



INDUSTRIAL HEMP & THE STORY OF THE 'HECTARE HOUSE'

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**Western Murray
Land Improvement Group**

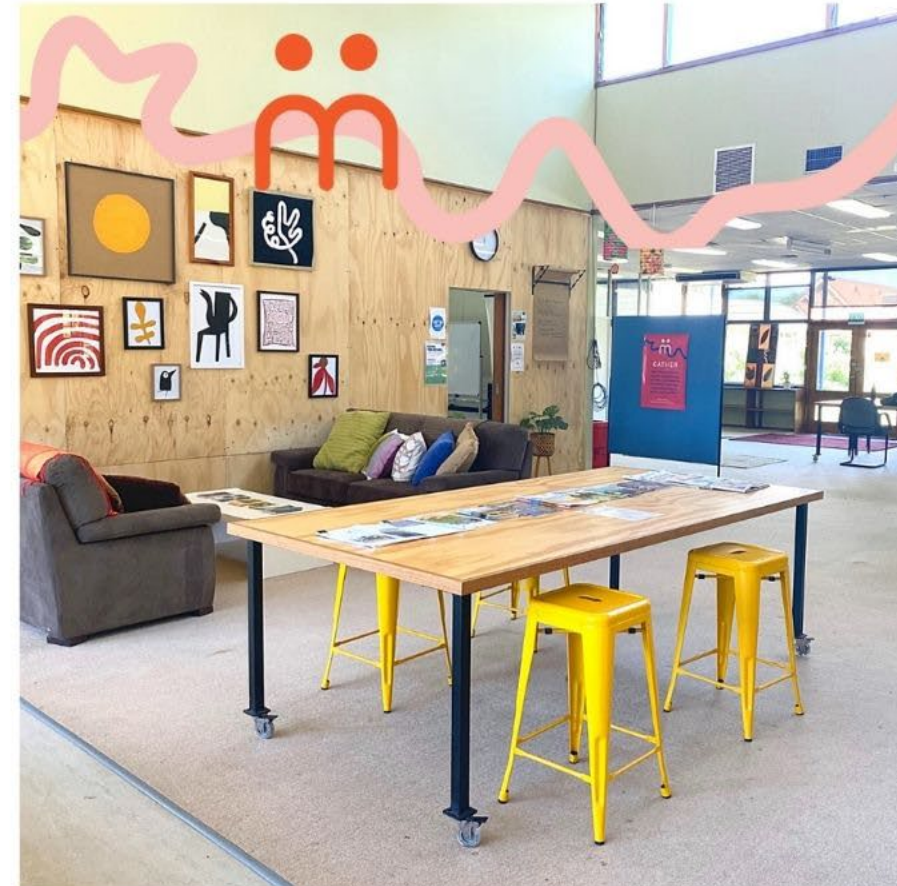


WMLIG – ABOUT US

- Landcare Organisation focusing on natural resource management, sustainable agriculture, community capacity building / co-design.
- 7 staff, 11-member skills-based Board.
- 1 million ha along Murray River corridor Southern NSW / Nth VIC.
- Reach 1,200+ locals via newsletters etc, email contact list (> 550 people).
- Support 13 Landcare, producer, First Nations and project focus groups.
- Leverage \$16 for every \$1 invested from NSW Government as part of the Landcare Enabling Program.
- In 2022-2023 managed 25 projects worth \$1.5M from 17 funding partners.
- Engaged 1,700+ participants in 170 activities.
- Murray Connect, a co-working space in Barham, NSW.
- Business is diversifying into supporting regional development.

MURRAY CONNECT

A Central hub for connecting people, industry and research for the purpose of facilitating adaptation withing the community to grow economic sustainability within the region.





SITUATIONAL ANALYSIS

Structural changes in the timber and agriculture industries have strained the local economy. Changes primarily driven by external factors beyond the control of local industries and the community (RMCG 2024).

These challenges include:

- Reduction in access to Redgum forests for logging.
- Government purchase of irrigation water and creation of water markets:
 - Water entitlement reductions of more than 40% since 2000
- Impact of drought.
- Demographic changes:
 - 14% less working age people
 - Barham has highest median age in Murray River LGA (57 years)
 - Community SEIFA decile rating dropped from 5 to 2 in 16 years.
 - The low decile rating means that there is diminished capacity to adapt to a change in circumstances (MDBA Basin Plan Evaluation).





GDP

Declining trend in GDP growth:

- > -20+% GDP growth p.a. in the Murray-Swan Hill region in S NSW and Nth Vic. from 1990 to 2018 in comparison to Sydney (SGS Economics and Planning, 2019).

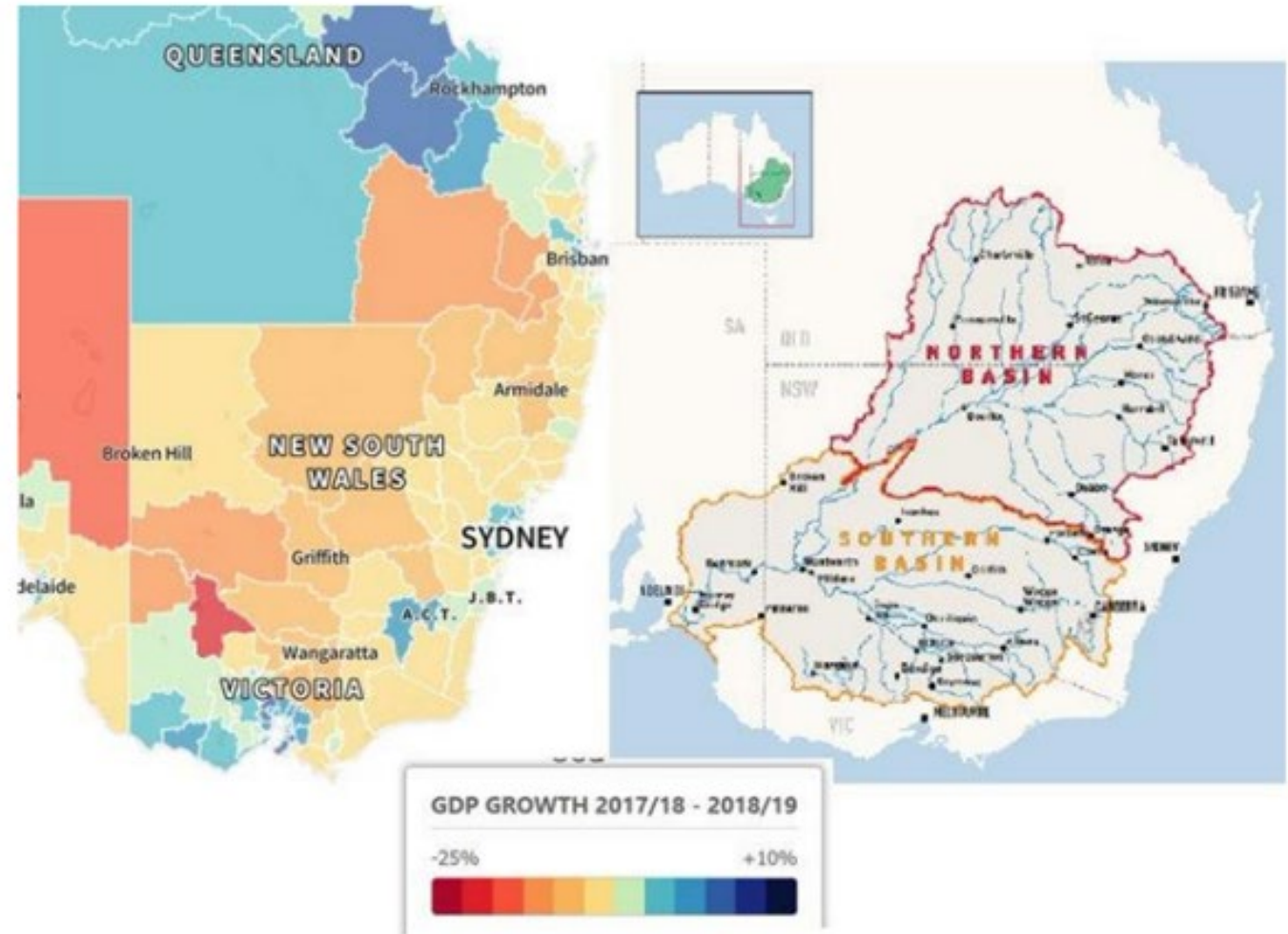


Figure 1: Annual graph of GDP data comparing regional NSW GDP growth to Sydney⁹



PLANNING TO ADAPT TO CHANGE

Community Engagement Journey (over 8 years)

- 15 Planning Sessions
- 260 people
- 27 local community groups
- 24 business and government entities
- 191 person days
- 1,435 volunteer hours

Themes to strengthen the community, assist with adaptation and build resilience:

- Facilitate whole of community solutions.
- Encourage innovation, entrepreneurialism, research / farming system adaptation.
- Improve revenue from regionally produced goods through value adding and innovation including exploring new transformational farm practices and new industries.
- Provide opportunities for more professionals to work in the region.

To do this we need:

- To encourage partnerships and investment.
- Novel forms of capital raising.
- Additional government financial assistance key to building new businesses in the future,
- Novel use of infrastructure and companion industries – co-benefits / circular economy.
- Projects that are large and transformational to enable effective and enduring change.



Industrial Hemp explored as diversification option

AGRONOMIC TRIALS:

- Assessed viability of industrial hemp for biomass, seed, and dual-purpose use.
- Preferred varieties for fibre (biomass).
- 2 field days - 125 attendees.
- Published 2 x grower guides

PREFEASIBILITY STUDY (2022) - Funded by MDBEDP & Murray River Council (\$60k)

- Examined economic potential, production, and primary processing (decortication) & companion industries.
- Found IH offers significant economic and regional diversification opportunities (global growth 16.8% to 2030)

Industrial Hemp General Information & Learnings

- 25,000 different products can be made from Industrial hemp
- Licensing requirements – THC levels

Misconceptions:

- Industrial hemp, medical, and recreational cannabis are all the same.
- Psychoactivity – can you get high? – No
- Illegal cannabis plants will be hidden in industrial hemp fields.

Economic implications of scaling up industrial hemp production for use in construction?

- Markets – traditional building conventions
- Energy savings
- Health / environment
- Low carbon manufacture / embedded carbon
- Investment
- Job creation – regional manufacturing
- Sovereignty – reduce reliance on imported product



Industrial Hemp General Information & Learnings (cont.)

Implications of widespread industrial hemp adoption on agricultural practices and land use?

- Carbon sequestration and C market opportunity
- Drought resilience / farm diversification
- Reduced herbicide & pesticide use
- Short crop cycle
- Soil health improvement
- Industrial hemp cross pollinates with medicinal cannabis & vice - versa

How can partnerships between farmers, researchers, and policymakers facilitate the adoption of sustainable water practices in the hemp industry?

- More research and extension needed for this emerging industry:
 - Variety trials, byproducts for stock feed – high protein
 - Irrigation systems, water use efficiency.
 - Fertiliser, pesticides, soil amendments etc.



Analysis



BUSINESS CASE (COMPLETED APRIL 2024) - Funded by Dept. of Regional NSW (\$310k)

- CAPEX: \$15 million, OPEX: \$9 million.
- Wall material for 583 houses annually from 558 ha (the 'Hectare House')
- Financial projections: \$60 million net benefit over 20 years, BCR 1.6, IRR 42%.
- Benefits include 16 direct and 14 indirect jobs, \$19.8 million local economic impact.
- Annual Carbon Offsets of 8,470 tCO2 eq. and 135,524 tCO2 eq. over project life.

MARKETING REPORT (2023):

- Insights into market dynamics and strategic options.
- Address housing shortage with potential for large-scale construction.
- Around 175,000 houses built/yr in Australia

TYPICAL SUMMER CROP WATER USE - YIELD T/HA - AND EXPECTED GROSS MARGIN COMPARISON

CROP	Water Use (ML/HA) & Tonnes/ha	Total Costs (\$/ha)	Total Income (\$/ha)	Gross Margain (\$/ha)	Total Income (\$/ML)
Rice (Summer)	13ML 11t/ha	\$2,840	\$4,104	\$1,264	\$97
Corn	10ML 13t/ha	\$2,603	\$4,564	\$1,961	\$196
Vetch Hay	1.5ML 8t/ha	\$777	\$1,320	\$543	\$362
Industrial Hemp	5-7ML 10t/ha	\$2,452	\$5,500	\$3,049	\$609

NOTE - The weighing for the case for change was developed and tested with the project reference group. A gross margain is calculated by accounting all costs associated with a specific farming activity directly - ie: a rice gross margain only accounts for costs and income associated with rice production. Gross margains used in agricultural planning. Adapted from: NSW DPI Decision Support Tool for the GRDC project (VIC000010; 2014-2016). 'Correct Crop Sequencing for Irrigated Double Cropping' (2018).



Murray Industrial Hemp's Journey began 4 years ago, when WMLIG convened local farmers to explore new and emerging industries on solutions based initiatives.

15 member Industrial Hemp Cluster (focus) Group formed in 2020 supported by the Murray Darling Basin Economic Development Program (MDBEDP).



MIH INVESTMENT MEMORANDUM (2024):

- Formal proposition to investors.
- Outlined project scope, financial requirements, expected returns, risks, and benefits.

INVESTOR SESSION (2024):

- 37 attendees.
- Legal advice ongoing for place-based capital raising.

VALUE-ADDING INITIATIVES:

- Exploring bast fibre products and pre-manufactured panels.
- Collaboration on sustainable low carbon construction solutions.
- National Hemp Building Training Centre

Community Funding Models

Placed based capital raising for community wealth building outcomes (Ethical Fields, Feb 2022).

Findings / implications:

- No more than 50 investors before triggering need for listed company etc.
- Crowdfunding limitations.
- Financial system favours high net worth investors
- Government co-contributions would make placed based capital more achievable so growers / locals can be part of the value chain.

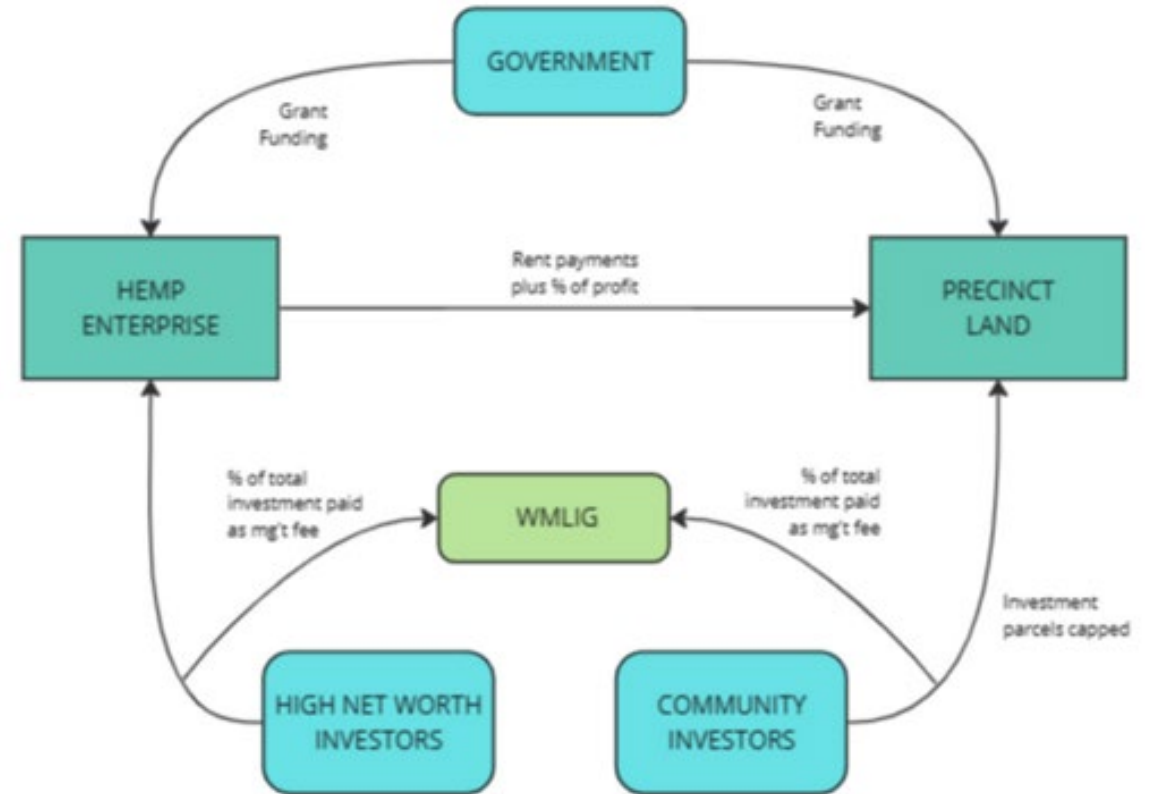


Figure 4. Funding Model Scenario 3 - Splitting the assets

Current status

Seeking investors for financial co-contributions.

Applications submitted to Federal and NSW Government programs.

We welcome your investment, collaboration, and support.

Thank you

