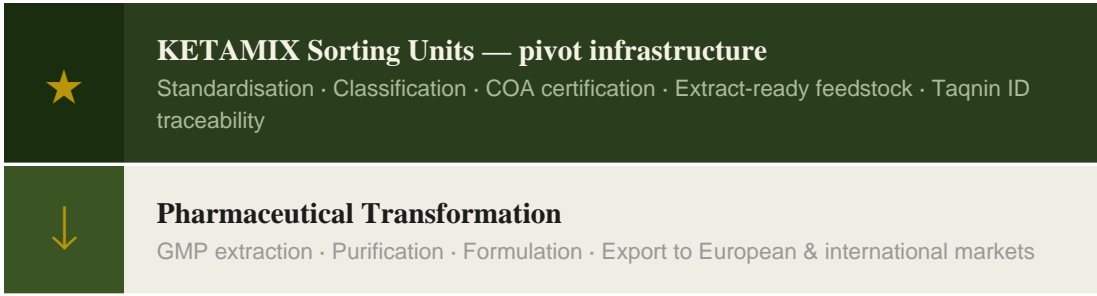
A Network of Sorting & Standardisation Units

The project proposes the progressive establishment of a network of biomass sorting units across Law 13-21 authorised regions. These facilities form the industrial intermediary between agricultural cooperatives and pharmaceutical transformation.

Supply Chain Architecture

**GACP Agricultural Cooperatives**

Certified production · Approved varieties incl. Beldiya landrace · Parcel-level traceability



04 · FULL-PLANT VALORISATION

A Circular Economy Model

Sorting enables complete plant valorisation beyond cannabinoid biomass alone. Each plant fraction finds a marketable destination, significantly increasing the economic value generated per cultivated hectare.

Flowers & Extract-Ready Biomass	Cannabinoid extraction — pharmaceutical and nutraceutical international markets
Seeds	Edible oil production and food co-products — certified food-grade markets
Woody Biomass	Energy valorisation and biochar production — green economy applications

This circular economy model significantly increases value created per hectare, strengthening cooperative profitability while minimising waste at every stage of the chain.

05 · KETAMIX

A Moroccan Industrial Standard for Cannabinoid Biomass

Cannabis Abnae Chaaouan Cooperative is developing the KETAMIX framework to standardise biomass from ANRAC-licensed partner cooperatives. This framework defines a quality structure applicable across the entire national supply chain.

Framework Specifications

Quality criteria	Purity and moisture thresholds for each biomass lot
Grading system	Classification and grading by cannabinoid and terpene profile
Cannabinoid corridors	Standardised multi-ratio cannabinoid profiles for formulation
Extract-ready protocols	Preparation and conditioning procedures for direct GMP extraction

INDUSTRIAL AMBITION

KETAMIX can become the Moroccan industrial standard for extraction-destined cannabinoid biomass — the framework that bridges the Rif's unique terroir with international pharmaceutical markets.

06 · TRACEABILITY & COMPLIANCE

Taqnin ID Batch: The Digital Layer of the Supply Chain

International market credibility relies on the ability to demonstrate, at any moment, the origin and conformity of each biomass lot from cultivation through to delivery.

<p>01</p> <p>Digital Batch ID</p> <p>Unique lot identifier linked to parcel, cooperative, and production campaign.</p>	<p>02</p> <p>Traceability QR Code</p> <p>Instant access to full lot history: origin, COA analyses, transformation records.</p>	<p>03</p> <p>COA–Lot Link</p> <p>Automatic association of laboratory certificates of analysis with each physical lot.</p>
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This system complements the national RASID platform and reinforces supply chain transparency for international buyers and regulators.

07 · SOCIO-ECONOMIC IMPACT

Territorial Industrialisation for the Rif

Structuring the supply chain around sorting units and the KETAMIX framework will produce direct and lasting socio-economic effects on producing regions.

Agricultural income	Secured and increased revenues through premium biomass valorisation
Local employment	Industrial jobs created locally: sorting operators, quality control, logistics
Skills development	Technical upskilling of cooperative members and management teams
Market access	Progressive integration into regulated international supply networks

Sorting units represent a lightweight territorial industrialisation — economically accessible and adapted to the specific conditions of rural Rif communities.

08 · INTERNATIONAL POSITIONING

Morocco as a Strategic Global Supplier

The global medical cannabis market is structurally moving toward raw material standardisation, pharmaceutical extraction, and high-value therapeutic formulations. Morocco is uniquely positioned to capture a significant share of this supply chain.

Agronomic conditions	Favourable outdoor climate, unique Rif terroirs, optimal sun exposure for quality crops
Cost competitiveness	Production costs well below European or North American indoor producers
Genetic heritage	Beldiya landrace — an exclusive, highly differentiating botanical signature
Logistics	Geographic proximity to European markets — reduced lead times and transport costs
Regulatory framework	Law 13-21 · ANRAC licensing · Compatibility with international GMP standards

HORIZON 2030

Within this global value chain, Morocco can become a major supplier of standardised cannabinoid biomass for the international pharmaceutical industry — with KETAMIX as the quality benchmark.

09 · VISION 2030

An Integrated Four-Level Supply Chain

The objective is to structure a competitive, internationally recognised Moroccan therapeutic cannabis supply chain built on a coherent industrial architecture.

I	GACP Agricultural Cooperatives Certified production · Licensed varieties · Parcel-level traceability · ANRAC oversight
II	Sorting & Standardisation Units — KETAMIX KETAMIX framework · Classification · COA · Extract-ready feedstock · Taqin ID digital tracing
III	Industrial GMP Transformation Extraction · Purification · Cannabinoid fractionation · National and international GMP partnerships

IV

Export — Pharmaceutical Markets

Europe · Australia · Israel · Certified therapeutic and nutraceutical products

· CONCLUSION

From Agricultural Production to a Structured Industrial Chain

The legalisation of therapeutic cannabis represents a major economic transformation opportunity. To succeed, the supply chain must cross a decisive threshold: evolving from a traditional agricultural model to a structured, traceable and internationally recognised industrial chain.

Two concrete levers will make this possible:

1. Deploying a network of sorting units across authorised producing regions
2. Standardising national biomass through the KETAMIX framework

Three Pillars**Standardisation**

Rigorous sorting, classification and homogenisation protocols ensuring the industrial reproducibility of every lot delivered to extraction partners.

Traceability

A digital lot-tracking system, from parcel to delivery, fully compliant with the requirements of regulated international pharmaceutical markets.

Industrialisation

The transformation of agricultural biomass into certified feedstock, ready for GMP extraction and pharmaceutical formulation at international scale.

KETAMIX — COMMITMENT

Cannabis Abnae Chaaouan Cooperative, led by Mohamed Chaaouan and Ahmed Akafou, commits to developing this framework in service of all ANRAC-licensed Moroccan cooperatives — positioning Morocco as a recognised industrial actor in global therapeutic cannabis.