

# Development Strategy



to finance, plan, design and build a  
**Network of Circular Economy Villages**



**prepared for cevco**

[cevco.life](http://cevco.life)



**prepared by PolisPlan**

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## Document Management

| Version | Author        | Description  | Date                            |
|---------|---------------|--|---------------------------------|
| 1.0     | Steven Liaros | PolisPlan project proposal and white paper, various versions   | 3 February 2021 - 15 March 2023 |
| 2.0     | Steven Liaros | Amended version identifying <b>cevco</b>   | 15 April 2023                   |
| 2.01    | Steven Liaros | Modify structure, p.12<br>Updated Sydney dwelling price and occupants per household, p.15                                  | 2 May 2023                      |
| 2.02    | Steven Liaros | Full revision of organisational structure to align with financial feasibility brief. Add market positioning.               | 8 August 2023                   |
| 3.0     | Steven Liaros | Add page on co-operative principles. Rename from white paper to business strategy.   | 15 September 2023               |
| 3.1     | Steven Liaros | Add financial roadmap. Clarify memberships p.14  | 19 September 2023               |
| 4.0     | Steven Liaros | Change from business strategy to development strategy and adjust wording throughout to leave legal structure of cevco open | 15 December 2023                |



# circular economy villages



**building a network of affordable  
& sustainable communities**

## our vision

To finance, plan, design and build a Network of Circular Economy Villages.

The tech-enabled, regenerative villages will strive towards self-sufficiency and zero waste within their bioregion. Each village will house a diverse community of up to 200 people and will integrate affordable co-working and co-living spaces with a renewable energy micro-grid, a water micro-grid and a regenerative agricultural system.

## into reality

The Circular Economy Villages development model has been created by Dr Steven Liaros and Nilmini De Silva, directors of PolisPlan (town planners and strategic engineers) through their extensive local and international research.

The **cevco** co-operative is established to bring the vision into reality. A co-operative is defined by the International Cooperative Alliance as:

*an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.*

This document shall be used to inform the **cevco articles of association**.

# why we need to rethink the way we live



## symptoms of a systemic crisis

The various social, economic and environmental issues that we are facing as a society can no longer be addressed in isolation. They must all be recognised as symptoms of a crisis in our political and economic systems. We need to rethink the way we live and work together and how we care for each other and the land on which we live.

Circular Economy Villages (CEVs) offer a systemic solution to these systemic problems. CEVs are designed as a nested complex system—a dynamic network of interactions.

## objectives

This systems approach supports the following objectives:

**economic:** (a) Provide affordable housing (b) minimise the cost of living  
(c) minimise the energy and work needed to deliver the food, water, and energy requirements of the resident community

**environmental:** (a) Connect with Country and (b) Regenerate Nature

**social:** (a) Facilitate community collaboration and (b) Prioritise the Local Community

# what might a CEV look like?

Total site area: minimum **40 hectares**

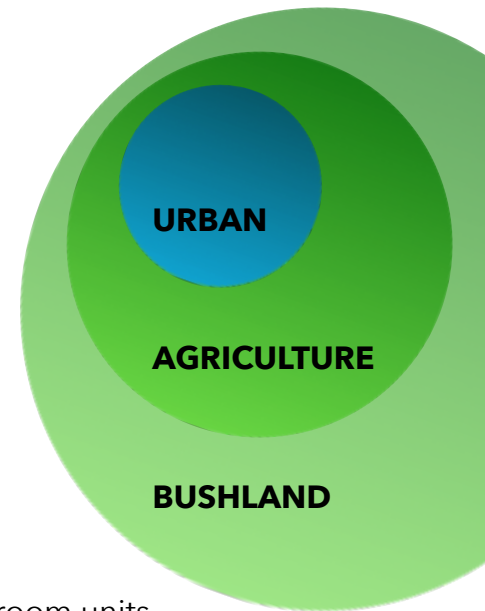
Entire site to be consolidated for ownership and control by a single entity, in perpetuity.

Where possible the living and work spaces will be clustered together to minimise infrastructure costs.

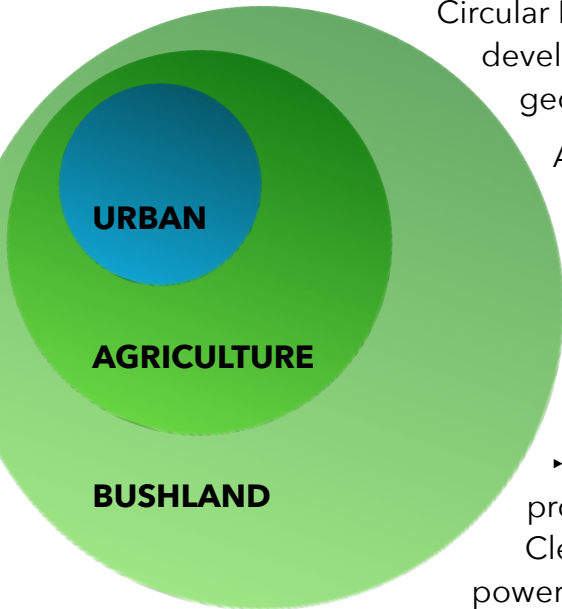
Maximum capacity: **200 persons** with a broad demographic profile (all age groups). The planning controls could refer to a maximum of 200 bedrooms, organised in various ways. For example, as 80 x 2-bedroom units plus 40 bedsitters, or 50 x 4-bedroom homes.

Buildings to be co-designed with key stakeholders, with that process guided by the design principles (p8-10) and the following:

- Smaller private housing balanced by access to a wide range of shared spaces for work, education, recreation and other activities
- Flexible house designs, where possible, to facilitate shared occupancy.
- All buildings to be human-scale (no more than 2 stories)
- Housing clustered into community hamlets (assume 6 hamlets for 33 people each)
- Passive architectural design to minimise energy demand
- Design for universal access
- Clean, minimalist, durable, low maintenance construction.



# a systems approach and an ecosystem of infrastructure



Circular Economy Villages differ from other forms of land development in that each one is uniquely designed for the geography and climate of its locality.

Although the village is shown to be divided into three precincts—urban, agriculture and bushland—the aim should be to blend and integrate urban, rural and natural landscapes with an ecosystem of infrastructure.

The infrastructure ecosystem will include energy, water, food, buildings, transport and communication.

- ▶ The energy micro-grid will use renewable technologies to produce electricity. Also, food waste can produce biofuels. Clean energy is used to cycle water through the site and power electric vehicles (golf carts, bikes and cars).
- ▶ The water micro-grid will harvest and distribute water within the catchment, irrigating crops while storing heat and potential energy. A constructed creek corridor weaves through the site via a chain of reservoirs. Below the built environment there would be a constructed urban wetland for cleaning water after use.
- ▶ The food system will help to recycle organic waste, clean water and improve soil health.
- ▶ The built environment will minimise energy use, offering spaces for solitude and for collaboration.

Image credit: Valentino Gareri Atelier



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# objective 1

# AFFORDABILITY

## Redefining affordability

CEVs are designed to significantly reduce both the capital construction costs and ongoing cost of living. Rather than just buying a house, residents will have access to an ecosystem of spaces and services.

Water, food & energy systems, transport services and community facilities will all be provided collectively and paid for through one bill. Most of these are collectively produced on site or purchased in bulk to **minimise all ongoing living costs.**

**Land costs** will be kept to a minimum by developing rural land rather than land zoned for urban purposes.

**Construction costs** will be kept to a minimum by (a) keeping building height to 2-storeys, (b) adopting a minimalist aesthetic and (c)

providing a range of shared, multi-purpose spaces that minimise the required size of private spaces.

## Stay for as little or as long as you want

Rental agreements offer the same level of security as if you own the property but with the flexibility of renting.

Short term rentals may be appealing to digital nomads, grey nomads, van-lifers and other travellers. (A minimum period may apply subject to Council approval conditions)

## Housing for grey nomads

Many grey nomads spend much of their time on the road leaving their home vacant. The CEV offers a place to be settled for a while and a postal address while travelling, freeing up the capital many grey nomads have locked up in their home.

Nomads only need to pay for the period of their stay in a CEV.

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## objective 2

# SUSTAINABILITY

### **Powered by 100% renewable energy**

Each village will be powered by a purpose-designed renewable energy micro-grid with all energy generated, stored and distributed on site. At most there will be a single connection to the grid. The power will be managed on site by energy specialists to keep electricity costs to a minimum.

### **Shared Electric vehicles**

A pool of shared electric vehicles (EVs) will be included in the community assets. Golf carts and bicycles will be available for internal movement, whilst electric cars will be available for travel outside the CEV. Each village will also offer an EV charging station for public use to facilitate the broader transition to a fully electric transport system.

### **Fresh, organic food, no packaging, no chemicals**

A significant proportion of residents' food will be grown on site generating a number of sustainability benefits. Transport costs are minimal, there is no need for packaging, waste is

composted and the food is fresh and chemical free.

### **One Planet, zero waste lifestyle**

The majority of current economic activity is geared towards the provision of food, water, energy and housing. By designing for a discrete population of 200, the demand for these basic necessities can readily be calculated. It is possible to design infrastructure such that supply meets or exceeds demand, creating a one planet, zero waste lifestyle.

In addition, by providing numerous work opportunities on-site, the work commute is reduced to a leisurely stroll.

### **Waste to Resource Micro-factories**

Small scale technologies are now available for converting waste streams, particularly plastics, glass and aluminium into useful resources. Where these materials cannot be re-used, facilities will be available for converting them into flakes, granules, pellets, ribbons or ingots. These may then be used for creating building materials or new products in a maker space.





Image credit: Valentino Gareri Atelier

# objective 3

# COMMUNITY

## Attractive & diverse living environments

Unlike traditional residential developments, the majority of the site area in a CEV is regenerated bushland, open space and a substantial integrated, regenerative agricultural system. Wetlands and reservoirs store and clean the water as it constantly flows through the site creating a beautiful rural landscape living environment.

## Opportunities for work & play

In addition to a private suite, residents will have access to on site restaurants, co-working office spaces, low-tech craft and high-tech 3D fabrication rooms, bathing and recreation areas as well as a theatre/ cinema/ lecture hall and associated seminar rooms.

[cevco.life](http://cevco.life)

## Healthy & collaborative

While expert regenerative farmers will be responsible for food production, there are numerous opportunities to build community bonds by collaborating in the planting, harvesting, food processing, cooking and eating of produce.

## Connected & purposeful

CEVs will be designed to balance smaller private spaces with a wide range of shared work, recreation and other activity spaces. Numerous indoor and outdoor, work and recreation activities provide opportunities to contribute to a co-operative and connected community.

## Is this a commune?

No. This project is about co-operation not communal living. You will have your own private living spaces and access to certain shared spaces.

The village is designed so that there are opportunities to make friends and form community but no obligation to do so.



# design principles



## one planet living

### Match the population of each place to the capacity of the land and its infrastructure.

Ensure that the demand for food, water, energy, and housing does not exceed the capacity of the local infrastructure and ecosystems. Assume a fixed population and design the infrastructure at a scale that supports the predetermined population, preferably so that supply of these basic necessities exceeds demand. An additional benefit of planning for a discrete population, and matching local supply with local demand, is that it allows waste and pollution to be designed out. Organic materials can be kept in circulation to improve soils and regenerate natural systems. The systems then becomes a circular economy.

### Maximise the resilience of the system

Natural systems are more productive and more resilient as biodiversity increases. Mimic this diversity in all infrastructure systems. Food systems should include a wide range of fungi, plants, animals—including aquatic species in the reservoirs— not just to feed the humans but complement and support the ecosystem as a whole. With respect to energy, provide a wide range of generation and storage options. In the built environment, provide a diverse range of flexible, multipurpose spaces. Express diversity in respect of multiple users and multiple purposes for any space.



## enhance integrated ecosystems

### Support nature to do the work

Natural systems are designed to convert waste into resources and to constantly regenerate. Aim to enhance the capacity of the environment to provide these 'ecosystem services'. For example a closed water cycle can mimic the natural water cycle and provide an endless supply of water. Create integrated ecosystems such that organic waste can improve soil health or increase soil volume to retain more water. Water could be used to generate and store energy, while passively designed buildings can minimise energy demand.



# design principles

## the village as a thermodynamic system

### Harness input energy and minimise energy losses

Each circular economy village can be thought of as a thermodynamic system but not a closed system since it receives a continuous input of energy from the Sun. Maximise the amount of input energy that is harnessed, whether with solar panels, other technology or by plants. Also minimise the energy that is lost as waste.



## productive efficiency

### Let technology do the work

Efficiency is the ratio of energy inputs to energy outputs. Minimise the energy needed to deliver the required outputs—particularly food, water, electricity, mobility services and shelter. Aim to eliminate fossil fuel energy and minimise the human labour needed to deliver these basic necessities for all in the village. Use of durable labour-saving devices and technologies. Enhance ecosystems so that they provide a wide range of ecosystem services.



## Prioritise local for distributive efficiency

### Local production for local consumption

Save energy by minimising the distance resources and goods are transported. That is, strive to maximise local production for local consumption. For goods not able to be produced within the village, collaborate firstly with neighbouring villages, then others within the bioregion before looking beyond. For fabricated goods, aim to minimise the mass of the object being transported. This can be done by transporting the 'blueprints' electronically and have the item produced locally with a 3D printer.

# design principles



## durability

**The longer things last, the less work is needed to fix or replace them**

In contrast to the current disposable, consumer culture, greater durability means a longer life-cycle for all products and buildings. The most durable could be defined as sustainable. That is, able to be sustained in a functioning form for a very long time or even indefinitely.

Building design and construction should consider each design element in terms of maximising durability.

## sharing

**Share spaces and utilise spare capacity**

Online sharing economy platforms facilitate the transition from ownership to access by enabling the use of spare capacity, for example in buildings, cars, tools, or land. In addition to shared infrastructure, the regenerative village should incorporate assets, facilities and spaces that can be shared. Designs should create 'degrees of privacy' without resorting to exclusive ownership. Residents will have use of, access to, and be responsible for, various parts of the settlement. Rather than individual owners of land, residents should be offered the opportunity to collectively own and steward the ecosystem of infrastructure and natural assets.

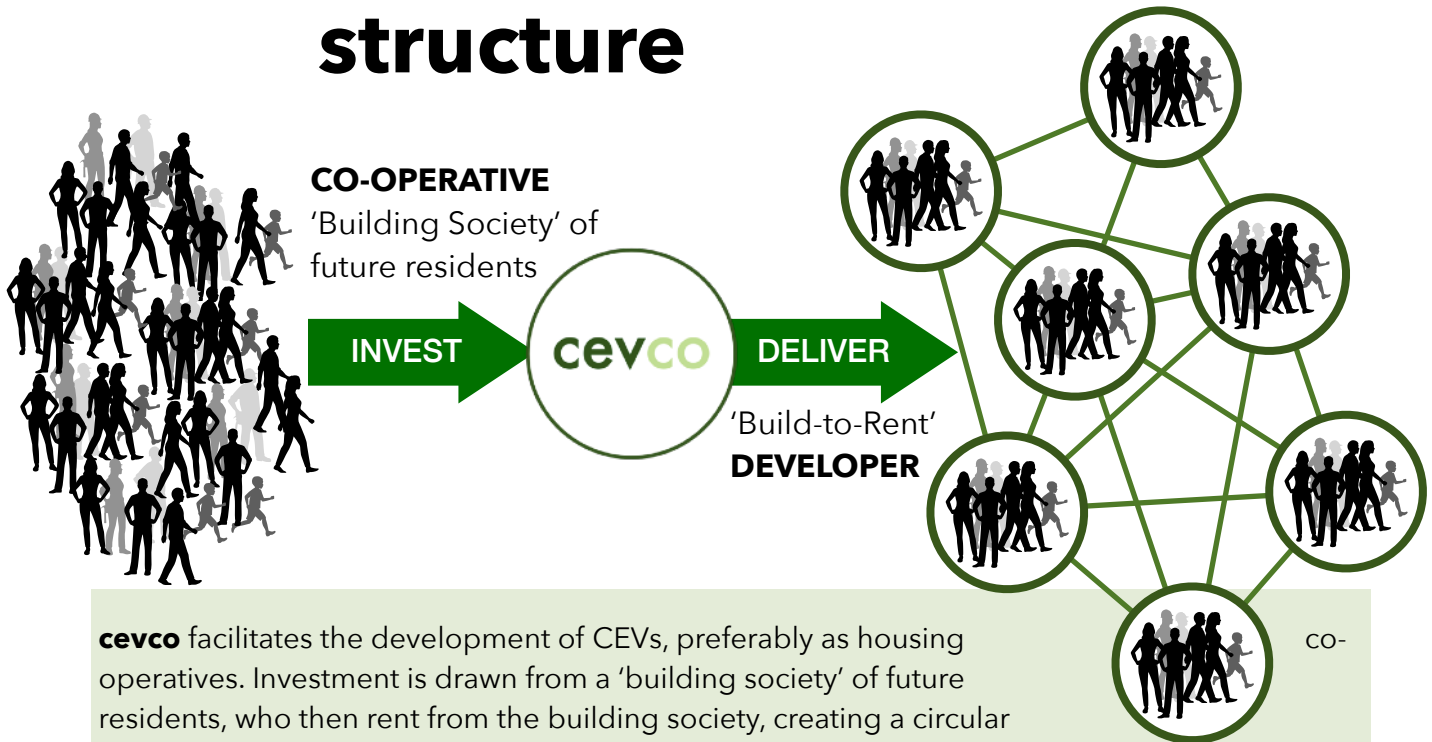


## connectivity

**No-one can do this alone**

Circular Economy Villages should not be regarded as isolated places but as nodes within a broader network. Provide high quality internet access for virtual connectivity and create a network of shared electric vehicles and charging stations for physical connectivity. Also, whilst each village would produce the basic needs for its residents and guests, it would still rely on the broader network for the satisfaction of more complex needs or to share rarer skills. Design interdependence into each settlement, perhaps with each village providing some goods or services for the broader network. The complementarity of settlements, particularly within a bioregion, would guarantee a wide range of goods and services for all.

# Co-operative investment structure



**cevco** facilitates the development of CEVs, preferably as housing cooperatives. Investment is drawn from a 'building society' of future residents, who then rent from the building society, creating a circular investment and ownership arrangement.

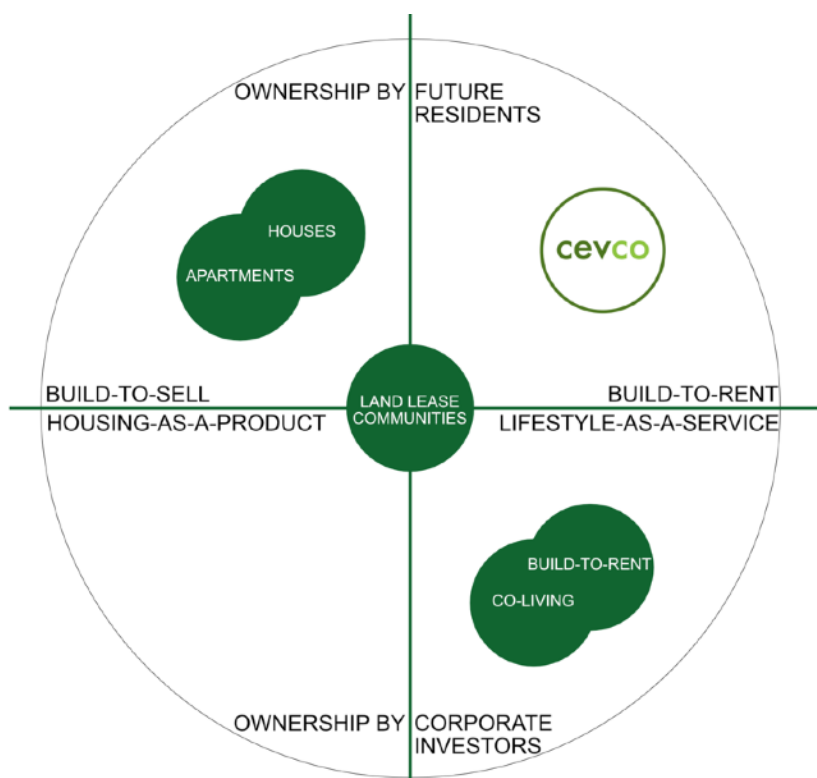
Investors and residents commit to the Co-operative Principles of the International Co-operatives Alliance and adopted in the Australian Co-operatives National Law.

- 1 Voluntary and open membership** - Co-operatives are open to all persons able to use their services and willing to accept the responsibilities of membership.
- 2 Democratic member control** - Co-operatives are controlled by members who actively participate in setting their policies and making decisions.
- 3 Member economic participation** - financial, social and natural capital of the co-operative are common property and members participate in enhancing the capital that sustains the whole community.
- 4 Autonomy & independence** - Co-operatives are autonomous, self-help organisations controlled by their members. If they enter into agreements with other organisations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their co-operative autonomy.
- 5 Education, training & information** - Co-operatives provide education and training for their members so they can contribute effectively to the development of their co-operatives. They inform the general public, particularly young people and opinion leaders, about the nature and benefits of co-operation.
- 6 Co-operation among co-operatives** - Co-operatives serve their members most effectively and strengthen the co-operative movement by working together through local, national, regional and international structures.
- 7 Concern for the community** - While focusing on member needs, co-operatives work for the sustainable development of communities through policies accepted by their members.

# market positioning

Residents collectively own the village, potentially through a Community Land Trust (CLT).

All residents will access housing, food, water, energy and transport through a rental agreement with the CLT.



|  | Similarities   | Differences   |
|--|--|---|
| Land Lease communities   | <ul style="list-style-type: none"> <li>Provides supporting infrastructure and assets, facilities, services and activities.</li> </ul>  | <ul style="list-style-type: none"> <li>Separates the ownership of land from housing</li> <li>Available only to older age demographic</li> <li>Corporate/ external ownership of land</li> <li>House prices linked to broader market</li> </ul> |
| Retirement village   | <ul style="list-style-type: none"> <li>Provides supporting infrastructure and assets, facilities, services and activities.</li> <li>Housing and supporting infrastructure owned entirely by one entity.</li> </ul>   | <ul style="list-style-type: none"> <li>Available only to older age demographic</li> <li>Corporate/ external ownership of land and housing</li> <li>House prices linked to broader market</li> </ul>   |
| Co-housing<br>(as currently proposed, CEVs will also be co-operatives) | <ul style="list-style-type: none"> <li>Enables shared ownership of community assets</li> <li>Encourages community connection</li> <li>Perpetual community ownership of land to maintain affordability</li> </ul>   | <ul style="list-style-type: none"> <li>Separates the ownership of land from housing</li> <li>House prices linked to broader market (resale formula sometimes linked to CPI rather than housing market to maintain affordability)</li> </ul>   |
| Co-living  | <ul style="list-style-type: none"> <li>Provides supporting infrastructure and assets, facilities, services and activities.</li> <li>All residents are renters, housing and supporting infrastructure owned entirely by one entity</li> <li>Encourages community connection</li> <li>All costs included in one bill</li> </ul>  | <ul style="list-style-type: none"> <li>Corporate/ external ownership of land and housing</li> <li>Rents linked to broader market rents</li> </ul>   |
| Build-to-Rent housing  | <ul style="list-style-type: none"> <li>Provides supporting infrastructure and assets, facilities, services and activities.</li> <li>All residents are renters, housing and supporting infrastructure owned entirely by one entity</li> </ul>   | <ul style="list-style-type: none"> <li>Corporate/ external ownership of land and housing</li> <li>Rents linked to broader market rents</li> </ul>   |
| Holiday resorts  | <ul style="list-style-type: none"> <li>Creates an attractive living environment</li> <li>Provides supporting infrastructure and assets, facilities, services and activities</li> <li>Minimises private spaces to maximise use of collective facilities</li> <li>Concierge app facilitates use of, and access to, various spaces, facilities and services.</li> </ul> | <ul style="list-style-type: none"> <li>Corporate/ external ownership of land and housing</li> <li>Rents linked to holiday accommodation market rents</li> </ul>   |

# investment & ownership by future residents

The total development cost of CEVs will vary but assume for illustrative purposes a cost of **\$60million** for a village for 200 people in Australia (2023). This equates to \$300,000.00 per person. Investment and ownership could then be calculated as follows:

## Ownership

**all land, buildings, facilities & assets will be owned, under a single title and in perpetuity, by a Community Land Trust (CLT).**

**Shares** for building society membership

**\$1,000**

Available to any person. No access rights attached.

**Membership** of CEV housing co-operative

**\$50,000 (50 shares)**

Full membership of the **cevco** co-operative. This is the minimum payment for access to live in a CEV and use the facilities and services. Provides security of tenure for permanent residents subject to payment of rent OR 2 months per year timeshare.

**Maximum share-holding per person**

**\$300,000 (300 shares)**

Same rights as for full membership. Permanent residency with no rent in relation to capital costs. Rent still required for operational costs.

## Tenure

**leasehold (build-to-rent)**

All residents will enter into a lease agreement that includes two components:

- (a) Capital costs. This may be offset entirely for residents who own 300 shares, or pro rata if fewer are owned. Minimum 50 shares required for co-op membership.
- (b) Operational costs. May be offset in part for residents who contribute to site management and maintenance. **cevco** may increase or reduce this amount as the operational income fluctuates.

# development feasibility

The shared ownership of the village means that the objective of a development feasibility assessment is to minimise life cycle costs for all future residents rather than maximise profit for investors and developers. The aim, therefore, is to minimise both the capital cost of housing as well as the cost of living.

| Indicative capital cost & share allocation   |                   |              |
|--|-------------------|--------------|
| <b>Capital cost will vary depending on the facilities the community chooses to include</b> (inc. planning & design, land acquisition, earthworks, landscaping and agricultural system, energy, water, communication systems, roads and paving, housing, restaurants, co-working spaces, theatre/ cinema/ lecture room, seminar rooms, craft and fabrication rooms, bathing and recreation facilities plus shared vehicles) | <b>A</b>          | \$60,000,000 |
| <b>Total units issued</b>  | <b>B</b>          | 60,000       |
| <b>Nominal value of co-operative shares</b>  | <b>C=A/B</b>      | \$1,000      |
| <b>Maximum residents</b>   | <b>D</b>          | 200          |
| <b>Capital cost of housing &amp; maximum share-holding (per person)</b>  | <b>E=A/D</b>      | \$300,000    |
| <b>Share-holding required for co-op membership for permanent residents (75% of population, balance of \$300K paid through rental agreement)</b>  | <b>F</b>          | \$50,000     |
| <b>Share-holding required for co-op membership for time-share residents (25% of residents, provides access for 2 months per year)</b>  | <b>G=(E/12)x2</b> | \$50,000     |

| Comparative cost of housing for Sydney, NSW   |              |             |
|---|--------------|-------------|
| <b>Capital cost of housing</b> assume median Sydney dwelling price (source: Corelogic Home Value Index (HVI) April 2023)  | <b>H</b>     | \$1,031,138 |
| <b>Average occupants per household</b> (source: Australian Bureau of Statistics. (2021). Snapshot of Australia. ABS. <a href="https://www.abs.gov.au/statistics/people/people-and-communities/snapshot-australia/latest-release">https://www.abs.gov.au/statistics/people/people-and-communities/snapshot-australia/latest-release</a> .) | <b>I</b>     | 2.5         |
| <b>Capital cost of housing per person</b>   | <b>J=H/I</b> | \$412,455   |

For residents with insufficient funds to pay their share of the capital cost, the balance may be borrowed from **cevco**. **cevco** will then aggregate all debts to obtain debt financing at the lowest possible rate for its members.



# potential income for CEV residents

Residents who work to reduce the community's costs or generate income for the community through the following activities will be paid by the community or may offset the operational component of their lease.



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## **carbon farming**

Rehabilitated bushland areas and soil improvements throughout the site can generate carbon credits.

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## **electricity feed-in-tariff**

Excess electricity fed back into the main grid.

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## **external patrons of restaurants**

Restaurants may be used as common eating areas for residents but should be designed and located to serve the broader community.

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## **retail sale of excess produce**

On site work opportunities include value-adding and preserving of agricultural produce.

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## **ecotourism**

Allocate a portion of the residential capacity to potential guests.

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## **conferences, seminars & training**

Partnership arrangements may be formed with education providers at all levels, offering research, education and training in regenerative development.

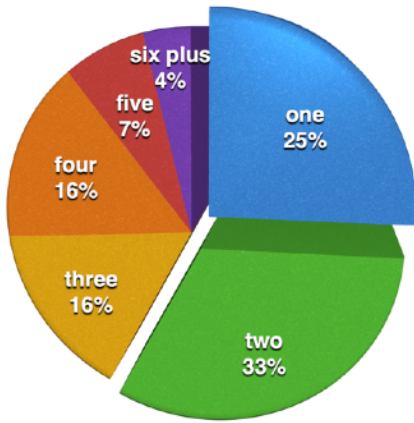
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## **converting waste to resources**

Service agreements with the local Council could offset waste levies as waste is being managed on site. Create business opportunities in making products from plastic, glass, paper and other waste.

# market analysis & target demographics

**cevco** will target all of the following demographics.



Occupants per dwelling in NSW  
(2021 census ABS)

## One- and two-person households

For one- and two-person households the capital cost of housing is significantly lower than in the broader market, particularly in the capital cities. This provides a significant potential demand based on purely economic considerations.

## Local essential workers

**cevco** commits to a target of 50% of the residents of any CEV to be local essential workers who either:

- assist in the management of the CEV itself, or
- Provide essential services to the surrounding local community.

## digital nomads, grey nomads, van-lifers and e-changers

The internet allows us to stay connected while we are travelling. This has encouraged more people to enjoy a nomadic lifestyle. Grey nomads are travelling from an earlier age. Digital nomads may have no fixed address but choose a place to work for a while before moving on to experience a new place. Van-lifers are minimalists who wish to be free to travel and explore, while e-changers are leaving the cities to work remotely from attractive rural locations.

The flexible investment and ownership structure of the Network of CEVs allows these groups to relocate easily or travel and explore, while retaining a postal address and connection to place.

## resilience in an uncertain future

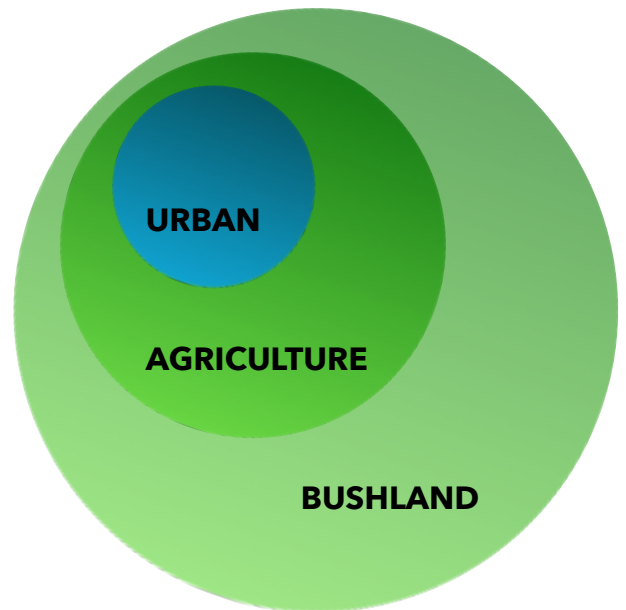
CEVs supports people who wish to contribute positively to global issues like climate change, land degradation and resource depletion, allowing them to live more sustainably and have a positive impact on the land. The CEV is also a safe place in a global pandemic, while in a bushfire, buildings are surrounded by a managed, water-charged, bushfire buffer.

## retirement village 2.0

The retirement industry is changing as people demand more natural rather than clinical environments. Many also prefer to maintain connections with younger people and continue contributing to society. CEVs accommodate a broad age demographic and numerous outdoor activities, allowing our elders to age in place and continue to live a healthy, active and purposeful life.

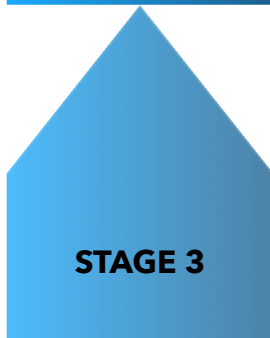
# development staging

The CEV development process prioritises housing for farm workers and land managers in the early stages, supporting them as they improve the land and ecosystems, which will then sustain the rest of the community.



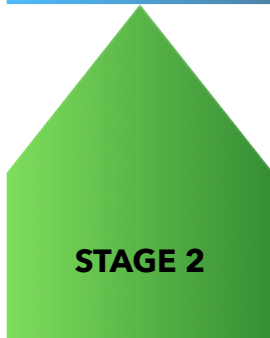
## Operation

Post-construction operation at full capacity  
(all capital works complete)



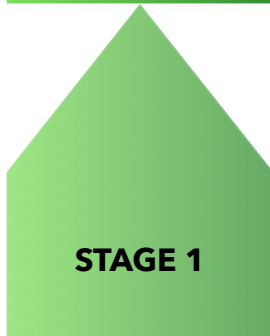
## Construction of all works in urban precinct.

Generate income from land management and energy works, including food sales, carbon farming and electricity feed in tariffs.



## Construction of all works in rural precinct.

Bulk earthworks, bush regeneration, landscaping and establishment of agricultural system, construction of water and energy infrastructure and housing for farm workers. (Works permissible in rural zone). Complete land rezoning process, including community engagement and marketing to future residents.



## Land acquisition, concept planning and design.

Obtain development approvals for agriculture, land management, associated infrastructure and housing for farm workers (as much as is permitted in rural zone). Apply to rezone land for live and work hub.

# financial roadmap

As a new approach to land development, CEVs will require government support at the early stages. This includes planning policy amendments by State Government and grant funding from the Commonwealth. Some complementary philanthropic funding may also be obtained to enable the development of the pilot project. This will provide confidence to investors and future residents that the project objectives (p.2) can be achieved in future CEV developments.

We are confident that subsequent CEV projects will then be self-funded by future residents.

