

# The impact of incremental housing construction in urban Peru



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# GLOSSARY OF TERMS

## Acronyms and abbreviations

- **Habitat:** Habitat for Humanity International
- **TCIS:** Terwilliger Center for Innovation in Shelter
- **GRADE:** Development Analysis Group (Grupo de Análisis para el Desarrollo)
- **SES:** socioeconomic status
- **IHC:** incremental housing construction
- **RNE:** national building codes (Reglamento Nacional de Edificaciones)
- **SDG:** Sustainable Development Goals

## Self-build

An extended process of incremental construction led by families and adapted to their available resources and evolving needs. This practice, common in urban communities of Peru, reflects how families approach home-building despite existing limitations, whether in terms of efficiency, quality or the capacity to meet formal construction requirements. In the face of such challenges, the self-building process highlights families' autonomy and adaptability as they seek housing solutions in the context of limited resources.

## Incremental housing construction (IHC)

Habitat has adopted this term to convey a conceptual evolution that has surpassed the limitations and often negative connotations associated with the term "self-build." While "self-build" centers on the physical act of building a house, IHC recognizes a broader process that includes the acquisition and legalization of land and the comprehensive development of human habitat. The term emphasizes the active role that families take, their capacity to manage the process, the ability to make informed decisions about one's own home, and the long-term process of planning a home environment. It also offers a more accurate framework in which to design technical support programs, create suitable financial products, implement effective public policies, and measure impact.

## Informality

As an operational concept, “informality” refers to processes of urban construction, occupation and development that occur outside formal regulatory frameworks and without the support of certified professionals. It includes construction projects that lack clear titles, do not comply with current construction codes, or are missing proper permits. It is important to note that informal does not mean illegal; rather, it represents a grey zone in which practices are not completely adjusted to current regulations but do not necessarily violate the law. It is a programmatic response to a lack of accessible formal options for low-income families. While it does present challenges with regard to safety, quality and urban planning, it also reflects the tremendous initiative and resiliency of communities to satisfy their own housing needs in the midst of limited resources and institutional barriers.

## Innovative solutions

Innovative solutions are transformative investment opportunities with high-impact potential and dual returns. These can include pioneer financing models, technological platforms that optimize processes, advanced construction techniques, and business models that create inclusive markets.

## Catalytic capital

Catalytic capital involves strategic investments designed to stimulate and attract additional public- or private-sector financing for innovative housing solutions. Catalytic capital often accepts substantial risk or lower returns to show the viability of new business models or technologies with the goal of attracting more traditional investments once proof of concept has been achieved.

## Sustainability

Sustainability is the capacity to meet present needs without compromising future generations. In the context of progressive housing, this means construction and design strategies that are technically, economically and socially viable and allow families and their future generations to access adequate housing.

# 01. INCREMENTAL HOUSING PRODUCTION: A MAJOR CHALLENGE FOR URBAN PERU

One of the most pronounced challenges in urban and peri-urban areas of Peru is the informal production of housing, otherwise known as incremental housing construction (IHC). Undertaken during the initial waves of rural-to-urban migration that occurred in the latter twentieth century, this phenomenon continues to pose a challenge to development policy today. Rooted in the fundamental need for housing, a vast majority of Peruvian families opt for IHC—that is, to follow the traditional model of building a home in an instinctive and improvised way. From the point of acquiring land, the process is disorganized and informal. Rather than accessing formal lots or housing projects from the private—or even the public—sector, families opt for illegal settlements and informally distributed land. Naturally, this implies a lack of oversight in the form of licenses, permits, environmental surveys, blueprints, plans, or compliance with Peru’s National Building Codes (RNE).

Consequently, more than a construction method, IHC is, in practice, a production model—and not just for housing solutions but entire cities (Habitat, 2018; Espinoza and Fort, 2024). This means that the costs and inefficiencies associated with this production model can multiply to the point of becoming unmanageable. Nearly every issue related to the efficiency and functionality of Peruvian cities—from transportation to safety—is at least partly impacted by IHC. The problems that this production model generates can affect everything from the health and wellbeing of families to the economic and environmental aspects of society in general.



But despite the importance of resolving this crucial challenge in Peru, there has been little investigation into the root causes and measurable effects of IHC. This is why Habitat, given its innovative solution to provide families with technical support in this area, tasked GRADE with conducting an economic, social and environmental impact study of IHC in urban areas across the country.

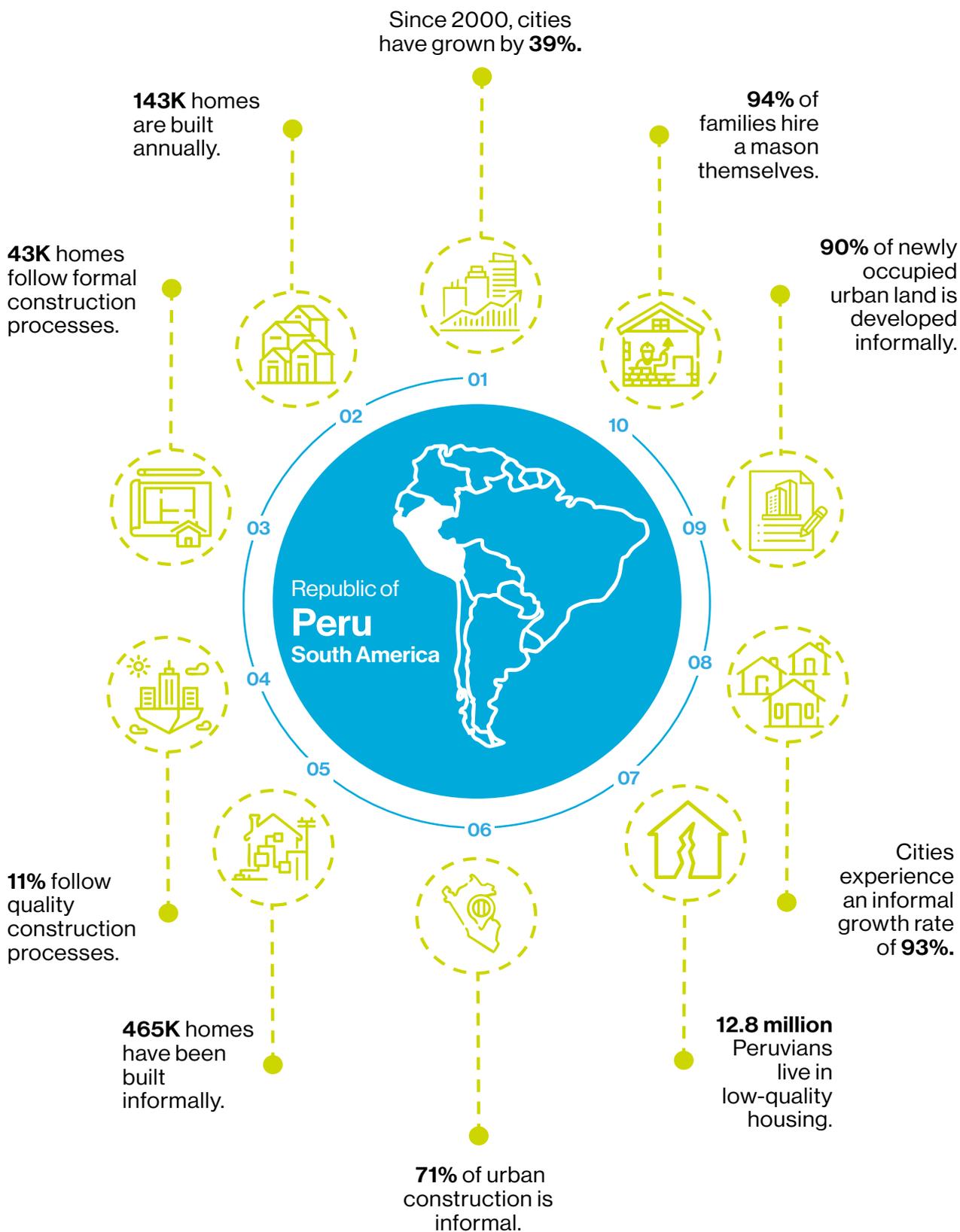
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*My floor was made of sand. Sometimes people would give us a hard time because we were always standing in the dust. Whenever it rained, we would run around with pots to catch where the water ran into the bedrooms, the living room, and we would bale and bale...*

*Rosa Elena Cardoza, Piura region*

”



**Figure 1: Ten facts about IHC in Peru**



## 02. SPENDING LESS TODAY TO SPEND MORE TOMORROW

Evidence shows that IHC is often more costly in the long run than conventional construction processes, as inefficiencies and unnecessary expenses can exceed any initial savings from forgoing professional construction services. When carried out over many years and without adequate technical planning, IHC leads to substantial added costs. These stem from design flaws that cause problems ranging from an increased risk of accidents and illness to the inefficient use of resources.

One of the main regulatory risks associated with IHC is the difficulty of obtaining the proper permits and approvals and complying with national building codes. The high degree of informality in the housing sector, including the acquisition of land and a lack of urban planning, means that many houses do not meet the country's legal and safety requirements. This not only presents an obstacle for homeowners, who may face legal repercussions and difficulty accessing even the most basic services, but also directly affects investors.

The GRADE study identified a set of 15 indicators that can be used to quantify the added costs and economic, social and environmental inefficiencies associated with three aspects of IHC: (i) the material process of incremental construction; (ii) the prolonged inhabitation of precarious housing; and (iii) the environmental impact of areas where incremental housing has been erected.



This puts the impact of IHC in economic terms, highlighting that, in the long-run, incremental housing tends to be lower quality and more costly for the families that build it. In terms of social aspects, the negative effects to health and wellbeing are notable, with many families living in precarious conditions for prolonged periods of time. In terms of environmental impact, the inefficient use of materials and lack of access to basic services and urban infrastructure lead to an increase in harmful CO2 emissions.

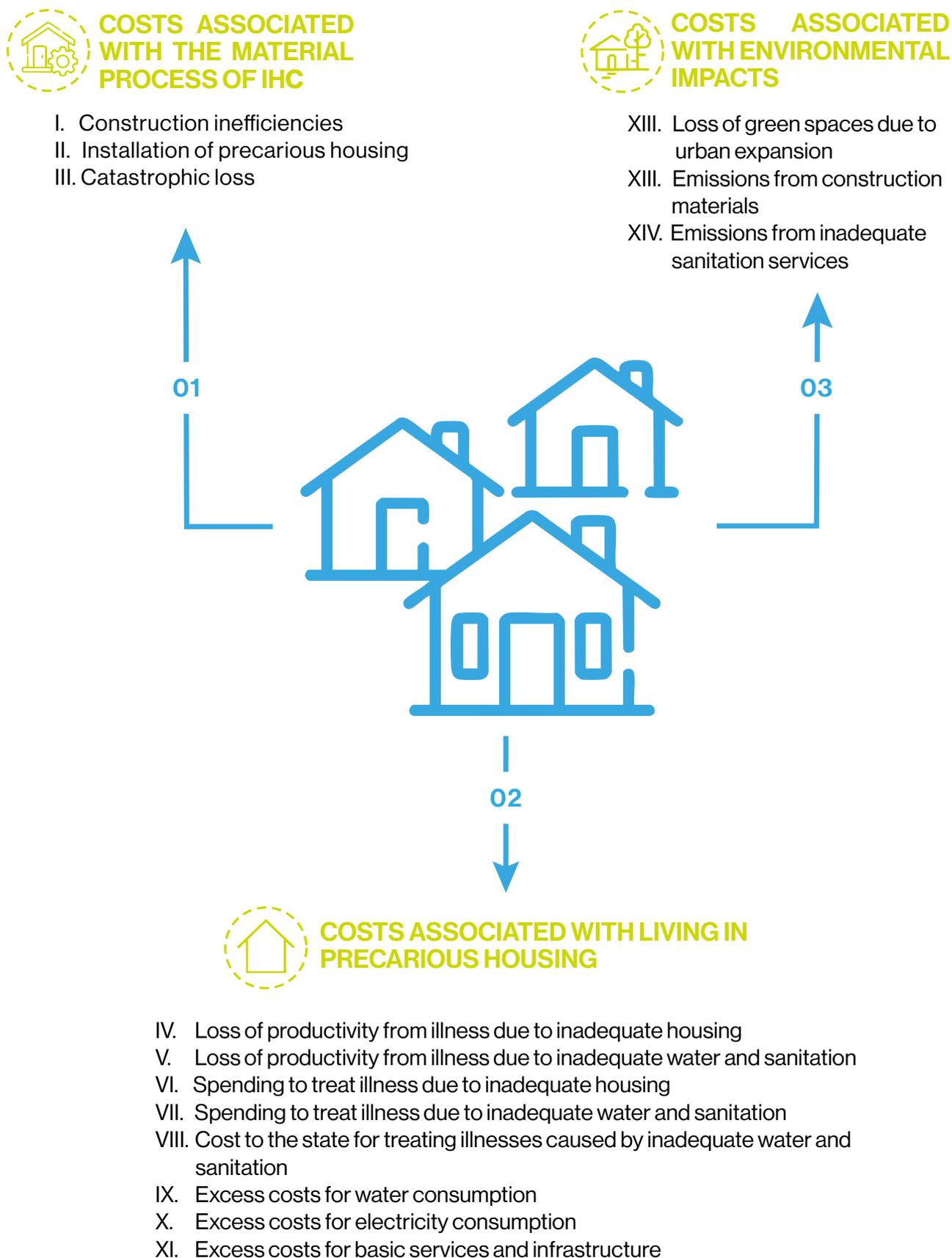
“ *With the plywood, you couldn't lean against the wall. It was uncomfortable. If you were having a conversation, the neighbors could hear everything you were saying.*

*Pablo Guevera  
Santacruz, Piura  
region*

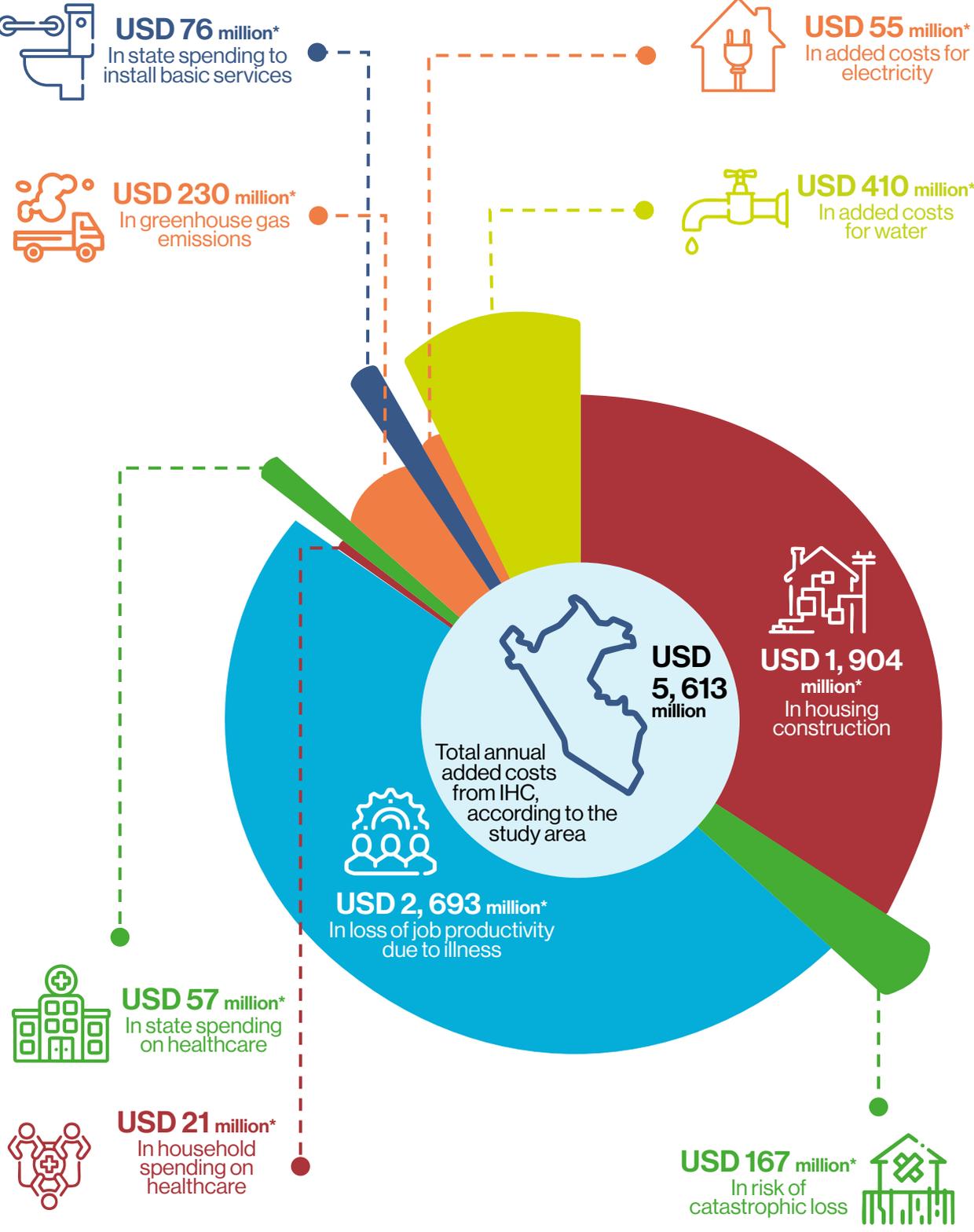
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**Figure 2: Indicators to quantify added costs and inefficiencies**



**Figure 3 : Annual added costs of IHC in Peru**



Source: Based on Espinoza (2024)  
 \*Aggregate value of the indicators used in the study.

# 03. HOW MUCH MORE DOES IT COST A FAMILY TO BUILD THEIR HOUSE INCREMENTALLY?



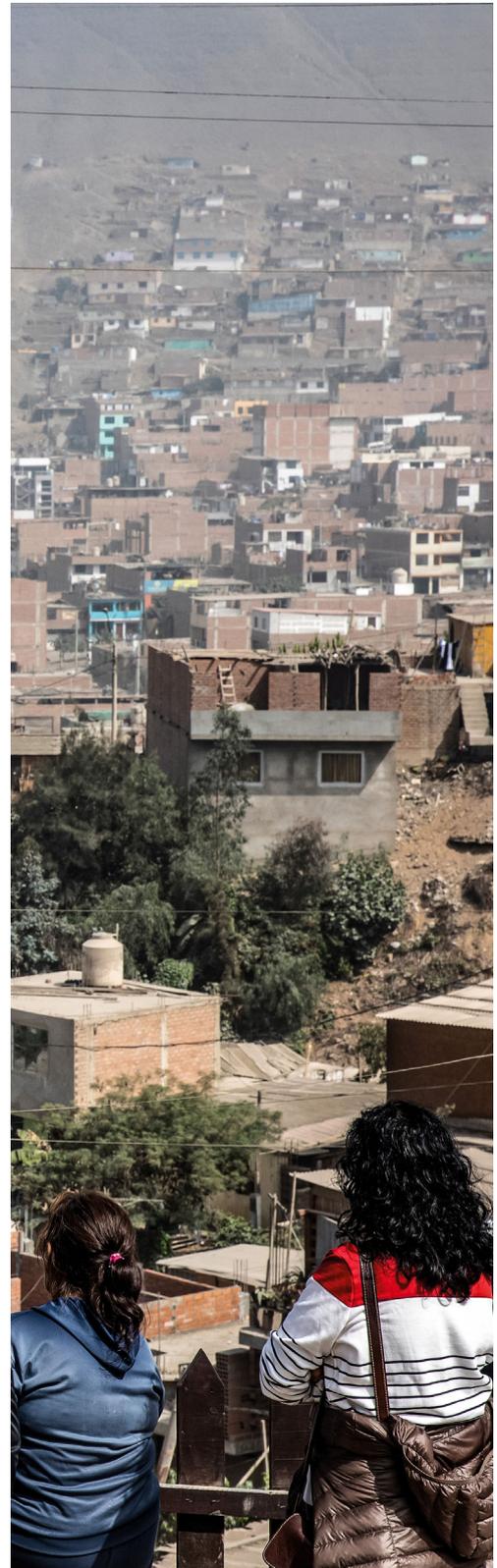
## The financial impact of the IHC model

On average, a family that opts for incremental housing can spend up to double the cost of more efficient construction models. The data show that families that build their homes through IHC end up investing USD 61,449 –a number considerably higher than the estimated initial cost of USD 38,670. Add to that the cost of land, roughly USD 11,654, and the amount is even higher. This analysis uses seven main categories of added costs and compares the sum of these to the average cost of building a home through more efficient models. The majority of these expenses fall directly on families, representing a significant financial burden.



## Analysis of investments in supported IHC

Supported IHC models offer a viable solution to mitigate these added costs. In fact, supported IHC has the potential to lower added costs to the economy by an estimated 69% each year, and to reduce the accumulated costs during the life cycle of a home by up to 57%. These projects not only seek to optimize financial resources but to improve the efficiency of the IHC process by reducing the unnecessary use of materials and shortening prolonged construction times, which results in a more attractive return on investment.





## Impact on communities and investors

Incremental housing, which is how most Peruvian families build their homes, results in high costs that can be considerably reduced by more efficient models. While this study found that the average cost of an incrementally built home can reach USD 61,449, the average cost of formal construction models is only USD 38,670. The added costs of unsupported IHC not only include materials and labor, but also the loss of job productivity due to poor health and other factors associated with living in inadequate housing. This directly affects families, particularly in low-income areas where poverty cycles persist, as households must assume some 83% of added expenses.

Supported IHC can reduce added expenses by 69%, which represents significant savings for families. These models center around providing professional technical support, which improves the quality of homes, reduces construction errors, and minimizes operational risks such as on-site accidents or the need for costly repairs. Implementing safer and more efficient construction practices also increases the durability of the home, helping to improve the living conditions of families. For investors, supported IHC projects represent a more attractive investment opportunity.

Supported construction not only generates a positive social impact by improving the lives of Peruvian families; they allow investors to access financial incentives. Investors benefit from reduced income tax and indirect tax payments, as well as certain municipal tax exemptions for projects that meet sustainability standards and benefit low-income communities.

Such financial incentives help to both improve financial viability and promote sustainable development.





## Risk mitigation and long-term benefits

Supported IHC also addresses the inherent risks associated with informal housing by providing technical assistance and improving safety standards. These models are specifically designed to mitigate the risks associated with natural disasters such as earthquakes or extreme climatic events—a key reality in Peru due to its geographical location. To reduce these vulnerabilities, earthquake-resistant construction designs and higher-quality materials are used. Training local laborers in safe and efficient construction techniques also helps to reduce risk and ensure that homes will be built safely and sustainably for the long-term.

In addition to optimizing financial resources, supported IHC improves the efficiency of the construction process, the quality of life of families, and the sustainability of the home. By generating safer and more efficient housing, it reduces household expenditures on home repairs and medical attention for the health problems associated with inadequate housing. These added benefits in terms of health, safety and energy consumption make supported IHC a valuable investment, both for beneficiary communities and investors interested in sustainable development.

By mitigating the most common risks associated with informal construction, investors can feel confident that their input will not only have a positive social impact but also the potential for long-term financial returns. Along with optimizing financial resources, supported IHC improves the efficiency of the construction process, resulting in a more reliable return on investment. The positive impact these projects have on communities make them a valuable investment, both for direct beneficiaries and investors who are committed to sustainable development in Peru.

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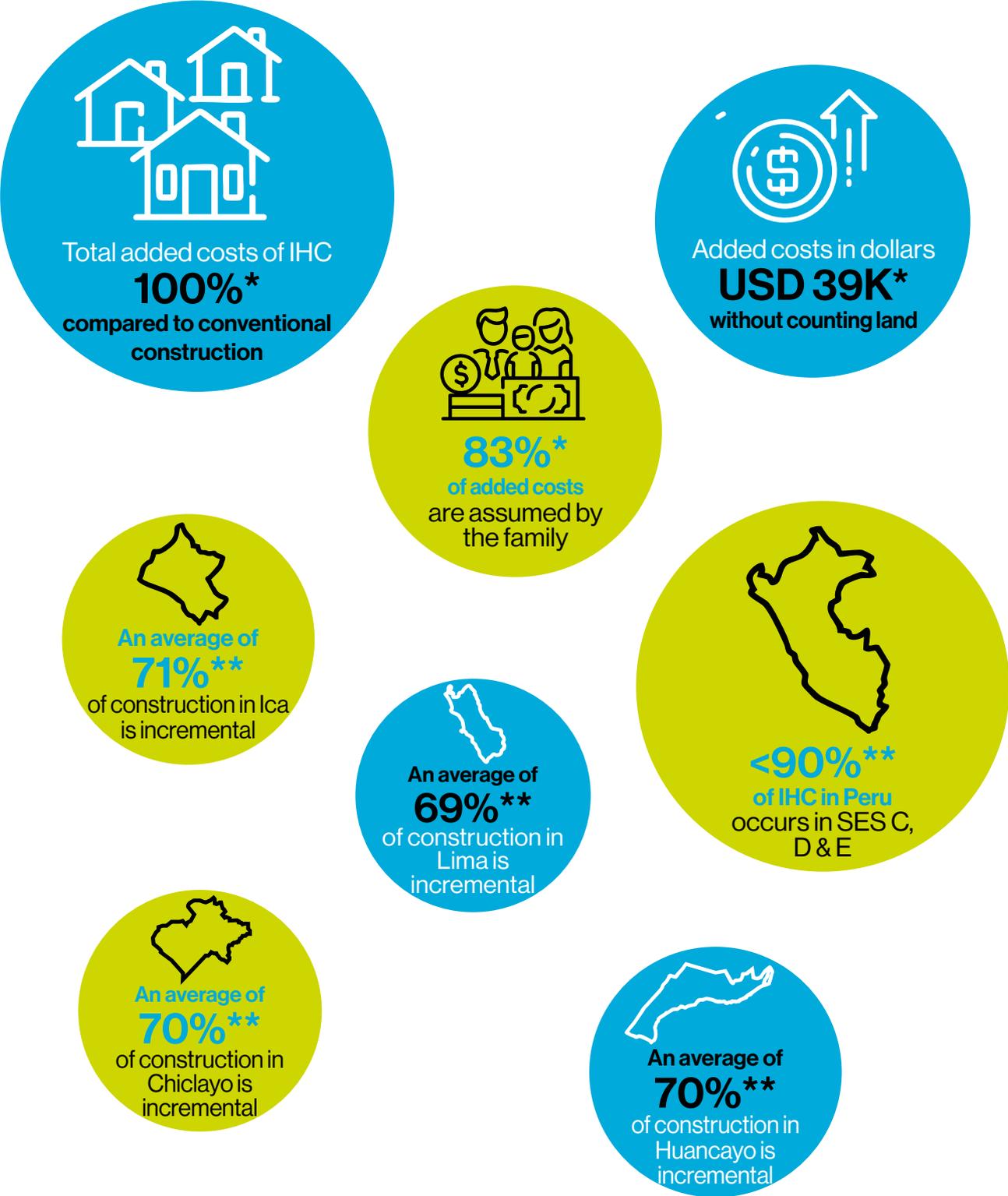
*What we want to do with our savings is ultimately to have something for our kids, so they won't have to face any problems... we want something safe for our kids.”*

*Erika Estrella,  
Metropolitan  
Lima*

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Figure 4: Added costs and financial impacts



Source: Based on \*Espinoza (2024) and \*\*Espinoza and Fort (2024)  
Socioeconomic status (SES) groups C, D and E encompass lower-income populations in peri-urban or marginalized areas.

## 04. SUPPORTED IHC : AN ALTERNATIVE SOLUTION FROM HABITAT FOR HUMANITY INTERNATIONAL

Currently, the cost of building a house through IHC is approximately double that of conventional construction. However, the implications of IHC extend far beyond financial impact. There are also operational implications, as the risks associated with poor housing quality and limited technical support include substantial challenges to long-term sustainability. One of the main operational risks of unsupported IHC is inefficient construction processes with respect to ineffective use of building materials and a lack of structural planning.

These costs not only include materials and labor, but also the loss of productivity due to poor health and other issues caused by living in inadequate conditions. The GRADE study revealed that IHC projects that receive technical assistance have the support of subnational government bodies, which mainly participate by cofinancing the installation of basic infrastructure such as water, sanitation and electricity. Additionally, the majority of the municipalities that support these projects do so through incentives that improve access to construction materials, reduce the cost of building permits, and provide technical support for IHC projects.

To address the challenges associated with IHC, partnerships are forged between local actors and subnational governments, civil society organizations and private-sector organizations. These agreements are formalized around the provision of technical support, access to financial resources, and the promotion of public policies that strengthen supported IHC. The success of such programs resides in the creation of inter-institutional support networks that maximize social and economic impact and operate within a framework of transparency and accountability, which is crucial to gaining the trust of investors.



The supported IHC model offers a viable option to reduce costs and mitigate the operational risks inherent to informal IHC while also allowing investors to participate in projects that not only improve the lives of Peruvian families but generate positive social and economic impact.



### Potential for improvement and sustainability

Supported IHC models have the potential to reduce up to 69% of annual added costs. In other words, improving IHC processes through technical support and more sound construction practices can save the Peruvian economy up to USD 3,867 million in added costs each year. Nevertheless, the success of these models depends on their capacity to overcome operational risks with respect to scalability and sustainability.

The key to ensuring the long-term sustainability of these projects lies in implementing systems for technical supervision and continual training for those involved in the IHC construction process. This not only mitigates the risk of accidents and structural failures, but also guarantees that supported IHC models can be replicated in other areas without compromising quality or efficiency.

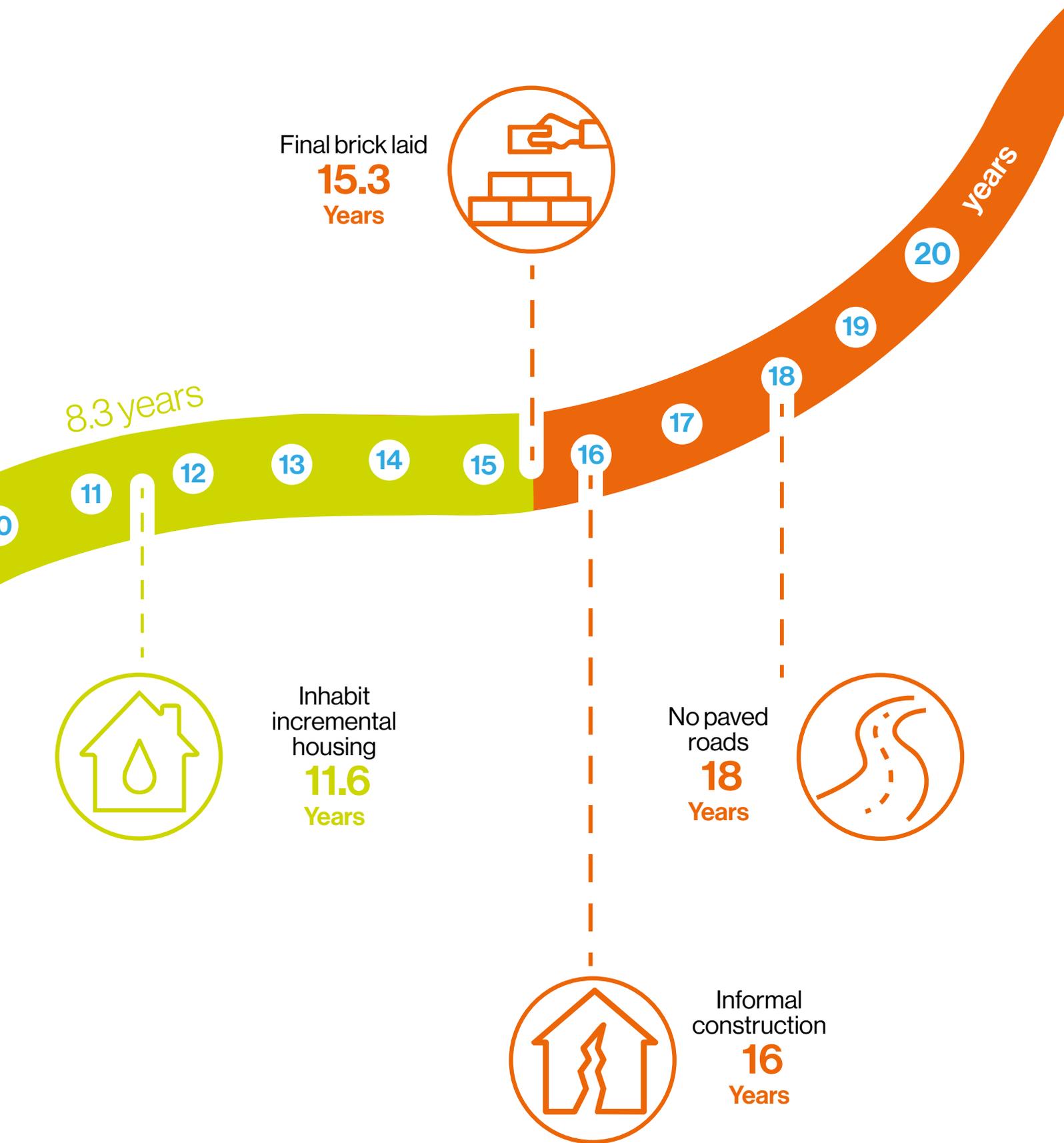
It is important to note that the GRADE study's findings provide a more complete picture of the IHC phenomena in Peru. Its 15 indicators point to impacts that span diverse aspects of life in the country's major urban centers. In fact, the information gathered shows that many of the problems of Peruvian cities, including high rates of illness, risks of decapitalization due to real estate loss, and even traffic disorder and congestion, can be traced to unsupported IHC.

Nevertheless, the same comprehensive picture shows that a broad scope of ongoing research is needed to further understand and chip away at the added costs this study has revealed. Due to a lack of a solid methodological pathway and the absence of available data, potential expenditures above the cost of conventional construction have gone ignored. These added costs—from needless on-site accidents to excess taxes to negative environmental impacts such as soil erosion—must be addressed in future research efforts. In this regard, Habitat represents an important strategic partner. We aim to collaborate with key actors in the ecosystem, not just to enrich the results of this study but to help forge new research initiatives in the IHC sector.

Figure 5: Lifecycle of IHC in Peru



Source: Based on Espinoza and Fort (2024)



# CONCLUSIONS

**In peri-urban areas, IHC can seem like a financially accessible solution in the short-term. Nevertheless, the data show that this type of construction can not only become more costly for families but can actually generate negative impacts on society. The key takeaways are:**

- 01.** Houses that are incrementally built end up costing twice as much as those built formally and efficiently. This shows the need to improve IHC processes to make them more accessible and less costly.
- 02.** The majority of added costs (83%) fall directly on families, who face additional expenses and economic losses due to illnesses caused by poor housing conditions. This especially affects low-income families, which perpetuates cycles of poverty.
- 03.** Supported IHC, driven by organizations such as Habitat, can significantly reduce these added costs. It is estimated that supported IHC can lower the total cost of housing by 57% and reduce annual expenditures in the Peruvian economy by 69%, equivalent to USD 3,867 million annually.
- 04.** In addition to reducing costs, supported IHC can improve the health, safety and energy efficiency of homes. These additional benefits are essential to attracting investors who seek to generate social and environmental impact and align themselves with global trends in sustainable economic development.
- 05.** Incremental housing construction is a widespread practice throughout Peru. It is crucial that we continue to study this phenomenon in order to better understand the economic, social and cultural factors that sustain it and to design strategies that can reduce its negative effects on the health, safety and wellbeing of families and society in general.

# RECOMMENDATIONS

## 01. The potential of supported IHC

The GRADE study for Habitat for Humanity International highlights the potential of IHC models in Peru and other developing countries. We suggest a detailed plan for expansion and replicability that includes technical supervision systems and ongoing training programs to ensure quality and efficiency when expanding into other geographical areas. Additionally, we recommend an exhaustive analysis of the financial, technical and human resources needed to scale the model.

## 02. Analyzing land value creation

We recommend incorporating a detailed analysis of land value and its interaction with IHC, assessing how IHC impacts urban costs, construction quality and formal development. It is also key to explore strategies to capture the increased value of land in ways that benefit communities and optimize land-use policies to strengthen supported IHC. This would provide a comprehensive vision of the economic context of IHC and offer valuable input for urban planning and housing-related policy.

## 03. Measuring the performance of supported IHC

GRADE's initial 15 indicators could be enriched by additional performance indicators that focus on human development and align with the Sustainable Development Goals (SDG) to reduce poverty and improve health. It could also be beneficial to explore mechanisms to transparently measure and communicate progress, which could add substantial value for investors and decision-makers. Quantifiable goals could be established for each indicator, along with a follow-up system to assess the achievement of long-term goals.

## 04. Ongoing research into supported IHC

We suggest promoting research initiatives focused on the factors that lead to added costs from catastrophic loss. In other words, we must investigate financial loss from homes built in flood zones, along riverbanks, or on inclined areas prone to landslides, as this is a heavily embedded practice among populations that settle in the marginalized areas of capital cities.

## 05. Incorporating a gender focus

We recommend adding a gender aspect to IHC analysis. This perspective would enable an examination of how support models and processes might impact men and women differently, considering aspects such as the division of labor, household decision-making, and access to resources (Chant and McIlwaine, 2016; Moser, 2009). This could be approached, for example, through trainings that strengthen female participation in traditionally masculine roles (Patel et al., 2016). It would also be valuable to explore how housing improvements affect the quality of life and economic opportunities of men and women differently (Rakodi, 2014). This gender dimension would not only enrich the analysis but would also serve to inform housing policy and programs on how to be more gender inclusive, as outlined in the SDG.

## 06. Creating an indicator index for comparative analysis

Finally, we think it would be useful to create an index that compiles information on the set of 15 indicators identified by the GRADE study according to their respective value per department, city, socioeconomic status (SES) or other dimensions for which information may be available. This would allow researchers and practitioners to compare results and identify which dimensions, or specific cases have greater added costs.

# Scan the QR code to learn about our reason for being.



The Terwilliger Center for Innovation in Shelter, a Habitat for Humanity International organization, works to increase access to innovative housing products, services and financing for low-income families.

We work with actors throughout the housing ecosystem, including financial institutions, suppliers, retailers, academic and vocational centers, public-sector organisms, civil-society organizations, contractors and designers, communications outlets, and others. In collaboration with these partners, the Terwilliger Center identifies disruptive technologies and innovative development models, and works to catalyze new solutions across the board.

Since its inception, Habitat's Terwilliger Center has helped more than 27.8 million people access improved housing solutions; it has worked with more than 100 financial institutions to free USD 7,900 million in accessible housing; and it has catalyzed USD 64 million in new partnerships with businesses that serve the low-income sector.

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## Terwilliger Center for Innovation in Shelter