

MACKAQUI CONSULTING · STRATEGIC INFRASTRUCTURE REPORT

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# Biotech Ecosystem Architecture

23-Component Design for Sovereign Pharmaceutical  
Infrastructure

MARCH 2026

## Biotech Ecosystem Architecture

<b>23</b> ECOSYSTEM COMPONENTS	<b>7</b> SPECIALISED HUBS	<b>\$33B</b> 25-YEAR CAPEX (REALISTIC)	<b>185K</b> DIRECT JOBS BY 2050
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Building a sovereign pharmaceutical ecosystem requires a complete architecture encompassing research infrastructure, regulatory frameworks, talent pipelines, technology transfer mechanisms, and digital infrastructure. This report presents the full ecosystem design.

### National CAPEX — Realistic Scenario

HUB	5-YEAR (\$M)	10-YEAR (\$M)	25-YEAR (\$M)
Casablanca-Settat	1,100	3,300	6,700
Tangier Corridor	1,300	3,900	8,000
Rabat-Kénitra	600	2,400	5,600
Marrakech / Jorf Lasfar	700	2,200	4,500
Souss-Massa	200	550	1,150
Dakhla	200	900	3,300
Oriental	100	350	850
Inter-hub Infrastructure	400	1,100	2,900
<b>Total</b>	<b>4,600</b>	<b>14,700</b>	<b>33,000</b>

**CAPEX cumulatif réaliste sur 25 ans : ~33 Mds\$** (arrondi à 34 Mds\$ dans le résumé exécutif pour contingence). Scénario agressif : 47 Mds\$, conservateur : 24 Mds\$.

### Pharmaceutical Production Trajectory

METRIC	5 YEARS (2030)	10 YEARS (2035)	25 YEARS (2050)
Annual Pharma Production	\$2.1B	\$9.5B	\$42.0B
Annual Pharma Exports	\$0.9B	\$5.8B	\$28.0B
Direct Jobs	18,000	62,000	185,000
Indirect Jobs	38,000	145,000	480,000
GDP Contribution (% of GDP)	0.8%	2.4%	5.6%
Health Import Substitution (annual)	\$0.6B	\$1.4B	\$2.8B

Sovereign Equity IRR (realistic)	14.2%	17.6%	19.1%
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## The 23-Component Ecosystem

Each component is a distinct industrial/institutional capability forming a closed-loop ecosystem. Key components include: API & intermediate manufacturing zones (Jorf Lasfar, Kenitra AFZ), finished generic drug plants (Casablanca, Tangier), sterile injectables (Casablanca), vaccine production (Rabat-Kénitra), biosimilars & biologics (Rabat-Kénitra), medical devices (Tangier, Kenitra), in vitro diagnostics (Casablanca, Rabat Tech), packaging (Tangier), CDMO relocation parks (Tangier, Casablanca), AI drug discovery (Benguerir UM6P), pharma cold chain logistics (Tangier Med), and sovereign strategic reserve (Casablanca, Marrakech, Oujda).

## Regulatory Transformation

The DMP will be transformed into the **Agence Marocaine du Médicament et des Produits de Santé (AMMPS)** — an autonomous public establishment modelled on ANSM with adaptations from MHRA, Swissmedic, and MFDS. Target staffing: 800 by 2030, 1,500 by 2035, 2,500 by 2045. Pathway: PIC/S membership (2029), WLA designation (2031-2032), SRA recognition (2033-2035).