The Strategic Development of an Australian Industrial Hemp Industry: A Submission to the Parliamentary Inquiry

Executive Summary

A Strategic Blueprint for a Thriving Australian Hemp Industry

Statement of Intent

This document is a formal submission to the parliamentary inquiry into the opportunities for the development of an Australian industrial hemp industry. It is presented in accordance with the inquiry's terms of reference. The central thesis of this submission is that industrial hemp is not a marginal crop but a strategic, multi-faceted vehicle for regional revitalisation, capable of delivering profound economic, environmental, and social benefits. It posits that a coordinated national strategy, supported by targeted investment and regulatory reform, is essential to unlock a projected AUD 1B+ industry by addressing the key policy and infrastructure barriers that currently impede its growth.

Key Findings

A comprehensive analysis of industrial hemp's potential reveals its capacity to fundamentally transform key sectors of the Australian economy. The industry can contribute to:

- **Australian farming systems** by introducing a high-yield, low-input, and water-efficient crop that enhances soil health, improves farm productivity through crop rotation, and offers a valuable tool for land rehabilitation.
- **Australian manufacturing and the circular economy** by serving as a raw material for a diverse range of high-value, biodegradable products, including sustainable textiles, bio-based plastics, and nutritious health foods. The ability to utilise all parts of the plant for different applications positions it as a cornerstone of a zero-waste bioeconomy.
- **The Australian construction industry** by providing high-performance, carbon-sequestering building materials like hempcrete that can help address the national housing crisis while meeting ambitious emissions targets.
- **Australia's economy** by serving as a catalyst for regional economic diversification, creating new jobs (with projections of over 30 full-time equivalent positions per processing hub), generating new value chains, and providing significant export opportunities in a global market projected to exceed USD $26.6B by 2025.

Core Recommendations

To transition from a nascent industry to a globally competitive sector, a strategic and coordinated approach is required. This report’s findings lead to three core recommendations:

1. **Policy Reform:** Enact a nationally harmonised Industrial Hemp Strategy to create a consistent, risk-based regulatory framework.
2. **Strategic Investment:** Provide targeted government and private investment in regional processing infrastructure and essential research and development (R&D).
3. **Community Engagement:** Foster public and industry collaboration and launch awareness campaigns to build confidence and mitigate historical social stigma.

Introduction: The Strategic Imperative for Industrial Hemp in Australia

Purpose of this Submission

This document is submitted in formal response to the parliamentary inquiry into the industrial hemp industry in Australia. Its purpose is to provide a comprehensive, evidence-based analysis that aligns with the inquiry's terms of reference. By synthesising expert analysis and empirical data, this submission aims to provide a clear and actionable path forward, positioning Australia to capitalise on a significant economic opportunity and future-proof its regional communities. The recent establishment of a Senate inquiry into the industrial hemp industry highlights the growing recognition of the crop's potential role in areas such as agriculture, construction, and the wider economy.

Global and National Context

The global bioeconomy is expanding at a rapid pace, driven by a growing demand for sustainable and renewable resources. Industrial hemp, a low-THC variety of *Cannabis sativa L.*, is at the forefront of this transformation due to its remarkable versatility and inherent sustainability. The global market for industrial hemp was valued at USD $4.9 billion in 2020 and is projected to exceed USD $26.6 billion this year. Australia, with its vast agricultural land, advanced farming sector, and strong research capabilities, is strategically positioned to become a global leader in this emerging bioeconomy.

Despite this potential, the Australian industrial hemp industry remains in its early stages. However, recent trends demonstrate a clear opportunity for scaling. For example, total Australian hemp plantings more than doubled in the 2023–24 season to 3,266 hectares, reversing a previous three-year decline. The growth in both hemp grain (nearly tripled) and fibre crops (nearly doubled) underscores growing domestic interest and an immediate window to transition from a nascent industry to a globally competitive sector. AgriFutures Australia has also set a target of exceeding $10 million in gross value of production by 2026, with significant growth potential beyond that.

The Agronomic Foundation: Contributions to Australian Farming Systems

Compatibility with Existing Agricultural Practices

Industrial hemp presents a compelling opportunity for Australian farmers to diversify their operations. As a high-yield, fast-growing annual crop, it is well-suited for cultivation in a variety of regional areas across the country due to its adaptability to different climates and soil types. A major advantage of hemp is its relatively low input requirements, which contributes to more sustainable agricultural practices. As a fibre crop, it grows rapidly and establishes a dense canopy, which allows it to outcompete weeds and requires minimal, if any, herbicides and pesticides. This not only reduces costs for farmers but also minimises the environmental impact associated with chemical use.

Furthermore, the integration of hemp into existing farming systems is straightforward. It can be grown and harvested using conventional farming equipment, which significantly lowers the capital entry barriers for farmers considering a new crop. This ease of adoption is critical for fostering widespread agricultural diversification and resilience in a sector often vulnerable to market fluctuations and climate challenges.

Enhancing Soil Health and Productivity

Beyond its direct cultivation benefits, industrial hemp is a valuable tool for enhancing overall farm productivity and improving soil health. Its strong and extensive root system helps to bind the soil, preventing erosion and improving its overall structure. When the plant decomposes, it adds valuable organic matter and carbon to the soil, significantly enhancing fertility.

Hemp also acts as a highly effective break crop, helping to interrupt pest and disease cycles in the soil. This can lead to a reduced reliance on chemical pesticides and improve the health of subsequent crops in a rotation. A particularly noteworthy benefit is the ability of hemp's deep root system to access sub-soil nutrients that are typically unavailable to other plants. When the hemp crop decomposes, these previously inaccessible nutrients become available to subsequent crops, creating a long-term improvement in soil health and productivity. The inclusion of hemp in crop rotation has been shown to increase the yield of follow-on crops like wheat, further demonstrating its value to traditional farming systems.

Sustainable Water Usage and Conservation

In a country where water scarcity is a perennial concern, the water efficiency of industrial hemp is a significant advantage. The crop generally requires less water compared to many other commercial crops, such as cotton. This makes it a more sustainable option for agricultural production in Australia's drier areas and in regions with limited water availability. The potential for it to be grown as a dryland winter crop in some areas also expands its cultivation window, allowing farmers to maximise land use in regions that may not be suitable for other crops.

Phytoremediation: An Environmental Service

Industrial hemp has a demonstrated capacity for phytoremediation, which is the process of using plants to clean up contaminated soil. Hemp is capable of absorbing heavy metals and other toxins from the ground, assisting in the rehabilitation of degraded or polluted land. The utility of this natural process has been observed in its use to remove radioactive elements after the Chernobyl disaster and in ongoing trials in New South Wales to rehabilitate soils affected by sewage treatment plants.

This capacity for environmental remediation is not merely a scientific curiosity; it represents a new and high-value economic opportunity. Industrial hemp can be used as a cost-effective, biological solution for large-scale land rehabilitation projects, such as those at abandoned mine sites or former industrial lands. This creates a new and distinct market stream for hemp growers and processors, separate from traditional agricultural markets. By linking industrial hemp's agricultural potential to major government or corporate land remediation contracts, a significant new driver for regional development and investment can be unlocked.

The Value Chain: From Farm to Finished Product

Manufacturing and the Circular Economy

The true economic potential of industrial hemp for regional Australia extends far beyond primary agricultural production into the realm of value-added processing and manufacturing. This transformative potential is, however, currently limited by regulatory frameworks that restrict full-plant utilisation. These limitations often create waste and reduce profitability, hindering the industry's ability to achieve its full potential.

Bio-based Plastics and Biodegradable Materials

The versatility of hemp allows it to serve as a raw material for a wide range of products, offering sustainable alternatives to conventional, environmentally damaging materials. For instance, hemp can replace many unsustainable, oil-based plastics and wood-based products, thereby contributing to resource conservation and waste reduction. The development of high-value products like bioplastics and biofuels is seen as a key area for future R&D and investment. This use of a fast-growing plant to replace non-renewable resources is a foundational principle of the circular economy.

Textiles and Fabrics

Hemp fibres can be processed into durable, sustainable, and biodegradable fabrics. This provides an environmentally friendly alternative to conventional cotton, which is a high-water-use crop. Establishing regional processing hubs for textiles would not only create new local jobs but also lay the groundwork for a sustainable, homegrown textile industry.

Health and Food Products

The legalisation of low-THC hemp seed as a food source in Australia in 2017 was a pivotal moment in unlocking a new domestic market. Hemp seeds are a highly nutritious food source, rich in protein, essential omega fatty acids, vitamins, and minerals. This has led to the production of high-value products such as hemp oil, protein powder, and flour, which can contribute to the health and well-being of regional communities.

The full value of industrial hemp lies in its ability to contribute to a zero-waste, circular system. From a single crop, the seeds can be used for food, the fibres for textiles, and the hurd for building materials. The plant itself sequesters carbon and improves soil health, creating a closed-loop system from production to product and back to the land. However, current regulations that restrict the use of certain plant parts, such as leaves and flowering heads, or which prohibit their use for animal feed in certain jurisdictions, prevent this circularity from being fully realised. This creates a direct causal link between regulatory reform and the unlocking of a truly circular and maximally profitable hemp industry in Australia. A streamlined regulatory framework is therefore a prerequisite for a thriving, sustainable, and zero-waste sector.

The Australian Construction Industry

The Potential of Hemp-Based Materials

The Australian construction industry stands to gain significantly from the adoption of hemp-based materials, particularly hempcrete. This bio-composite material, made from hemp hurd and a lime-based binder, offers excellent insulation properties, is fire and pest resistant, and contributes to safer, more comfortable living environments. A key benefit is its capacity for carbon sequestration. Industrial hemp absorbs more carbon dioxide (CO_2) per hectare than most forests, with a single hectare estimated to absorb approximately 22 tonnes of CO_2 per year. When used in long-lasting products like hempcrete, this carbon is permanently locked within the material, making it a powerful tool for climate change mitigation. The successful completion of numerous hemp homes across Australia highlights the viability of this material as a mainstream building solution.

Barriers to Adoption

The primary barriers to the widespread adoption of hemp-based construction materials are systemic rather than technical. The challenges faced by the hemp construction sector are a direct reflection of the broader impediments to the entire industry.

- **Regulatory Inconsistency:** The lack of a nationally consistent framework for industrial hemp cultivation and processing creates uncertainty for manufacturers and builders who operate across state borders.
- **Market Immaturity and Investment Risk:** The industry is still in its early stages, which deters the large-scale investment required to establish regional processing hubs. Without these hubs, the cost of raw materials remains high, making hempcrete less competitive with conventional building materials.

- **Social Stigma:** A lingering social stigma associated with cannabis can contribute to a cautious approach from policymakers, builders, and the public, creating a non-technical barrier to adoption.

Overcoming these hurdles would create a positive feedback loop for the entire industry. A streamlined regulatory framework would reduce investment risk, attracting the capital needed to build regional processing hubs. The establishment of these hubs would increase economies of scale, reduce transport costs, and make hempcrete more affordable and competitive. This, in turn, would drive wider adoption and demand, further stimulating the industry. The successful growth of the hemp construction sector is therefore dependent on a coordinated national strategy.

The Broader Economic Impact: Regional Revitalisation and National Prosperity

Job Creation and Skills Development

The industrial hemp industry is poised to become a significant generator of new employment and economic activity, particularly in regional Australia. It has the potential to create new jobs across the entire value chain, from cultivation and harvesting to processing, manufacturing, and distribution. The establishment of regional processing and manufacturing hubs is a key strategic objective, with specific case studies like the Murray Industrial Hemp project projecting the creation of over 30 full-time equivalent positions per hub. This demonstrates the tangible, localised economic impact the industry can deliver. Furthermore, the industry will foster skills development and training in new agricultural and manufacturing techniques, empowering individuals and contributing to the long-term economic prospects of regional communities.

Export Opportunities and Global Competitiveness

The high global demand for hemp seed, oil, and fibre presents a significant economic opportunity for Australia. With the global market projected to exceed USD $26.6 billion this year, Australia is well-positioned to meet this demand. Case studies from countries such as Canada and the United States, which have experienced substantial export growth driven by clear regulation and R&D investment, serve as a valuable precedent. By establishing a robust, well-regulated, and innovative industry, Australia can become a competitive exporter of high-quality hemp products.

Regional Development and Diversification

Industrial hemp can act as a powerful catalyst for economic diversification in regional communities that are over-reliant on traditional, and often vulnerable, industries like agriculture or mining. By offering a high-yield crop with competitive returns and potentially better gross margins than many traditional cropping options, it enhances the financial viability of farming in these areas. The establishment of regional processing and manufacturing hubs acts as an anchor for local economies, attracting investment and creating new value chains for food, textiles, and construction materials.

The report's findings consistently establish a clear link between hemp's economic potential and the revitalisation of regional communities. The data on job creation and farm income are not isolated facts but are the direct, measurable outcomes of the proposed strategy to develop local processing hubs. This creates a cohesive narrative that positions hemp not just as a crop, but as a long-term strategic investment in rural Australia's resilience and future prosperity.

The Policy Imperative: Research, Development, and Regulatory Reform

Essential Research and Development

To fully harness the potential of the hemp industry, significant and coordinated investment in R&D is required. This is a crucial element for optimising hemp varieties for different regional conditions and specific end-uses. Research is also needed to develop new, high-value products, including advanced materials, bioplastics, and biofuels, to maximise the crop's economic and environmental returns. There is also a critical need to fund research into efficient and cost-effective processing technologies, which are essential for creating a profitable value chain. Furthermore, a focused investigation into hemp's potential for phytoremediation in specific Australian contexts, such as mine site rehabilitation, is a key R&D priority.

The inconsistent and restrictive THC limits across states directly inhibit the pace of R&D and innovation. The fact that a crop with a 0.5% to 1% THC content cannot have its seed used for sowing in Victoria, for example, creates a direct barrier to breeding new, high-performance varieties. These low and inconsistent limits restrict the gene pool available for breeding. If researchers cannot use seed from promising varieties due to them exceeding arbitrary THC limits, the pace of genetic improvement is slowed. A simple, harmonised increase to a 1% THC limit, as advocated by industry bodies, would immediately unlock a wave of genetic R&D and accelerate the development of a more robust Australian hemp industry.

The Regulatory Landscape: Challenges and Opportunities

State-Based Inconsistencies

The current regulatory framework for industrial hemp is the single most significant impediment to its development. The system is complex, inconsistent, and fragmented, with each state and territory having its own specific laws governing licensing, THC limits at harvest, and permitted uses. This creates complexity and inefficiency for businesses that wish to operate across state borders and deters interstate trade and investment. For instance, THC limits at harvest can range from 0.35% to 1% depending on the state, while restrictions on the use of hemp seed and crop residues for animal feed also vary and are a source of considerable confusion.

The following table formally illustrates the fragmented nature of the current regulatory environment, demonstrating the need for a national, harmonised framework.

State/Territory	THC Limits for Cultivation	Permitted Uses	Status of Animal Feed Regulation
National	N/A (State-based)	Low-THC seed for human food (FSANZ)	Restrictions exist in some jurisdictions
Victoria	0.5% THC in seed for sowing	Food (seed), Fibre (stem)	Prohibitions on feeding certain parts to food-producing animals
Tasmania	N/A	Processed straw for bedding; by-product for grazing	Prohibitions on hay/silage; zero THC MRL in products
NSW	N/A	N/A	Ongoing trials to inform regulation

The Path to Harmonisation

The Australian Industrial Hemp Alliance (AIHA), the industry’s peak body, is actively advocating for a more nationally consistent and risk-based regulatory framework. The ongoing Senate inquiry represents a crucial opportunity to establish a clear, consistent

legislative definition of industrial hemp and remove it from the national poisons schedule. Recent progress has been made on certain fronts, such as the Australian Pesticides and Veterinary Medicines Authority (APVMA) revising its regulatory stance on hemp-based animal nutrition products, which has provided greater clarity and eased compliance burdens for manufacturers. This demonstrates that targeted regulatory reform is feasible and can have an immediate, positive impact on industry confidence. However, significant barriers remain, particularly regarding the use of hemp hay or silage for animal feed due to a zero-THC maximum residue level (MRL) in products for human consumption.

The tight regulation of the medicinal cannabis market has created a cautious and complex regulatory environment that has a spillover effect on the industrial hemp sector. The two are distinct industries, with industrial hemp being a low-THC agricultural crop and medicinal cannabis being a highly regulated therapeutic good. The industry and policymakers must clearly argue that industrial hemp should be regulated based on its industrial use, not its historical association with a controlled substance. Canada's regulatory changes, which de-risk the processing of hemp stalks and devitalised grain, serve as a powerful international model for a rational, risk-based approach that enables, rather than controls, industry development.

Conclusion & Actionable Recommendations

Synthesis of Findings

This submission has demonstrated that industrial hemp is a strategic national asset with the potential to deliver profound economic, environmental, and social returns for Australia. However, the analysis shows that the industry's growth is being inhibited by a fragmented and inconsistent regulatory environment. This central impediment prevents the large-scale investment in processing infrastructure that is required to create new jobs, diversify regional economies, and develop the high-value products that will make Australia a leader in the global bioeconomy.

The path forward is clear: address the regulatory and investment barriers to unlock the industry's full potential.

Recommendations for Policy and Legislative Reform

1. **Enact a National Industrial Hemp Strategy:** Establish a consistent, harmonised regulatory framework across all states and territories to provide certainty for growers, processors, and investors.
2. **Legislate a 1% THC Limit:** Formally define industrial hemp as cannabis with a THC content of less than 1% and remove it from the national poisons schedule. This would align Australia with international standards and facilitate R&D.
3. **Streamline Licensing and Approvals:** Implement a single, national licensing system or, at a minimum, create a "passport" system to allow licenses to be valid across states to reduce administrative burdens.
4. **Support Full-Plant Utilisation:** Review and amend legislation to remove regulatory barriers to the utilisation of all parts of the hemp plant, particularly for animal feed, to maximise profitability and enable a zero-waste value chain.
5. **Integrate into Carbon Credit Schemes:** Formally accredit industrial hemp cultivation within national carbon credit schemes to provide a direct financial incentive for its significant environmental benefits.

Recommendations for Strategic Investment

1. **Government Grants for Regional Hubs:** Provide targeted government grants for the establishment of regional processing infrastructure, such as decortication and

manufacturing facilities. These hubs are the key to job creation and value-added processing.

2. **R&D Funding:** Dedicate funding to research on variety optimisation, efficient processing technologies, and new, high-value applications like bioplastics and biofuels.
3. **Support Industry Clusters:** Encourage and fund the formation of industry clusters and cooperatives to foster collaboration and knowledge sharing among growers, researchers, and processors.

Industrial hemp is not just a crop—it is a strategic national asset capable of future-proofing regional communities, driving a green bioeconomy, and meeting Australia's climate goals. The time for decisive policy action and strategic investment is now.

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