



## SOCIAL INFRA VENTURES

INSTRUMENT ANALYSIS  
SEPTEMBER 2023



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# Social Infra Ventures

LAB INSTRUMENT ANALYSIS

September 2023

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## DESCRIPTION & GOAL

Social Infra Ventures (SIV) develops and finances green, gender-responsive, affordable housing in secondary cities in Morocco. It follows an inclusive process to design and develop its communities, providing units for both sale and rent to address credit and financing challenges faced by women and low- and middle-income families and individuals. SIV will pursue listing its rental portfolio on the capital market to fund future phases.

## SECTORS

Sustainable cities, Urban infrastructure, Buildings, Climate resilience, Gender

## FINANCE TARGET

- Concessional debt from DFIs and climate funds for mezzanine and rental facility
- Construction and mortgage financing from local commercial banks
- Equity investment from proponent, local, and international investors
- Exit strategy through capital market listing or strategic sale

## GEOGRAPHY

For pilot phase: Morocco

In the future: West, then Northern Africa, and East Africa

The Lab identifies, develops, and launches sustainable finance instruments that can drive billions to a low-carbon economy. The 2023 Lab cycle targets two thematic areas (gender and adaptation), three geographic regions (Brazil, India, and East & Southern Africa), and one global open slot.

## AUTHORS AND ACKNOWLEDGEMENTS

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## SUMMARY

Africa has the fastest-growing population on earth, and African cities face rapid urbanization, which requires massive investment in affordable housing. It is essential for new housing developments to be built with high-quality materials and be resilient to the climate stressors facing the region, as well as designed around the needs of underserved populations, and in particular, women. Despite this, the mortgage market is nascent across low-middle income groups, particularly for women, and access to green finance for developers remains limited.

**Social Infra Ventures** (SIV) aims to develop green, affordable housing in secondary cities in Morocco using a gender-responsive approach throughout the community planning, design, and financing processes. Using a combination of international and local debt and equity capital to fund the pilot phase, the instrument aims to list its rental platform via a Real Estate Investment Trust (REIT) on the Moroccan capital market, using the proceeds to fund future phases and reach scale.

- **Innovative:** The instrument is the first in Northern Africa seeking to list on the capital market, and the first to mainstream gender considerations in housing design, operations, monitoring and evaluation.
- **Financially Sustainable:** SIV will exit its rental portfolio through either a strategic sale or public listing of the REIT, using sales proceeds to fund future phases.
- **Catalytic:** Once proven in Morocco, the green, gender-responsive model can be deployed in Northern African countries (and beyond).
- **Actionable:** The proponent is an experienced affordable housing developer and has made significant progress on pilot funding, with an anticipated launch in late 2023 or early 2024.

The **next steps** are to finalize fundraising and complete its first pilot in Northern Morocco for proof of concept.

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## CONTEXT

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*Building and expanding access to affordable, green, and gender-responsive housing is necessary to meet rising demand, reduce climate risk, and create safe living conditions.*

More than half of global population growth between now and 2050 is expected to occur in the African continent, much of which will be concentrated in so-called secondary cities with up to one million inhabitants (UN, 2022; UN-Habitat, 2022). The supply of affordable housing has failed to keep up with this demand, meaning that informal, sub-standard housing is the only option for many low-middle income households. On the demand side, the mortgage penetration rate across the continent is low, creating informal rental markets that lead to insecure tenure.

Living in substandard housing multiplies the climate risk exposure of already vulnerable low-middle income households. Developments are often built in hazardous locations and fail to address the rising heat and water stress facing the region (UN Habitat, 2022). What's more, gender-specific experiences, needs, and concerns are rarely acknowledged in the development of affordable housing projects, despite the strong intersection between gender-based violence and harassment (GBVH), poverty, and lack of housing for women (Sobantu, 2020). This often results in missed economic opportunities for women, concerns over GBVH, and security, overall.

Africa's rising population and persistent housing gap for the most vulnerable calls for a new model for affordable housing in secondary cities, with the following characteristics:

- **Climate-resilient and green:** Green building certifications such as IFC EDGE, and tools that include the Building Resilience Index will support design and construction practices that reduce embodied energy and increase energy efficiency, while reducing exposure to climate risk and household energy expenditures. Green affordable housing also represents an estimated global investment opportunity of USD 15.7 trillion, with USD 1.1 trillion concentrated in the Middle East and North Africa and USD 758 billion in Sub-Saharan Africa (IFC, 2019).
- **Gender-responsive:** Developments close to city centers can reduce exposure to GBVH and provide greater access for women to economic opportunities. The active involvement of beneficiary women and men in determining housing project design and type of community infrastructure is crucial (e.g., childcare facilities, access to women and child-friendly transport, green lighting, and waste management systems).
- **Rental offering:** Underdeveloped mortgage markets and the prevalence of the informal rental market make providing institutional rental and sale options critical for catering to low-middle income populations, particularly for women and other vulnerable groups who may have less disposable income and experience lower access to finance.

**Social Infra Ventures Africa** ("SIV") is a housing company set up by incubator and sponsor Cardano Development ("CD") and the former senior management team of Mixta Africa, a real estate developer founded in 2005 that focuses on building sustainable communities across Africa. SIV is launching a climate-resilient, green, and gender-responsive affordable housing platform that provides both sale and rent options in secondary cities. It will be piloted in secondary cities across Morocco.

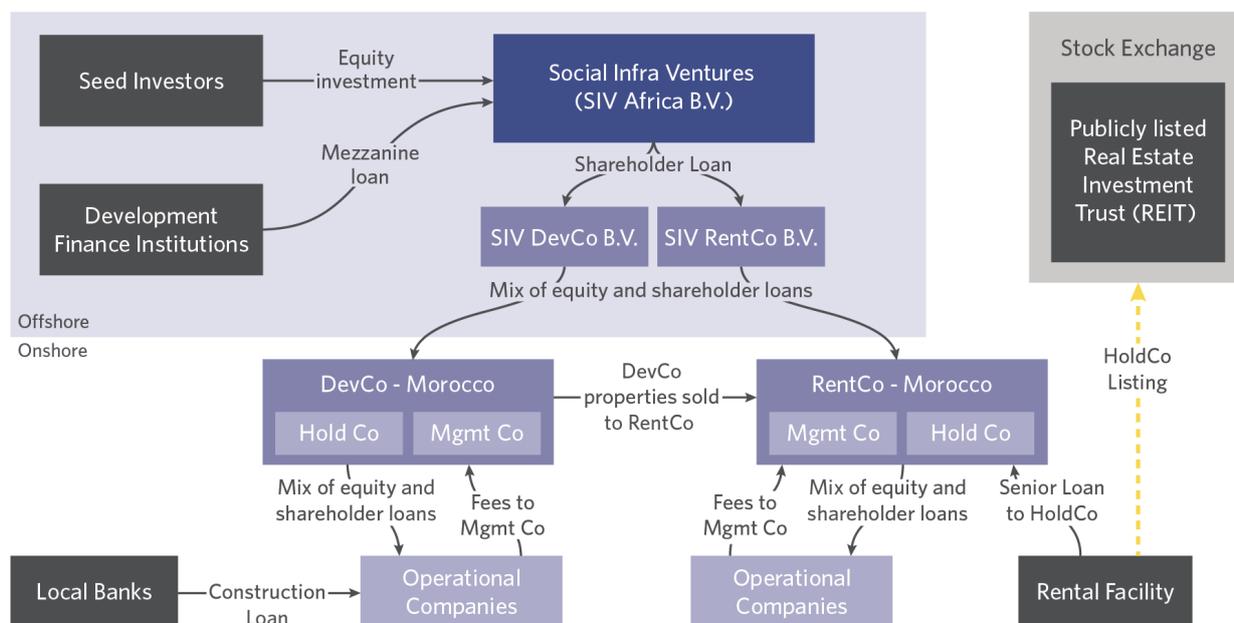
# CONCEPT

## 1. INSTRUMENT MECHANICS

Local and international capital will fund development and rental platforms to offer green, gender-responsive, affordable housing for Morocco. Public listing of the rental platform via a Real Estate Investment Trust (REIT) is intended to fund subsequent phases.

The overall goal of the instrument is to establish a self-funding vehicle to attract retail and institutional investment into the affordable housing market—particularly the rental space—through listing on the capital market, most likely in the form of a REIT. The instrument structure provides flexibility for seed investors while mitigating currency risk, and allowing for alternative financing strategies if market conditions are not optimal for a REIT listing.

**Figure 1. Instrument Mechanics**



### Step-by-step mechanics

Figure 1 depicts the structure of the instrument. Starting in the upper left corner, the graphic shows the instrument receiving its initial capitalization via equity investments from the proponents and other international investors (Seed Investors), and mezzanine debt finance from development finance institutions (DFIs) and climate funds. This funding will go into the offshore, Netherlands-based vehicle, SIV Africa BV.

This seed funding will then flow through to offshore structures for both the development and rental platforms via shareholder loans. These funds will then flow through to the onshore (Moroccan) “DevCo” and “RentCo” vehicles to carry out the asset development and management activities. The DevCo will develop the housing stock, some of which will be sold via arm's length transactions to the RentCo.

For the DevCo, local banks will provide construction finance directly to the housing developments — shown here as “Operating Companies” — which will be repaid through sales of the units. For the RentCo, a loan facility will enable the purchase, refurbishment, and management of rental properties in the portfolio. This will be funded by either DFIs (with a foreign currency hedge) or local banks, and repaid initially through rental payments.

Ultimately, the goal would be for the RentCo to package its asset portfolio into a REIT for listing on the Moroccan stock exchange. The capital raised from the listing will be used to fund the next phase of development.

## Key Stakeholders

The SIV instrument involves both the development and financing of affordable housing communities. The successful implementation of this approach involves numerous stakeholders to inform, support, and benefit from well-planned and developed housing units. Some of the key stakeholders are described below.

- **Seed investors:** Led by Cardano Development, these investors will provide the seed capital for SIV Africa BV. SIV is seeking further equity investment from local (Moroccan/North African) investors, private equity, and infrastructure funds.
- **DFIs and International funders:** SIV is actively engaged with several DFIs to provide mezzanine capital, and other concessional capital options (including a first loss/guarantee facility for the rental facility and/or REIT) as needed.
- **Local banks:** SIV is working with local banks to arrange construction and mortgage financing facilities. It is also working with Attijariwafa Bank, an accredited entity of the Green Climate Fund (GCF) to support the mezzanine financing at the parent level.
- **Local investors:** SIV has been in discussions with local equity investors with experience in real estate investing (including REITs) in the country and throughout Northern Africa to gauge early interest, identify investment barriers and risks, and eventually secure local equity funding.
- **Local communities:** Communities are at the center of the SIV developments. Prior to and throughout the development process, SIV will have consultations with local communities to determine their needs in terms of housing, safety, budget, and finance. SIV will endeavor to design and develop its housing units around the needs surfaced through these consultations, and to orient its pricing and mortgage and rental products around the credit circumstances of its future residents.
- **Local governments:** SIV will work with local officials in secondary Moroccan cities to identify, purchase, and permit housing developments. In addition, local government officials will be included in the planning process.
- **National government ministries:** The national government sets housing policies and pricing thresholds for affordability, as well as national climate targets and gender policies.

The geographic focus for SIV is Morocco, with eventual expansion into West Africa (Senegal and Cote d'Ivoire), followed by Northern Africa (Tunisia and Egypt), then East Africa (Kenya and Ethiopia).

## Policy regime and market conditions

*Housing policy*

Morocco has a firm commitment to facilitating access to affordable housing for all of its citizens and enacted a policy to this effect in 2004. Initially, policies were targeted at developers and encouraged the development of very large social housing complexes, which led to the creation of large developments on the outskirts of the biggest cities that had low rates of occupancy, as they were not located in areas where potential residents lived.

In recent years (2021-2023), the government has relaxed the minimum housing unit size and tax breaks and other incentives for prospective homeowners have been announced. These changes have enabled the development of smaller housing complexes in the heart of cities (particularly secondary cities) and given greater choice and mobility to homeowners to access housing closer to where they currently live and work.

### Financial markets

Morocco has a robust local banking system with a strong track record in both construction and mortgage finance. The government has created a credit bureau and is looking at other policies to increase the mortgage penetration rate in the country.

The stock exchange in Morocco is the third largest in Africa, and its main index (MASI) has 76 listed companies with a total value of EUR 63 billion (54% of GDP). Through 2021, 21 commercial REITs had been listed. No residential REITs have been listed to date.

## 1.1 THEORY OF CHANGE

SIV's focus on pioneering the development of rental and for-sale affordable housing that is green, climate-resilient, and gender-responsive provides a first-of-its-kind approach to fill the gap for the high demand for housing in secondary cities, while simultaneously creating inclusive and safe communities. Figure 2 describes SIV's theory of change, beyond the Moroccan market.

**Figure 2. SIV Theory of Change**

<b>GOAL</b>	<b>CREATION OF AFFORDABLE, GENDER-RESPONSIVE AND GREEN COMMUNITY-CENTRED HOUSING OPTIONS</b> Inclusive, green, and safe communities will be created by providing gender-responsive and climate-sensitive rental and ownership housing options while creating social infrastructure facilities.				
<b>IMPACT</b>	<b>DEVELOPMENT OF AN AFFORDABLE, GREEN AND GENDER-RESPONSIVE HOUSING PLATFORM</b> Development of an affordable rental and for-sale housing options in well-located areas which have green, climate-resilient, and gender-responsive features.		<b>DEVELOPMENT OF INCLUSIVE AND SAFE COMMUNITIES NEAR ECONOMIC HUBS IN SECONDARY CITIES</b> Creation of burgeoning, diverse, and empowered communities with access to social infrastructure economic opportunities, especially for women, youth, and children.		
<b>OUTCOMES</b>	<b>Mobilization of local currency funding at scale</b> from pension funds and insurance companies.	<b>Greater access to safe and affordable housing</b> , particularly for women, youth, and children.	<b>Improved access to economic opportunities and social services</b> within or close to city center.	<b>Innovative green and gender-responsive home designs</b> integrated into development of all buildings.	<b>Institutionalized rental providing secure tenure</b> , especially for women, youth, and children.
<b>OUTPUTS</b>	<b>Listing of a residential REIT facilitating local investment</b> into institutional rentals.	<b>Awareness raising</b> around benefits of green buildings and gender-inclusive designs.	<b>Range of housing typologies</b> catering to different household needs.	<b>Development of social infrastructure facilities</b> such as parks and childcare centers.	<b>IFC EDGE standard and Building Resilience Index (BRI)</b> incorporated in all developments.
<b>ACTIVITIES</b>	<b>Engagement with local banks, administration, and stakeholders</b> to understand barriers, address bankability and secure construction finance.	<b>Construction of green, affordable, climate resilient and gender-responsive housing</b> in suitable locations in secondary cities.	<b>Engagement with local communities</b> to identify needs, particularly for women, youth, and children.	<b>Undertake housing market studies</b> to gain a better understanding of rental housing demand and community needs, especially for women, youth, and children.	

## 2. INNOVATION

*SIV offers a first-of-its-kind rental and for-sale gender-responsive affordable housing platform in Northern Africa.*

### 2.1 BARRIERS ADDRESSED: SUPPLY AND DEMAND BARRIERS FOR GREEN, GENDER-RESPONSIVE AFFORDABLE HOUSING

The market for green, climate-resilient, and gender-responsive affordable housing in Morocco is constrained by a lack of finance, limited consumer and lender knowledge, and limited access to mortgage and other types of credit financing for low-income families, women, and other vulnerable groups. As a result, low-income populations lack the adequate support to engage in the formal purchase and rental market, leading to them residing in slums, informal settlements, or substandard housing.

A new lower-cost housing model that is both affordable and inclusive, while also being green and climate-resilient, is necessary to address current housing challenges in Morocco. Table 1 summarizes these, and other barriers currently constraining access to affordable housing, as well as how SIV will overcome each barrier.

**Table 1. Barriers Addressed**

Barrier	Description	Strategy
<b>Housing Supply Barriers</b>		
<b>Low appetite for green housing from local financial institutions</b>	Risk perception of green buildings is associated with newer technologies and materials, higher initial investment, and limited track record. Local financial institutions in Morocco currently do not have preferential products for green construction finance. The green premium is estimated to be approximately 10%.	SIV is engaging with financial institutions to raise awareness around the benefits of green, climate sensitive housing, while further reducing the credit risk born by the banks by deploying a partial credit guarantee from a DFI and a climate fund. SIV is also using the EDGE tool to show the potential savings and therefore increased ability of owners and renters to pay as a result.
<b>Low availability and high cost of land</b>	Prices and availability of residential land vary according to location, with well-located land in primary cities being unaffordable. <sup>1</sup>	SIV will focus on secondary cities where cost of land is cheaper, and it will be feasible to develop buildings that are centrally located.
<b>Housing Demand Barriers</b>		

<sup>1</sup> Price per m2 for the purchase of an apartment in Casablanca is USD 994.

<b>Limited mortgage penetration rate</b>	While the mortgage system is well-developed, the penetration rate is comparatively low at 2% (SIV, 2022). Moreover, rising interest rates make access to mortgage loans challenging, especial for low- and middle-income households.	SIV will develop housing for sale that qualifies for Morocco's social housing programs, including the FOGARIM program <sup>2</sup> , while further providing institutional rental as an alternative to sale.
<b>Women have less disposable income, lower access to credit, and limited access to tenure</b>	Women in Morocco earn less than men and have unequal access to financial services, with a gender gap of 25 percentage points (World Bank). The restrictive social norms and existing discriminatory legal practices and regulatory barriers to asset ownership further impede access to housing (WBL, 2022)	SIV will provide options for both rental and ownership, with housing typologies and pricing tailored to women needs. Furthermore, it will explore partnerships with government assistance programmes and local financial institutions to increase accessibility of women to housing.
<b>Lack of familiarity with green and gender-responsive buildings</b>	Due to limited availability, customers may not be familiar with the benefits of green housing, which are traditionally associated with higher upfront costs but significant utility savings. Housing planning and design have historically ignored gender-specific experiences, needs and concerns.	SIV will engage in awareness raising around green, climate-resilient and gender-responsive buildings, explaining the benefits also from a cost-saving perspective.

## 2.2 INNOVATION: THE FIRST INSTRUMENT TO INTEGRATE RENTAL, CAPITAL MARKETS, CLIMATE, AND GENDER APPROACHES

SIV's core innovation lies in integrating four key factors: capital markets, rental and for sale housing units, gender considerations, and climate-proofing. It is the first developer to encompass all four components within Northern Africa.

First, by providing options for rental, SIV is helping institutionalize the largely informal rental market that exists in Morocco and other Northern African countries. SIV commissioned the first rental study of Morocco to the Affordable Housing Institute (AHI), which found a significant demand for formal, better-value rental accommodations.

Second, SIV intends to sell its rental portfolio through either a strategic sale or a listing on the Moroccan stock exchange as a REIT, and to use these proceeds to fund future phases. This

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<sup>2</sup> FOGARIM is the Moroccan government housing loan guarantee program for the benefit of populations with low income or non-regular incomes that started in 2003. It is administered by the Caisse Centrale de Garantie (CCG), a Moroccan Government agency, which guarantees 70% of FOGARIM loans to banks that are part of the program.

will create a self-sustaining housing finance ecosystem in the long term and institutionalize green and gender-responsive housing as a new asset class.

Finally, while there are other green housing programs of this sort in the region, SIV is the first to mainstream gender into its program cycle. Specifically, it seeks to contribute to gender equity and women's economic empowerment, and identify, acknowledge, and address the needs of women and men in the design, implementation, and monitoring and evaluation of its projects.

SIV's gender strategy is focused on three key areas shown in Figure 3, informed by a [rapid gender analysis](#) conducted for Morocco (see analysis key takeaways in Annex I):

**Figure 3. SIV gender strategy**



Source: Climate4Action LLC

1. **Gender-mainstreamed governance and operations**: SIV's commitment to gender equity will be institutionalized at the level of SIV and its subsidiary companies through a Gender Policy and Gender Action Plan (GAP). GAP will establish gender-responsive mechanisms and processes across its operations (e.g., HR, procurement, monitoring & evaluation, customer service) and set gender-responsive metrics and targets (see also section 5.3). Furthermore, SIV shall deploy dedicated gender expertise and allocate annual financial resources to implement its Gender Policy and GAP.
2. **Increased supply of green, climate-resilient, and gender-responsive housing**:
  - o SIV will ensure that all housing projects will be informed by a gender-inclusive stakeholder consultation process to determine the project design and type of facilities and services to be offered. This is based on the gender analysis finding that women are traditionally left out of housing community consultations (see Annex I).
  - o Each housing development will carry out a gender analysis to understand local context, barriers, and opportunities for mainstreaming gender at the project level. For example, literature (Espinoza Trujano & Levesque, 2022) and the gender analysis revealed that in Morocco, a lack of care

- infrastructure prevents women from realizing their full economic potential, so these will be prioritized by SIV.
- By being close to city centers and economic and industrial hubs, SIV's buildings can contribute to the economic empowerment of both women and men in Morocco.<sup>3</sup>

3. **Increased access to green, climate-resilient, and gender-responsive housing:** SIV is committed to overcoming the access barriers identified in the gender analysis (e.g., access to banking products and mortgage finance, limited tenure security, level of literacy, disposable income – see Annex I for more details) by providing products and services that specifically benefit women.
- SIV will offer housing typologies (ownership and rental options) and pricing tailored to different income groups taking into consideration factors such as but not limited to women's disposable income.
  - SIV will explore partnerships with government assistance programs and local financial institutions to increase access to affordable housing for vulnerable women (e.g., New Social Law providing subsidized mortgages to eligible divorced women<sup>4</sup> and the FOGARIM program described above).
  - SIV's service teams on the ground will be specifically trained to provide gender-responsive customer service taking into consideration social and cultural gender sensitivities such as higher illiteracy rate among women.
  - To address tenure security challenges, SIV will encourage the inclusion of women as owners and/or co-owners in mortgage and lease contracts through gender-responsive communication strategies and awareness-raising campaigns directed toward potential customers.

## 2.3 CHALLENGES TO INSTRUMENT SUCCESS

The table below presents a summary of the challenges to the effective implementation of SIV, with corresponding strategies to mitigate risks.

**Table 2. Implementation Challenges and Mitigation Strategies**

Challenge	Management Strategy
<b>Credit risk:</b> ability of renters to pay rent.	Pursue concessional financing to mitigate risk and include sufficient contingency in project economics to allow for higher defaults and delinquencies.
<b>Demand risk:</b> targeting the right population with the right offerings, especially given the green premium and high-interest rates.	SIV has commissioned a study to AHL, which will inform the price points of its sale and rental offerings. To cater to different low-middle income segments, SIV will develop different housing typologies and pricing.

<sup>3</sup> As an example, the Morocco gender analysis revealed that access to transportation for urban households is low, requiring households to spend a significant portion of their monthly expenses on transportation. Hence, SIV's market positioning to make buildings close to city centers has a strong potential to contribute to the economic empowerment of both women and men in Morocco and other African countries targeted by SIV.

<sup>4</sup> The recent announcement of the New Social Law (Logement Sociaux) due to be implemented by the end of 2023, plans to offer a pathway to homeownership for divorced women. This indicates that there is support for influencing these norms at the national level.

Challenge	Management Strategy
<p><b>Gender mainstreaming risk:</b> Restrictive social norms, regulatory practices and labour/entrepreneurship market characteristics in each targeted country may challenge SIV to implement its gender strategy.</p>	<p>SIV will perform local gender analyses and develop forward-looking project specific gender action plans to address persisting gaps, that may prevent SIV realize its gender mainstreaming strategy in targeted countries.</p>
<p><b>Event risk:</b> inability to list REIT because of capital market conditions.</p>	<p>Pursue a strategic sale to a local or international investor, sell individual units, delay REIT listing (or sale) until conditions improve.</p>
<p><b>Technical &amp; operational risk:</b> development, construction, and sale /renting out of units takes longer or is achieved at a higher cost or lower revenues than budgeted.</p>	<p>Prior track record and experience of the management team, business plan includes buffers for delays and cost overruns, and SIV is looking to onboard a strategic investor and consultants to assist us on the rental platform.</p>
<p><b>Regulatory risk:</b> sector-specific or climate-specific policies and/or regulations will negatively impact SIV's viability or performance.</p>	<p>Morocco is strongly committed to its housing for all policy, with a new social housing program currently underway and it has very ambitious national climate plans.</p>
<p><b>Foreign exchange risk:</b> financing (i.e., mezzanine tranche) is denominated in EUR, whereas SIV's revenues are denominated in Dirhams exposing SIV to currency risk.</p>	<p>Morocco introduced a floating exchange rate regime in 2018, whereby the currency is allowed to trade in a band of 3.5% against a basket made up of the Euro and USD. SIV is also working to obtain local currency finance for the mezzanine tranche.</p>
<p><b>Rental pricing risk:</b> After the rental portfolio is sold, there is a risk that the new owners could raise rental prices and displace tenants in order to maximize profit.</p>	<p>Moroccan law stipulates that rental prices can increase by a maximum of 8% every 3 years, which offers protection for renters. SIV has also carried out extensive market and pricing research to ensure their housing units fall within a pricing band so there is a natural cutoff for renters seeking more luxury amenities.</p> <p>In addition, SIV will market the social and green aspects of the portfolio as key aspects, and will retain an ownership stake, maintaining a voice in the management of the portfolio.</p>

# MARKET TEST AND BEYOND

## 3. IMPLEMENTATION PATHWAY AND REPLICATION

Following a pilot, expansion, and scaling up of the rental platform in Morocco, SIV aims to expand to markets in West, Northern, and East Africa.

**Table 3. Target geographies by phase**

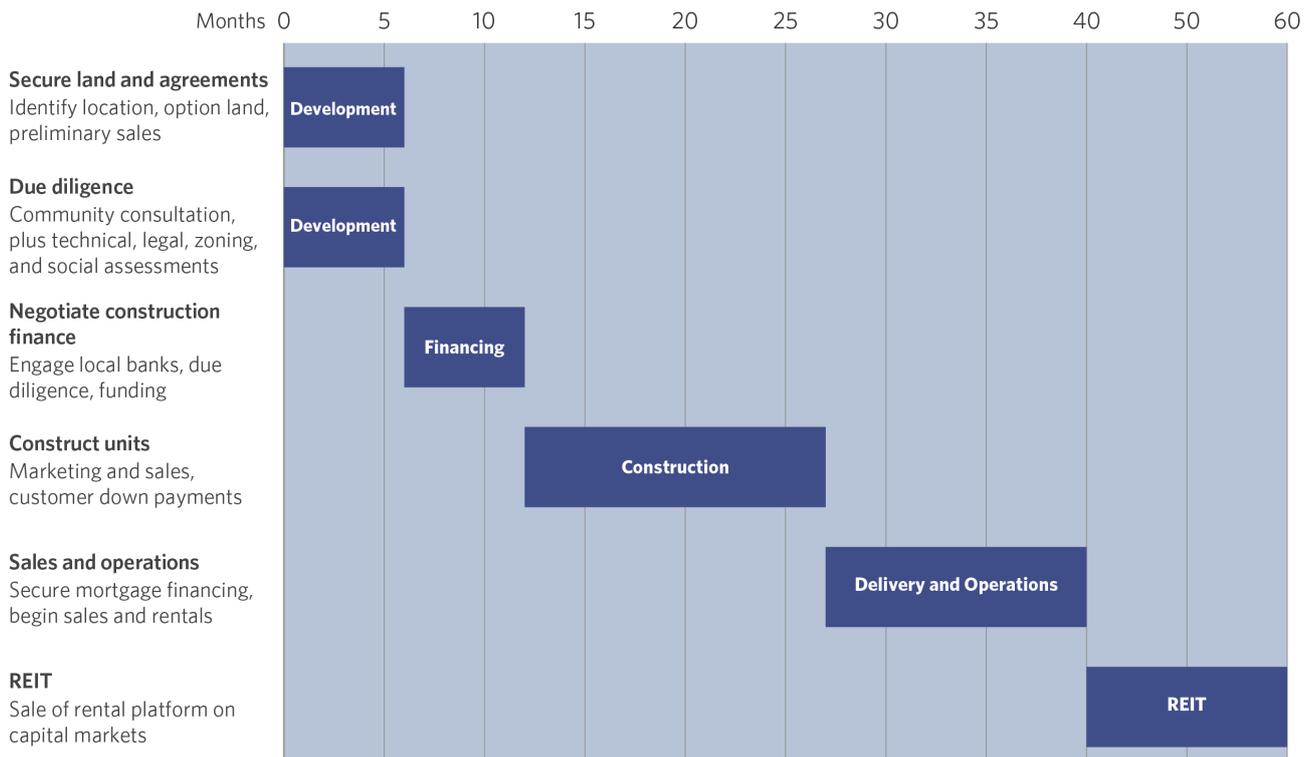
Pilot & Phase 1	Phase 2	Phase 3	Phase 4
Morocco (secondary cities)	West Africa	Northern Africa	East Africa
Agadir, Asilah, Ben Guerir, Chefchaouen, El Jadida, Fez, Kenitra, Larache, Meknes, Nador, Safi, Salé, Tamesna, Tangier, Taza, Tétouan	Senegal	Tunisia	Kenya
	Cote d'Ivoire	Egypt	Ethiopia

SIV will focus on secondary cities in Morocco to pilot its green, gender-responsive housing developments, as well as the REIT listing and self-funding concept for expansion. It selected Morocco based on a number of key factors:

- **Proponent experience and competitive positioning:** SIV proponents have previously developed nearly 5,000 affordable housing units in secondary cities in Morocco.
- **Political and economic stability:** Morocco is a constitutional monarchy, with a commitment to economic stability—despite high indebtedness—through a fixed currency regime and favorable investment policies to encourage foreign direct investment.
- **Policy and regulatory environment:** Morocco is committed to facilitating access to affordable housing for its citizens. It also has made strong climate commitments in its Nationally Determined Contribution and is supportive of policies aiming at gender equality and access to social housing.
- **Financial and capital market development:** Morocco's mortgage and construction finance market is mature, and the country has a strong track record for listing commercial REITs.
- **Demand for affordable housing:** Rapid urbanization has led to a shortfall of approximately 400,000 affordable housing units in the country (CAHF, 2022), much of which is expected to be concentrated in secondary cities where the population is rising rapidly.

SIV not only finances housing but is also the developer. As such, the timeline to scale is somewhat longer than a traditional financial instrument. The timeline in Figure 4 provides greater detail on the key steps from securing land for development to listing the REIT.

**Figure 4. Implementation Timeline**



In the first six months, SIV will take steps to identify, analyze, and secure the land leases. Also during this time, SIV will begin community consultations, which will last throughout the development, financing, and construction phases.

After securing the land, SIV will work with local investors to secure the construction, mortgage, and rental facility finance. This process should be concluded within twelve months of the commencement of the project, after which construction will begin.

Construction of 250 housing units is expected to take 15 months. In addition to constructing the units, at this time, SIV will market the units, securing downpayments on units for sale, carrying out credit checks, and finalizing mortgage financing for buyers.

Upon delivery of the units, SIV will repay the construction facility via refinancing from the mortgage facility, selling reserved units to the rental platform through an arm's length transaction. After an operations period of 12-18 months, SIV will package these units for a strategic sale or listing through a REIT on the capital market. The proceeds from this sale will be used to fund future phases.

## 4. FINANCIAL IMPACT AND SUSTAINABILITY

### 4.1 QUANTITATIVE MODELING

The Lab Secretariat audited the fund and project-level models prepared by SIV to confirm they were functioning properly. A deeper analysis was performed on the project-level model for the upcoming pilot project in Morocco. This project is expected to be a EUR 6.7 million, 250-unit pilot project that will launch within the next several months. The Lab Secretariat took the base case from SIV's projections on this pilot and carried out an analysis of the most

critical variables to identify which had the most significant impact on project economics. This base case is presented in Table 4.

**Table 4. Base case for financial analysis**

Variable	Base Case	Notes
CAPEX	EUR 6,6 mn	For 250 units
OPEX	10%	Of rental income
Sales Price	EUR 32,110	Reflects Moroccan affordable housing price + VAT
Rental Price	EUR 193	Per month; average rate for units
Interest Rate	8%	Blended rate of all facilities
<b>IRR</b>		<b>20%</b>

The Secretariat then carried out an analysis of these key variables, increasing and decreasing each by 10% and 20% to understand which variables had the most significant impact on project returns. The chart in Figure 5 shows these results, with the left side showing what a 10% and 20% negative impact on the variable would do to the return, and the right side showing the impact of a positive change to the variable.<sup>5</sup>

**Figure 5. Impact of key variables on investor return**



Based on this analysis, the project returns are most sensitive to changes in capital expenditures (CAPEX) and sales prices. In terms of CAPEX, SIV has developed its budget based on its decade plus experience in affordable housing in Morocco, and also included a 10% contingency to allow for inflation-related increases. The sales price is based on the Moroccan affordable housing policy, so unlikely to change. If necessary, SIV could sell some units above this price to middle-income families, though this would only be done if absolutely necessary.

<sup>5</sup> In most cases, a “positive” change means a decrease in the variable (lower costs, interest rates, etc.). For Sales price, the maximum decrease in price was 17% because that is the margin between sales price and cost. For OPEX, the upside (right side) change reflects a 0% operation cost, which is not realistic, but was included to show the potential upside.

**Stakeholder interview insight:** In discussion with practitioners in the space, the Lab learned that COVID-19 showed the need for affordable, resilient housing, and funds have started flowing to this space. In fact, the COVID-19 crisis demonstrated that the rental model is actually very low risk, as default rates barely increased, as people prioritized housing over other payments even in times of extreme financial hardship.

## 4.2 PRIVATE FINANCE MOBILIZATION AND REPLICATION POTENTIAL

As mentioned above, SIV is developing a pilot project in Morocco with funding from the project sponsors and Cardano Development. This EUR 6.7 million, 250-unit project will develop units that will be warehoused in the larger EUR 60 million facility, which represents the first phase. During this first full phase, SIV estimates scaling to 3,000 units, when it will pursue a strategic sale of its rental portfolio of list is as a REIT and begin funding subsequent phases. To complete this full phase, SIV estimates a 3–4-year development period from land acquisition to the listing of the REIT on the Moroccan capital market.

After completion of the first phase and sale of the rental portfolio, SIV would look to scale up in Morocco while expanding into West, Northern, and East Africa. An early analysis of these markets against SIV's selection criteria indicates that the most likely markets will be Senegal and Cote d'Ivoire, followed by Tunisia and Egypt. SIV anticipates building 22,000 units in Morocco within 10 years. It would seek to develop at a similar scale in subsequent markets.

SIV intends to fund these additional phases by recycling the proceeds from the sale of the rental portfolio and does not anticipate additional capital raises beyond the original EUR 60 million equity and mezzanine funding raised. The present base case model does not anticipate any first loss or guarantee facilities; however, if this becomes necessary for the first phase, SIV would aim to phase this out in subsequent phases as the REIT model is proven in the market.

The total capital leveraged through the Moroccan strategy is estimated at just under EUR 500 million, primarily in local debt and equity for the development and rental facilities. With expansion to Tunisia and Egypt at a similar scale, total capital mobilized would be on the order of EUR 1.5 billion, with nearly 70,000 green, gender-responsive affordable housing units developed.

## 5. ENVIRONMENTAL AND SOCIOECONOMIC IMPACT

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*Social Infra Ventures brings about a paradigm shift in affordable housing development towards a climate-resilient, low-emission, and gender-responsive pathway.*

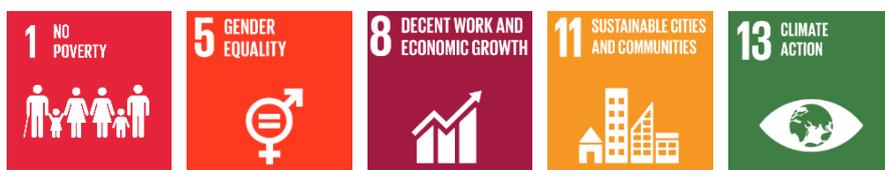
By developing high-quality building units that are centrally located and rooted in social infrastructure development, SIV is expected to have wide social and economic impacts. In Morocco, throughout its 10-year business plan, SIV is estimated to house about **104,000 people across 22,000 green and climate-resilient units** (see Annex II for calculations). At the

end of the 10-year period, the share of units for rent as opposed to sale is estimated to be 25%. Below are initial impact indicators to be utilized, all of which will be collected in a **sex-disaggregated** way and section 5.3 describes additional gender-specific indicators.

**Table 5. Overall impact indicators**

Impact area	Possible indicators
Development of housing stock and rental market development	<ul style="list-style-type: none"> <li>• Number of units developed</li> <li>• Share of units rented</li> </ul>
People housed	<ul style="list-style-type: none"> <li>• Number of people housed, including number of children</li> <li>• Share of people renting</li> </ul>
Housing affordability	<ul style="list-style-type: none"> <li>• Number of housing units provided at determined housing price-to-income of target customers, for sale and rental<sup>6</sup></li> </ul>
Jobs creation <sup>7</sup>	<ul style="list-style-type: none"> <li>• Number of direct jobs created</li> <li>• Number of indirect jobs created</li> </ul>
Climate mitigation and adaptation	<ul style="list-style-type: none"> <li>• Number of EDGE-certified units</li> <li>• Estimated carbon emissions prevented from operations</li> <li>• Average energy and water consumption per square unit</li> </ul>
Savings from central location and green, climate-resilient housing	<ul style="list-style-type: none"> <li>• Estimated resident commuting time savings</li> <li>• Estimated resident utility savings per year</li> </ul>
Social infrastructure	<ul style="list-style-type: none"> <li>• Number of people benefitting from social infrastructure and services (e.g. parks), including children</li> <li>• Number of people provided with access to childcare services</li> </ul>

By developing gender-responsive and climate-resilient affordable housing in Morocco, SIV will go beyond meeting the rising housing demand in urban areas, contributing to several Sustainable Development Goals (SDGs):



<sup>6</sup> This metric is market-dependent and currently being determined based on the findings from the study commissioned to AHI. It is also likely to vary by city.

<sup>7</sup> Note that this includes in SIV but also in the real estate sector generally. Direct jobs involve roles that are directly related to the development, management, and sale of real estate properties, such as construction managers, architects and engineers, property managers, etc. Indirect jobs refer to those who are not directly involved in property development or management, but still support the activity such as construction workers and tradespeople, lawyers, accountants, security, etc.

## 5.1 ENVIRONMENTAL IMPACT

SIV will have both climate mitigation and adaptation impacts. All the houses built by DevCo and those acquired by RentCo will be IFC EDGE certified. EDGE Standard certified buildings (Level 1) are 20% more efficient, in terms of energy, water consumption, and embodied carbon of materials, compared with typical local building practices. Based on cost feasibility, SIV's ambition is to secure EDGE Advanced for all of its buildings, targeting savings of 40% or more (see Annex III for details on green buildings standards).

**Table 6. Contributions to environmental SDGs**

SDG	Impact
	By being EDGE certified, SIV buildings will lower embodied and operating GHG emissions by at least 20% compared to conventional local construction practices. With the IFC Building Resilience Index (BRI) design, SIV buildings will be resilient to climate shocks, strengthening the adaptive capacity of low-middle income households.

The savings estimates for a sample of 68 housing units in Morocco's climatic zone 1, spanning from Tangier to Agadir along the Atlantic coast<sup>8</sup>, are outlined in Table 7.

**Table 7. Contributions to environmental SDGs**

Savings type	Savings compared to local base case	Annual savings
Energy	41%	Equivalent to <b>180 kWh</b> of energy savings annually
Water	41%	Equivalent to <b>5477.34 m<sup>3</sup></b> of water savings annually
Embodied Carbon	29%	Equivalent to <b>489.92 tCO<sub>2</sub></b> of embodied carbon savings annually

The preliminary modeling above, consistent with IFC EDGE Advanced, estimates operational CO<sub>2</sub> savings at around **12 tCO<sub>2</sub>/Year/project**<sup>9</sup> or **0.17 tCO<sub>2</sub>/Year/housing unit**. Based on the business plan of developing 22,000 units, SIV's overall portfolio mitigation impact should reach a reduction of **3,830 tCO<sub>2</sub>e/year** and **21,000 tCO<sub>2</sub>e** over the first ten years.<sup>10</sup>

From an adaptation perspective, SIV will improve the climate resilience of the housing stock by employing the IFC BRI (see Annex III for details on green buildings standards). This is a self-assessment tool for developers to assess, manage, and disclose risks that need to be taken into consideration, focusing on hazard prevention (wind, water, fire, geoseismic) and

<sup>8</sup> This zone (and Rabat specifically) was chosen for a preliminary assessment as it's the area with the highest development opportunities.

<sup>9</sup> The performed modelling assumed a project size of around 4 buildings for a total of 68 housing units in climate zone 1.

<sup>10</sup> Assuming a minimum lifespan of the houses of 40 years, the total mitigation impact over this period amounts rises to 153,223 tCO<sub>2</sub>e.

operational continuity. SIV will work with the IFC to calculate the expected change in the loss of lives, value of physical assets, livelihoods, and/or environmental or social losses due to the impact of extreme climate-related disasters and climate change in the geographical areas that SIV targets.

Moreover, by enabling RentCo to purchase homes from third-party developers as well as from DevCo, SIV will indirectly help mainstream green and climate-resilient building practices.

## 5.2 SOCIAL AND ECONOMIC IMPACT

By developing gender-responsive and climate-resilient affordable housing, SIV will go beyond meeting the rising housing demand in urban areas, contributing to several Sustainable Development Goals (SDGs) outlined in Table 8.

**Table 8. Contributions to socioeconomic SDGs**

SDG	Impact
 <p>11 SUSTAINABLE CITIES AND COMMUNITIES</p>	SIV will build affordable housing that is climate-resilient to natural disasters by using IFC EDGE and BRI. Moreover, by building housing inspired by the 15-minute concept, SIV will contribute to making Moroccan secondary cities more sustainable by increasing densification and reducing the need of public transportation.
 <p>5 GENDER EQUALITY</p>	SIV will develop housing that is informed by men and women's needs, designed to minimize GBVH, providing close access to economic opportunities and infrastructure that reduces unpaid care burdens (for example by building childcare facilities). By providing housing typologies that meet women's needs (including rental options), including women as co-owners in contracts, and partnering with financial institutions on products that support women customers, SIV will support women's property ownership and access to financial services.
 <p>1 NO POVERTY</p>	By providing low and middle-income households options for rental as well as sale, the instrument will contribute to providing access to housing tenure. The rental offering, specifically, will allow households to build up a payment track-record and credit history, contributing to greater financial inclusion, particularly important for women as an underserved group in access to banking products. Moreover, green, and climate-resilient housing contributes to economic resilience by making households more resilient to climate shocks and generating energy and water savings.
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	SIV will contribute to direct job creation in the construction sector, ensuring safe working conditions and promoting the employment of women (e.g., including as architects, engineers, real estate agents etc.). It will also contribute to indirect job creation by tapping into local supply chains.

## 5.3 GENDER IMPACT

In addition to the sex-disaggregated impact metrics outlined in Table 5, SIV will track the gender-responsive impact indicators outlined in Table 9, with initial targets to evolve as SIV's portfolio develops. These align SIV with select **2X Challenge** criteria around leadership, employment, and consumption criteria, while also including additional indicators.

**Table 9. Additional gender-focused impact metrics**

Gender impact metrics	Type	Initial targets
<ul style="list-style-type: none"> <li>• Percent of company founder(s) who are female</li> <li>• Percent of Board who are female</li> <li>• Percent of Committee members, who are female<sup>11</sup></li> <li>• Percent of senior managers, who are female</li> </ul>	<b>Leadership</b>	<ul style="list-style-type: none"> <li>• 50% founders</li> <li>• 30% on Board and Committees</li> <li>• 30% in Management</li> </ul>
<ul style="list-style-type: none"> <li>• Percent of employees that are female at the level of SIV and companies (SPVs), where SIV is 51% owner</li> <li>• SIV has specific initiatives in place to advance women at workforce (e.g., HR policies aligned to IFC Performance Standard 2, SEAH Policy, wage equity &amp; trainings), which may extend to suppliers</li> </ul>	<b>Employment</b>	<ul style="list-style-type: none"> <li>• At least 30%</li> <li>• At least 4 initiatives in place</li> </ul>
<ul style="list-style-type: none"> <li>• Number of products/services that specifically benefit women<sup>12</sup></li> <li>• Number of SIV housing products (projects) designed through stakeholder engagement, out of which at least 50% women involvement.</li> </ul>	<b>Consumption</b>	<ul style="list-style-type: none"> <li>• At least 2</li> <li>• 100%</li> </ul>
<ul style="list-style-type: none"> <li>• Total number of green and climate-resilient house owners, out of which % female as owners or co-owners on legal agreements<sup>13</sup></li> <li>• Total number of green and climate-resilient house renters, out of which % female renters on legal agreements</li> </ul>		<ul style="list-style-type: none"> <li>• At least 30%</li> </ul>
<ul style="list-style-type: none"> <li>• Total number of direct beneficiaries benefiting from climate-resilient housing + social infrastructure, out of which % female and % children</li> </ul>	<b>Climate</b>	<ul style="list-style-type: none"> <li>• 50%</li> <li>• 30%</li> </ul>
<ul style="list-style-type: none"> <li>• Number of partnerships established that target women <sup>14</sup></li> </ul>	<b>Other</b>	<ul style="list-style-type: none"> <li>• At least 1</li> </ul>

Source: Climate4Action LLC

<sup>11</sup> Exact governance structure is still being finalized by SIV but this will include investment committees.

<sup>12</sup> Products means housing typologies/pricing adapted to women's needs and directly benefiting them, as well as childcare facilities. In terms of service, this would mean childcare service providers or front office trained to deliver services in an inclusive manner to address gaps (e.g., illiteracy rate).

<sup>13</sup> Restrictive social norms, legal and regulatory barriers, as well as limited tenure security and access to finance may prevent women from assuming equal rights to control/ownership over property or renting property. Therefore, women as co-owners are incorporated in impact metric and initial target set at 30%. See also takeaways from the gender analysis in Annex I.

<sup>14</sup> This is broad by design as it will evolve once SIV develops its gender action plan. It can include collaboration with banks to offer mortgage products targeted to women.

## **NEXT STEPS**

After endorsement, SIV will launch its Euro 6.7 million pilot in Northern Morocco and continue fundraising efforts for the larger fund, with a focus on the seed equity and mezzanine tranches. SIV will also work to develop and operationalize a gender action plan and pursue EDGE certification for its pilot project.

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## ANNEX I – KEY TAKEAWAYS FROM GENDER ANALYSIS

**Table 10. Key barriers and opportunities identified in Morocco rapid gender analysis**

Barrier	Key finding	Opportunity
<p>Housing projects are not gender-responsive; women are rarely engaged in stakeholder consultations.</p>	<ul style="list-style-type: none"> <li>- Interviews with stakeholders suggested that housing project developers do not include community participation as part of its pre-construction phase, nor do they consider the needs of households, particularly of women. Design standards may only sometimes consider women's unique needs and perspectives, particularly in housing and transportation.</li> <li>- Interviews with local stakeholders highlighted that women often don't feel safe around affordable housing developments, which often suffer from poor lighting and bad connectivity to the city centre. In addition, women spend 7 times as much time on unpaid domestic and care work than men (World Bank, n.d.). Investing in public childcare facilities could free women's time to go to school and join the labour market, since women are in most cases the main providers of household work in Morocco.</li> </ul>	<p>Gender-responsive housing design informed by stakeholder consultations, where women represent sizable group of targeted stakeholders.</p>
<p>Both women and men in Morocco are vulnerable to climate change, with women being disproportionately affected.</p>	<ul style="list-style-type: none"> <li>- Morocco is recognized as vulnerable to climate change impacts, ranked 70th out of 182 countries in the 2021 ND-GAIN Index.<sup>15</sup></li> <li>- Climate change is projected to increase frequency and intensify extreme events such as flooding, drought, and heatwaves in Morocco.</li> <li>- Globally, women and children are 14 times more likely to die from natural disasters than men (UNDP, 2022).</li> </ul>	<p>Climate-proofed housing design, mitigation technologies and practices that can disproportionately benefit women.</p>
<p>Access to housing barriers:</p> <ul style="list-style-type: none"> <li>- Limited financial inclusion, particularly for women, who also have lower disposable income and limited tenure security;</li> <li>- Illiteracy rate preventing access to the home buying process.</li> </ul>	<ul style="list-style-type: none"> <li>- Both women and men in Morocco have limited access to finance, however, the gender gap exists in access to financial services and is at 25 percentage points (World Bank, n.d.).</li> <li>- Women do not have equal access to finance to purchase, construct, or improve their homes (mortgages, micro-loans). Access to mortgage loans can be challenging for women in Morocco, primarily due to eligibility criteria and gender-based discrimination. Women who are married or not the head of the household may need help meeting eligibility criteria, mainly if they work informally or lack formal land titles (tenure security).</li> <li>- While women are legally allowed to own property, social norms, and customs often mean that their husbands are listed as the official property owners. This situation limits women's ability to use their property as collateral for loans, hindering their ability to access financing to grow their businesses or</li> </ul>	<p>Fit-for purpose SIV products/service offerings to address "access" barriers &amp; targeting women.</p> <p>Fit-for purpose communication strategy.</p> <p>Awareness raising campaigns.</p> <p>Partnerships with financial institutions and government subsidy programs targeting women.</p>

<sup>15</sup> The ND-GAIN Index ranks 182 countries using a score which calculates a country's vulnerability to climate change and other global challenges as well as their readiness to improve resilience. The more vulnerable a country is, the lower their score.

Barrier	Key finding	Opportunity
	<p>pursue other economic opportunities. Further, though it is unclear whether this practice occurs for housing loans, banks sometimes require a husband to act as guarantor if a woman applies for a business loan, which severely undermines women's ability to seek out financing as the sole applicant, particularly if they are single or widowed women.</p> <ul style="list-style-type: none"> <li>- Both men and women do not have access to credit that allows to pay for high up-front rental deposits required by landlords.</li> <li>- On average, women-headed households earn approximately USD 270 less a month than their male counterparts (AHI, 2023).</li> <li>- Low literacy rates impact the number of qualified buyers who can understand and participate in the home-buying process. Literacy is more of a challenge amongst women, with the gap between men and women in Morocco is 17.4% (World Bank, n.d.). This it is likely to disproportionately impacts women's access to formal home ownership.</li> </ul>	
<p>Limited women economic empowerment and labour participation, wage gaps.</p> <p>High incidence of GBVH.</p>	<p>Country's labour market is characterized by all the key gender disparities: low labour force, high unemployment rate for women, and a gender wage gap:</p> <ul style="list-style-type: none"> <li>- The female unemployment rate in Morocco is 11%, while the male unemployment rate stands at 9%. The youth unemployment rate is 19% (Equilo).</li> <li>- The inactivity rate in Morocco is 79% among women and 30% among men (Equilo).</li> <li>- For every USD 1 that men earn, women earn USD 0.83 in Morocco (Equilo).</li> <li>- Despite of efforts made on national level to establish a legal framework to increase women's economic participation, the persistence of gender norms, such as opposition of fathers or husbands to women's education or professional career, still represents the main obstacle to women's economic empowerment (Union for the Mediterranean, 2022).</li> <li>- Morocco created comprehensive laws to address violence against women and girls and intimate partner violence. Yet, a national government survey of women ages 18 to 65 in 2019 found that 54.4 percent had experienced physical, psychological, sexual, and economic violence in Morocco (Human Rights Watch, 2018).</li> </ul>	<p>Gender-responsive governance, HR and procurement.</p> <p>Sex-disaggregated data collection.</p> <p>Prevention of Sexual Exploitation, Abuse and Harassment (SEAH) as key safety feature in housing project design, SIV operations &amp; procurement.</p>

Source: Climate4Action LLC

## ANNEX II – HOUSING PORTFOLIO SUBMISSIONS

Table 11. Estimations of DevCo and RentCo units and number of people housed

CUMULATED TOTAL Launched units	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	TOTAL YEAR 1-10
Devco for Sale	500	1,500	3,000	4,750	6,750	8,500	10,600	12,600	14,600	16,600	16,600
Devco for Rent+RentCo from local developers	450	1,500	2,700	2,700	2,700	2,700	4,200	5,400	5,400	5,400	5,400
<b>TOTAL</b>	<b>950</b>	<b>3,000</b>	<b>5,700</b>	<b>7,450</b>	<b>9,450</b>	<b>11,200</b>	<b>14,800</b>	<b>18,000</b>	<b>20,000</b>	<b>22,000</b>	<b>22,000</b>

CUMULATED TOTAL Housed People	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	TOTAL YEAR 1-10
Devco for Sale	0	0	4,113	11,288	22,838	31,738	41,325	50,863	65,060	77,325	77,325
Devco for Rent+RentCo from local developers	0	0	3,750	9,000	13,500	13,500	13,500	16,500	24,750	27,000	27,000
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>7,863</b>	<b>20,288</b>	<b>36,338</b>	<b>45,238</b>	<b>54,825</b>	<b>67,363</b>	<b>89,810</b>	<b>104,325</b>	<b>104,325</b>

## ANNEX III – GREEN BUILDINGS STANDARD ADOPTED BY SIV

Table 12. Climate credentials targeted by SIV

Item	EDGE Standard	EDGE Advanced	Building Resilience Index
<b>Description</b>	Green building certification tool		Hazard mapping resilience assessment framework
<b>Objective</b>	Buildings that are 20% more efficient, in terms of energy, water consumption and embodied carbon of materials, than the local base case.	Water and embodied carbon same as EDGE standard, while energy consumption is at least 40% less than the local base case.	Provide solutions necessary to improve building resilience which can be used to inform building design.
<b>Environmental Impact Goals</b>	Resource efficiency, reduction in GHG emissions and impact on climate change	Resource efficiency, reduction in GHG emissions and impact on climate change	Risk mitigation, reduction in materials required to repair disaster damage
<b>Social &amp; Economic Co-benefits</b>	Access to green bonds, utility cost savings, resource security	Access to green bonds, utility cost savings, resource security	Reduced natural disaster impacts and so insurance premiums, access to funding. Net benefit of investing in the resilience of infrastructure could be USD 4.2 trillion)
<b>Environmental KPIs and target levels</b>	20% reduction in: <ul style="list-style-type: none"> <li>- Energy</li> <li>- Water</li> <li>- Embodied carbon of materials</li> </ul> Relative to the local base case	Reduction in: <ul style="list-style-type: none"> <li>- Energy 40%</li> <li>- Water 20%</li> <li>- Embodied carbon of materials 20%</li> </ul> Relative to the local base case	Tool designed to: <ul style="list-style-type: none"> <li>- Identify risk (based on location)</li> <li>- Manage risk (through design interventions)</li> <li>- Disclose risk (by presenting buildings' letter grade resilience level)</li> </ul>
<b>Market launch and uptake to date</b>	2014, 7.5 million m <sup>2</sup> EDGE certified in 2020		2019