



GEODYN
SOLUTIONS

**\$3 BILLION INVESTMENT IN HEMP-
BASED BIOFUEL PRODUCTION, POWER
GENERATION, DIVERSIFIED HEMP
PROCESSING, AND BLOCKCHAIN-ENABLED
TOKEN ECOSYSTEM IN CAMBODIA**

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EXECUTIVE SUMMARY

Geodyn Solutions is positioned to lead Cambodia's green technology sector with a \$3 billion USD investment in a vertically integrated hemp ecosystem, enhanced by blockchain technology and a native utility token. This proposal outlines a strategy to cultivate industrial hemp on a large scale for biofuel production, construct biomass power plants to generate electricity from hemp-derived fuels, establish textile and paper manufacturing facilities, and implement a blockchain platform for supply chain transparency and tokenized incentives. Utilizing every part of the hemp plant—seeds for biofuel and oils, fibers for textiles and paper, hurds for paper and construction materials, and residual biomass for energy—creates multiple high-value revenue streams, amplified by blockchain traceability and the Geodyn Token (GEO).

Targeted provinces include Battambang, Kampong Cham, Siem Reap, and Kandal, selected for their favorable climate, fertile soils, regulatory progress, and agricultural infrastructure. The \$3 billion USD budget supports 150,000 acres of hemp cultivation, eight 50 MW power plants, four textile plants, four paper mills, a blockchain infrastructure, and research and development (R&D) for efficiency and innovation. Labor costs are adjusted to Cambodia's 2025 average wage of approximately \$250 USD/month (\$3,000/year) for agricultural and manufacturing workers, reducing operational expenses by 40-60% compared to Western markets.

Financial projections estimate an average ROI of 25-35% over 10 years, with a payback period—the time to recover the \$3 billion USD investment through net profits—of approximately 4.7 years, accelerated by low labor costs and incentives. Operational break-even is expected in year three. Blockchain and GEO token integration adds 5-8% to ROI through tokenized carbon credits and ecosystem rewards. The project will create over 12,000 direct jobs and 18,000 indirect jobs, reflecting Cambodia's labor-intensive economy, and contribute \$3-5 billion USD annually to Cambodia's GDP by year five through multipliers in agriculture, manufacturing, energy, and blockchain sectors.

Environmentally, hemp sequesters 10-15 tons of CO₂ per acre, regenerates soil, and reduces emissions by 85-97% compared to fossil fuels. Blockchain enables verifiable carbon tracking for global markets. Funding will leverage Cambodia's green incentives, World Bank loans, and Asian Development Bank (ADB) support, offsetting 20-30% of costs. This initiative positions Geodyn as a leader in Cambodia's bioeconomy, aligning with the country's sustainable development goals.





INTRODUCTION

Cambodia's economic growth, with a projected GDP of \$50 billion USD in 2025, and focus on green development under the National Strategic Development Plan, create opportunities for renewable investments. Industrial hemp, while cannabis is illegal, includes non-psychoactive varieties legalized for industrial purposes in 2016 under strict Ministry of Agriculture regulations, with potential for fiber, biofuel, and soil health improvement. The market is nascent but projected to grow to \$500 million USD by 2034 at a 20% CAGR, driven by global demand for sustainable products.

This \$3 billion USD investment scales to 150,000 acres and facilities. We target

Battambang, Kampong Cham, Siem Reap, and Kandal Provinces, leveraging agricultural strengths and low labor costs (\$250 USD/month or \$3,000/year for agriculture/manufacturing). Biomass allocation—35% to textiles, 25% to paper, 25% to biofuel, 15% to energy—optimizes ROI. A blockchain platform with GEO token ensures transparency, compliance with Ministry of Mines and Energy (MME) and Ministry of Environment (MoE), and incentivizes stakeholders. Aligned with incentives from MME and international funding, the project secures subsidies. Diversifying into textiles and paper (global markets at \$10-50 billion by 2030) and blockchain enhances profitability and sustainability.

MARKET ANALYSIS AND OPPORTUNITY

Cambodia's biofuel market is emerging, with biomass potential under the Basic Energy Plan. Hemp fits as a sustainable feedstock, reducing reliance on imports. The hemp fiber market could reach \$300 million USD by 2033, driven by textiles, clothing, and packaging. Hemp paper targets global demand, offering faster cycles than trees. Biomass energy qualifies for feed-in tariffs at approximately \$0.09/kWh. The hemp industry could contribute \$1 billion USD to Cambodia's economy by 2030. Blockchain in agriculture is growing, with GEO

enabling carbon credit trading and certifications, aligning with Cambodia-South Korea partnerships for emission reductions.

Low labor costs (\$250 USD/month) reduce operational expenses by 40-60% compared to Western markets, boosting competitiveness. Risks like regulatory hurdles (strict hemp controls) and market volatility (\$0.40-0.50 USD/lb for biomass) are mitigated through diversification and blockchain transparency. Geodyn's model, with GEO token utilities, projects \$600 million-\$1.2 billion USD in annual revenues by year five, capturing high-growth markets while leveraging Cambodia's agricultural expertise.

TECHNOLOGY OVERVIEW

HEMP CULTIVATION, PROCESSING, PRODUCTION, AND BLOCKCHAIN INTEGRATION



Hemp cultivation focuses on non-psychoactive, high-biomass varieties optimized for fiber (textiles/paper) or seed (biofuel), using precision agriculture with AI-monitored irrigation and soil sensors to achieve yields of 500-1,000 liters of biofuel per acre.

Biofuel Production: Seeds pressed for oil (transesterified into biodiesel); stalks fermented for ethanol, with 75% efficiency.

Textile Manufacturing: Fibers decorticated, spun, and woven using enzymatic retting for sustainability.

Paper Manufacturing: Hurds and fibers pulped mechanically or chemically, yielding 4-5 times more than trees per acre.

Power Generation: Residual biomass pelletized for boiler combustion in steam turbines, with 30-35% efficiency.

Blockchain integration (e.g., Ethereum or layer-2) provides real-time tracking from

seed to product, ensuring compliance with Cambodian regulations. Smart contracts automate payments to farmers, verify organic certifications, and tokenize carbon sequestration data. The Geodyn Token (GEO) will be minted on this platform, with utilities including:

- Staking for governance in ecosystem decisions.
- Rewards for sustainable practices (e.g., GEO for verified CO₂ sequestration).
- Payments for products and services within the Geodyn network.
- Trading of tokenized assets like carbon credits or fractional ownership in facilities.

Vertical integration ensures zero-waste: Textile/paper byproducts feed biofuel/energy streams, with blockchain logging all transactions for immutable audits.

LOCATION COMPARISON

BATTAMBANG, KAMPONG CHAM, SIEM REAP, AND KANDAL PROVINCES ARE EVALUATED BASED ON 2025 DATA FOR THEIR AGRICULTURAL PROMINENCE, CLIMATE, AND INCENTIVES.

BATTAMBANG EXCELS IN RICE AND POTENTIAL HEMP YIELDS, KAMPONG CHAM IN LAND AVAILABILITY, SIEM REAP IN TOURISM-AGRICULTURE SYNERGY, AND KANDAL IN PROXIMITY TO PHNOM PENH MARKETS.



HEMP PAPER

PROVINCIAL ROI & INVESTMENT OVERVIEW

PROVINCE	ROI (10-YEAR)	CAPITAL COST (INCL. 20% CONTINGENCY)	ANNUAL OPERATIONAL COST (PER FACILITY TYPE)	JOB CREATION (DIRECT / INDIRECT)	GOVERNMENT INCENTIVES
Battambang	27–37%	\$900M (Farms: \$300M, Textiles: \$90M, Paper: \$120M, Biofuel: \$150M, Power: \$200M, Blockchain: \$40M)	Textiles: \$2.5–4M; Paper: \$3.5–6M; Biofuel: \$5–9M; Power: \$8–10M; Blockchain: \$1–2M	3,500 / 5,000	MME biomass grants up to \$25M; ADB loans \$40M; Green Growth Fund
Kampong Cham	24–32%	\$950M (Higher transport offset by land; Blockchain: \$40M)	Similar to Battambang, +5% due to logistics	3,000 / 4,500	MoE grants \$15M; FiTs \$0.09/kWh; World Bank \$30M
Siem Reap	25–35%	\$850M (Lower irrigation costs; Blockchain: \$40M)	<i>Textiles/Paper 10% lower</i>	3,200 / 4,800	<i>MME grants \$20M; Sustainable Development incentives</i>
Kandal	22–30%	\$1B (Higher land costs, better markets; Blockchain: \$40M)	Power/Biofuel 5–10% higher	2,500 / 3,500	MoE grants \$15M; Green Climate Fund \$20M

COST BENCHMARKS

CATEGORY	CAPITAL COST	OPERATIONAL COST (ANNUAL)
Textiles	\$15–40M/plant	Labor: \$0.4–1.2M (~\$250/month wages)
Paper	\$25–50M/plant	Materials: \$2–8M
Biofuel	\$30–60M/plant	Maintenance: \$0.8–2M
Power	\$150–300M (~\$3,000–6,000 USD/kW)	Energy: \$0.8–1.5M
Blockchain	\$160M total	Blockchain Ops: \$1–2M

RECOMMENDATION:

Battambang is the preferred initial rollout location due to high crop yields, strong government incentives, and favorable financing.

INVESTMENT BREAKDOWN AND FINANCIAL PROJECTIONS

CATEGORY	INVESTMENT (USD)	DETAILS
Cultivation	\$1.2B	150,000 acres, seeds, equipment
Power Plants	\$960M	Eight 50 MW plants
Textile Plants	\$320M	Four facilities
Paper Mills	\$400M	Four facilities
Biofuel Refineries	\$160M	—
Blockchain & Token Development	\$100M	Platform, smart contracts, GEO token
R&D and Contingencies	\$60M	—

BASE CAPITAL COSTS (BEFORE CONTINGENCY)

CATEGORY	COST (USD)	PER UNIT COST
Textiles	\$80M	\$20M/plant
Paper	\$200M	\$50M/plant
Power	\$1.6B	\$200M/plant
Blockchain	\$80M	—
20% Contingency	+ \$600M	—

ANNUAL OPERATIONAL COSTS

(Reduced by low labor costs)

CATEGORY	ANNUAL COST (USD)
Textiles	\$14–22M
Paper	\$18–30M
Biofuel	\$28–42M
Power	\$42–56M
Farms	\$28M
Blockchain	\$8–12M
Total	\$100–180M

REVENUE STREAMS & MARGINS

PRODUCT/SERVICE	PRICE	MARGIN
Biofuel	\$4–7 USD/L	25–35%
Textiles	\$120 USD/bale	25–35%
Premium Paper	High market price	25–35%
Electricity	\$0.09 USD/kWh	25–35%
GEO Token Fees	—	25–35%

10-YEAR RETURN CHART

YEAR	REVENUE (B USD)	OPERATING COSTS (B USD)	NET PROFIT (B USD)	CUMULA- TIVE RE- TURN (B USD)	*ROI (%)
1	0.50	0.25	0.25	0.25	8.3%
2	1.00	0.35	0.65	0.90	30.0%
3	1.50	0.45	1.05	1.95	65.0%
4	2.00	0.55	1.45	3.40	113.3%
5	2.50	0.65	1.85	5.25	175.0%
6	3.00	0.75	2.25	7.50	250.0%
7	3.50	0.85	2.65	10.15	338.3%
8	4.00	0.95	3.05	13.20	440.0%
9	4.50	1.05	3.45	16.65	555.0%
10	5.00	1.15	3.85	20.50	683.3%



PAYBACK PERIOD TIME TO RECOVER INVESTMENT

METRIC	VALUE	NOTES
Total Investment	\$3.0B USD	—
Estimated Payback Period	4.7 years	Faster than industry average
Cumulative Profit by Year 4	\$3.40B USD	Exceeds initial investment
Operational Break-even	Year 3	Early positive cash flow
Benchmark Comparison	5–10 years	Typical for biofuel/biomass projects
Key Accelerators	Low labor costs (\$250/month)	Cambodia advantage
Incentives	20–30% cost offset	Government programs
Blockchain Efficiencies	Automated smart contracts	Reduce transaction costs, speed payments
Growth Drivers	Hemp rapid growth cycles	Multiple harvests per year, token liquidity
Growth Factors	Hemp's rapid growth cycles	Multiple annual harvests

RECOMMENDED BALANCE OF HEMP PRODUCE FOR BEST ROI

PRODUCT USE	ALLOCATION (%)	MARKET PRICE	NOTES / ROI IMPACT
Textiles (Fibers)	35%	\$120 USD/bale	30% CAGR, highest-margin sector
Paper (Hurds/Fibers)	25%	—	Stable demand, \$300–400 USD/acre yield potential
Biofuel (Seeds/Stalks)	25%	\$4–7 USD/L	Renewable energy market growth
Energy (Residues)	15%	\$0.09 USD/kWh	Supports energy security goals
Blockchain Tokenization	—	—	Adds 15% ROI boost via GEO rewards, certifications, and trading efficiencies

ECONOMIC VALUE TO CAMBODIA

This project will amplify the hemp industry's impact, contributing to Cambodia's \$50 billion GDP in 2025. By 2030, similar initiatives could add \$5 billion in facilities investment, 50,000 jobs, and \$20 billion in total economic output.

JOB CREATION

- 12,000 direct (farming, manufacturing, operations, blockchain developers)
- And 18,000 indirect (supply chain, logistics), boosting rural economies in target provinces.

GDP CONTRIBUTION

- \$3-5 billion USD annually by year five via multipliers (agriculture 1.5x, manufacturing 2.5x).
- Plus \$500M-\$1B in tax revenues.

BROADER IMPACTS

- Reduces import dependence on textiles/paper (\$80B global market), enhances energy security, and stimulates innovation in bioeconomy. Overall, it could add 0.1-0.2% to national GDP growth in renewables.





**ADDITIONAL
USES OF
HEMP TO
MINIMIZE
WASTE AND
ENHANCE ROI**

BEYOND CORE SECTORS, HEMP HURDS WILL BE USED FOR HEMPCRETE (CONSTRUCTION), LEAVES FOR COMPLIANT EXTRACTS, AND OILS FOR FOOD/COSMETICS, ADDING \$40-80 USD/ACRE. BLOCKCHAIN TOKENIZES THESE (E.G., NFT CERTIFICATIONS), BOOSTING ROI BY 8-12% THROUGH CIRCULAR ECONOMY PRINCIPLES.

ENVIRONMENTAL BENEFITS

HEMP CULTIVATION SEQUESTERS 10-15 TONS OF CO₂ PER ACRE ANNUALLY, OUTPERFORMING FORESTS. IT IMPROVES SOIL HEALTH VIA DEEP ROOTS, REDUCING EROSION AND ENHANCING BIODIVERSITY WITH LOW PESTICIDE NEEDS. BIOFUEL FROM HEMP CUTS EMISSIONS BY 85-97% VERSUS FOSSIL FUELS, SUPPORTING CLIMATE GOALS. THE PROJECT WILL OFFSET 1.5 MILLION TONS OF CO₂ YEARLY WHILE PROMOTING SUSTAINABLE AGRICULTURE. BLOCKCHAIN VERIFIES THESE BENEFITS FOR CARBON CREDIT TRADING.



HEMP



FUNDING SOURCES AND INCENTIVES

LEVERAGE \$300M+ USD FROM MME BIOMASS GRANTS (\$25M), MOE ENVIRONMENTAL FUNDS (\$15M), ADB LOANS (\$40M), WORLD BANK (\$30M), GREEN CLIMATE FUND (\$20M), AND CARBON CREDIT PARTNERSHIPS (E.G., WITH SOUTH KOREA). THESE OFFSET 20-30% OF COSTS, WITH FITS AT \$0.09/KWH FOR BIOMASS ENERGY.



RISK ASSESSMENT AND MITIGATION

RISKS INCLUDE REGULATORY CHANGES (STRICT HEMP CONTROLS; MITIGATED BY COMPLIANCE TEAMS AND BLOCKCHAIN AUDITS), **MARKET VOLATILITY** (DIVERSIFY PRODUCTS, GEO HEDGING), **AND CLIMATE VARIABILITY** (MULTI-PROVINCE STRATEGY).
MITIGATION INVOLVES INSURANCE, CONTRACTS, AND CONTINGENCY FUNDS.



THIS \$3 BILLION USD INVESTMENT POSITIONS GEODYN SOLUTIONS AS A PIONEER IN GREEN ENERGY AND BIOECONOMY IN CAMBODIA, DELIVERING ECONOMIC, ENVIRONMENTAL, AND SOCIAL RETURNS. PROCEED WITH BATTAMBANG AS THE FLAGSHIP SITE FOR IMMEDIATE IMPACT.



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