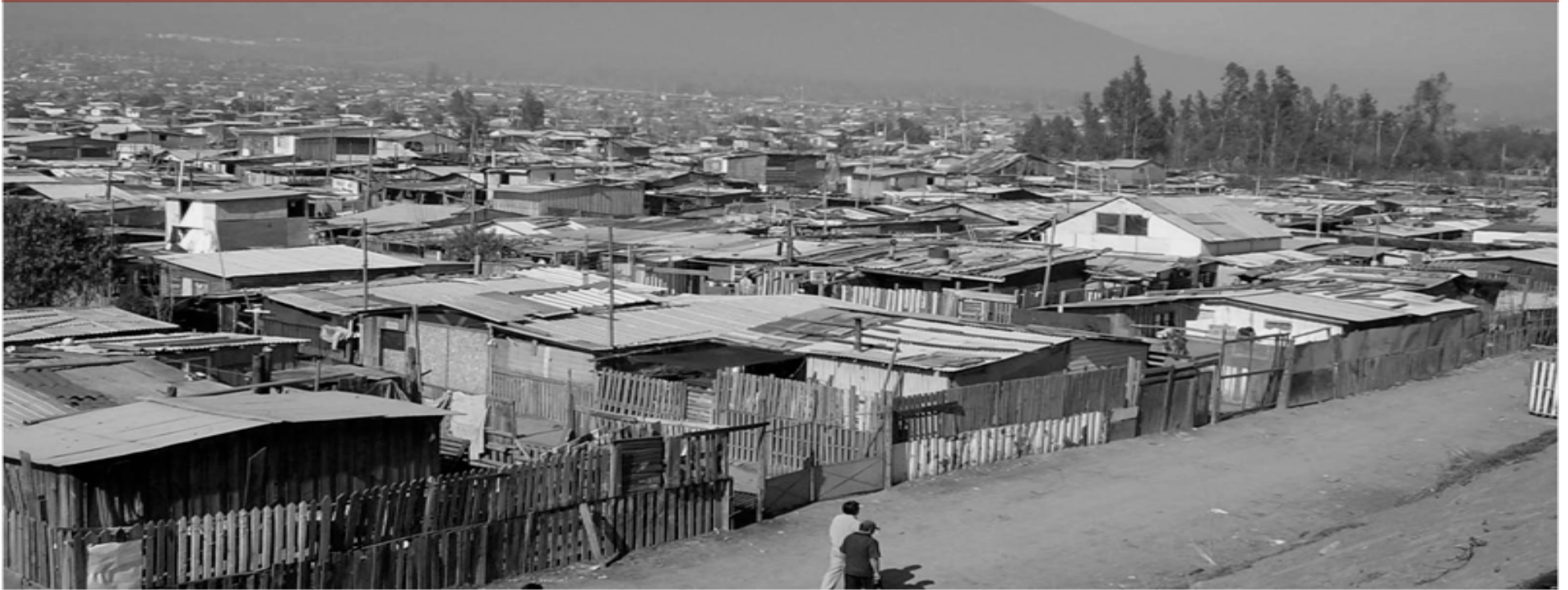
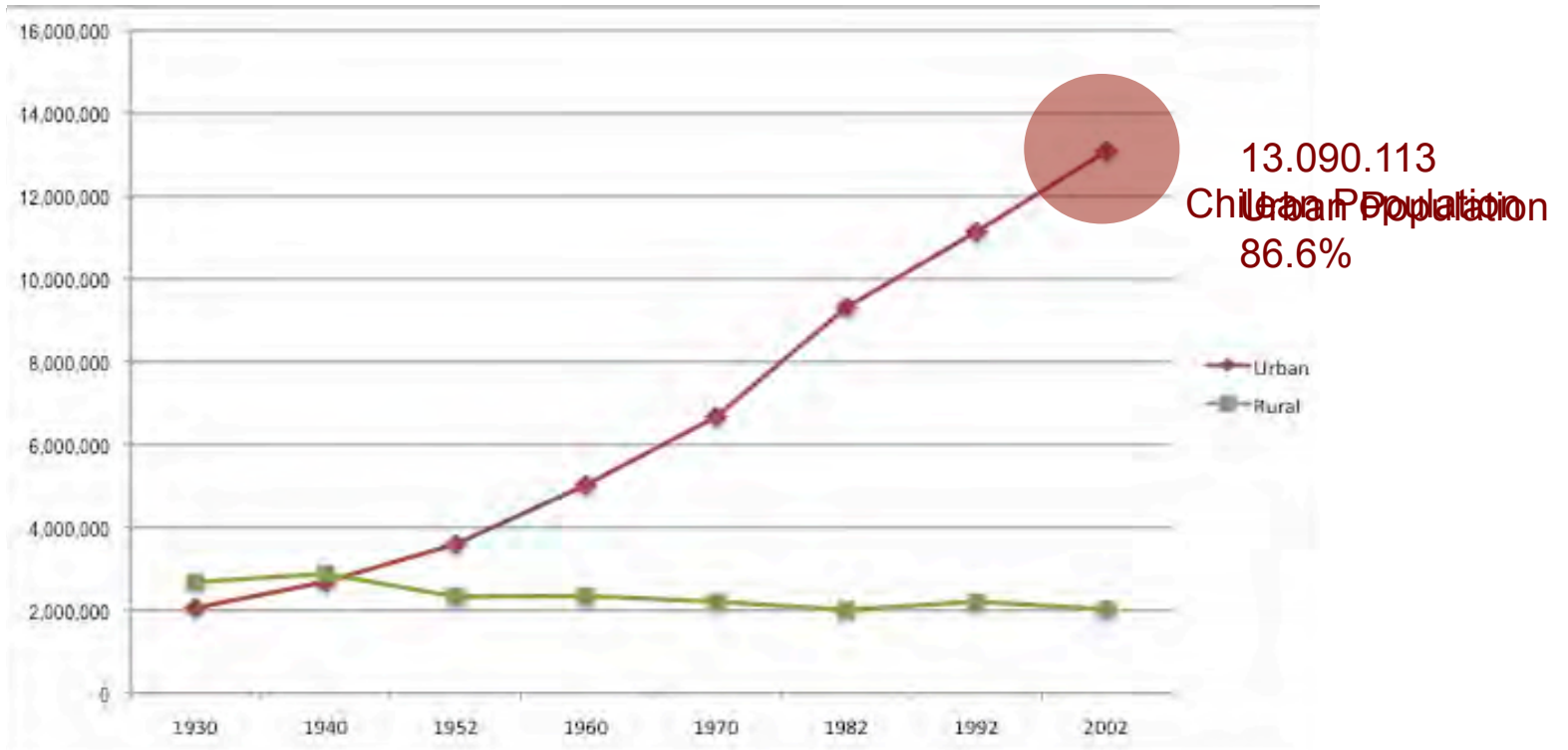


INCREMENTAL HOUSING: _the CHILEan experience_



Margarita Greene Z.
Facultad de Arquitectura, Diseño y Estudios Urbanos
Pontificia Universidad Católica de Chile



| | 1930 | 1940 | 1952 | 1960 | 1970 | 1982 | 1992 | 2002 |
|-------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|
| Urban | 2,063,086 | 2,684,086 | 3,601,612 | 5,028,060 | 6,675,137 | 9,316,120 | 11,140,405 | 13,090,113 |
| Rural | 2,684,520 | 2,881,202 | 2,331,383 | 2,346,055 | 2,209,631 | 2,013,616 | 2,207,996 | 2,026,322 |
| Total | 4,747,606 | 5,565,288 | 5,932,995 | 7,374,115 | 8,884,768 | 11,329,736 | 13,348,401 | 15,116,435 |
| | 43.5% | 48.2% | 60.7% | 68.2% | 75.1% | 82.2% | 83.5% | 86.6% |

National Census (INE)

INCREMENTAL HOUSING

a way of meeting the challenges





INFORMAL SECTOR 1
INCREMENTAL PROCESS 2
PROGRAMMES AND CASES 3



INFORMAL SECTOR 1
INCREMENTAL PROCESS 2
PROGRAMMES AND CASES 3

INFORMAL HOUSING SECTOR IN CHILE: Considers several situations... at least four:

- 1 • The **production of shelter** out of the legal framework and public programmes, in parallel with the formal housing production.



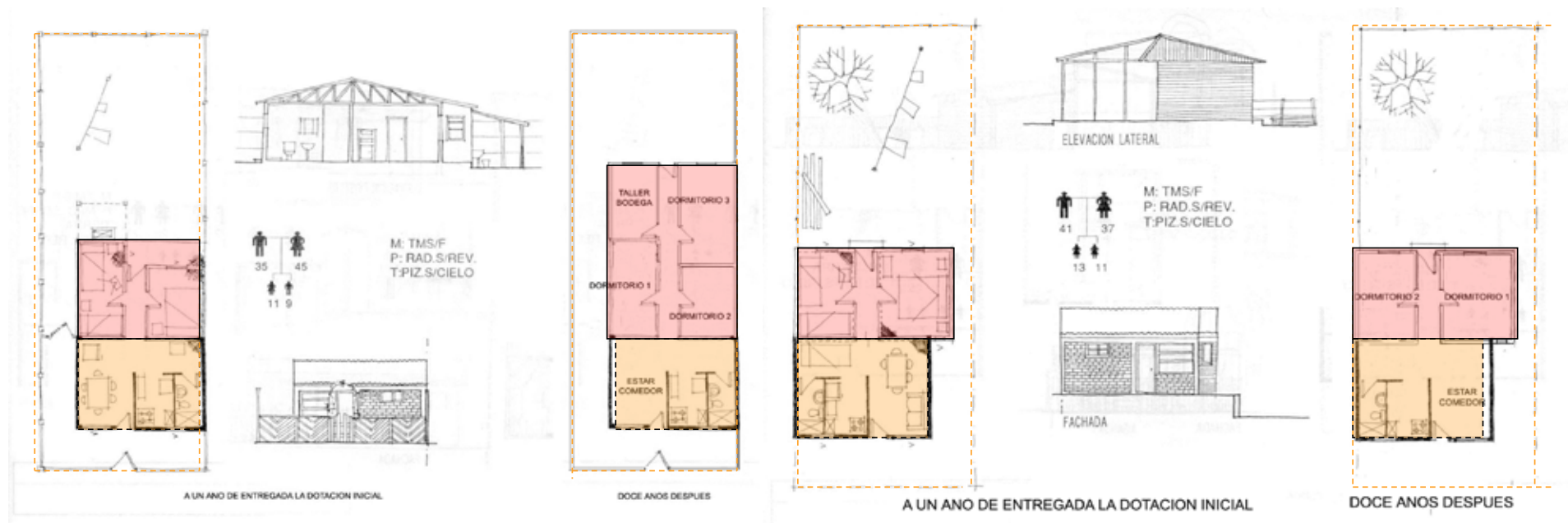
Peñalolén 2003



INFORMAL HOUSING SECTOR IN CHILE

- The production of shelter out of the legal framework and public programmes, in parallel with the formal housing production.

- 2 • The **enlargement and consolidation** of the minimum solutions that the housing programmes deliver.



INFORMAL HOUSING SECTOR IN CHILE

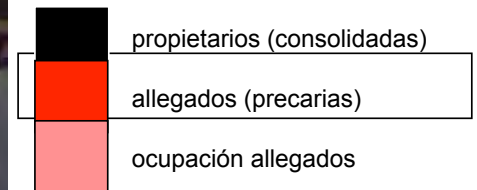
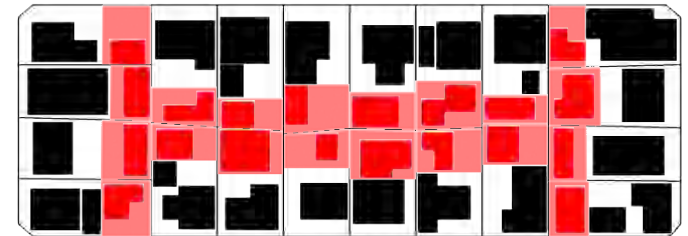
- The production of shelter out of the legal framework and public programmes, in parallel with the formal housing production.
- The enlargement and consolidation of the minimum solutions that the housing programmes deliver.
- **Complements social housing** produced by the different governments



INFORMAL HOUSING SECTOR IN CHILE

- The production of shelter out of the legal framework and public programmes, in parallel with the formal housing production.
- The enlargement and consolidation of the minimum solutions that the housing programmes deliver.
- Complements social housing produced by the different governments

- 4 • Builds second and third houses, the housing of the *allegados*, that the families with no house build in the plots of their friends or relatives.

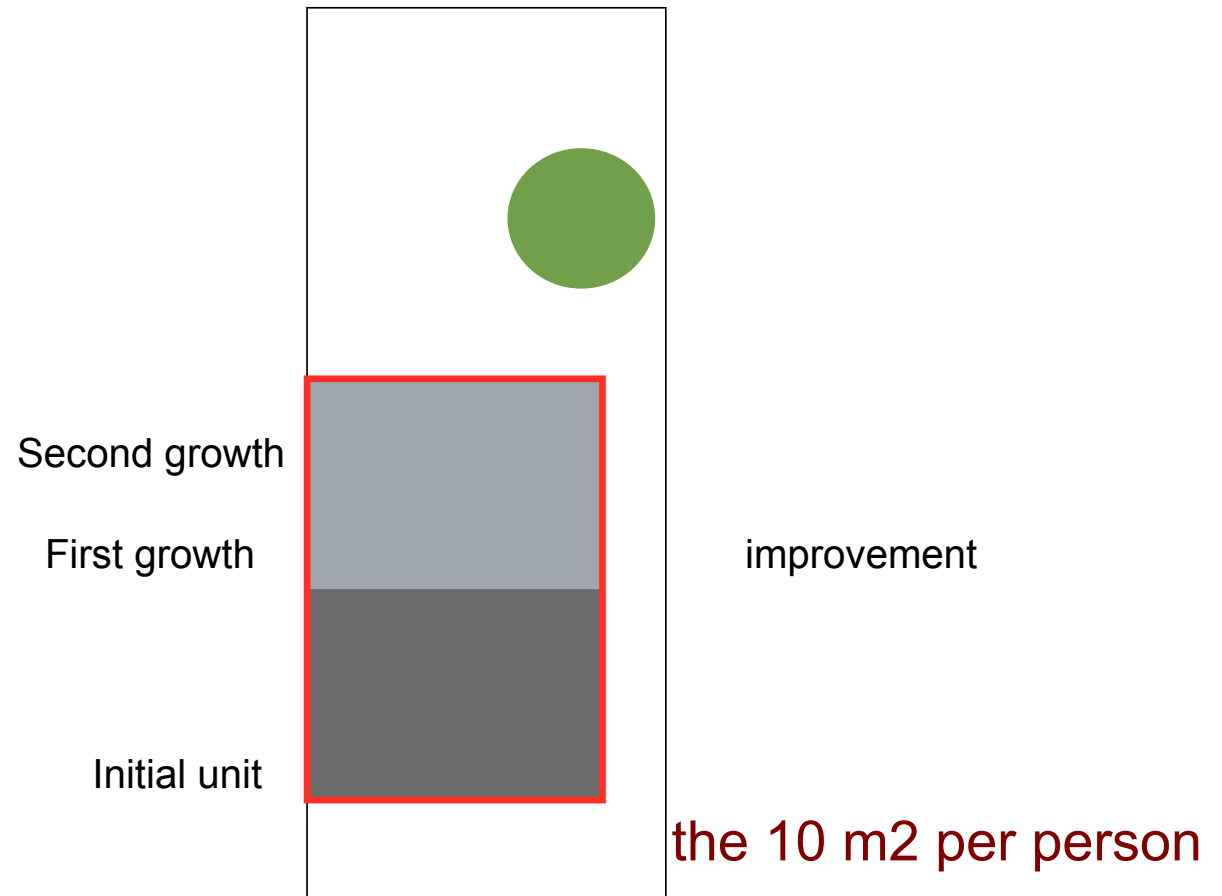




INFORMAL SECTOR 1
INCREMENTAL PROCESS 2
PROGRAMMES AND CASES 3

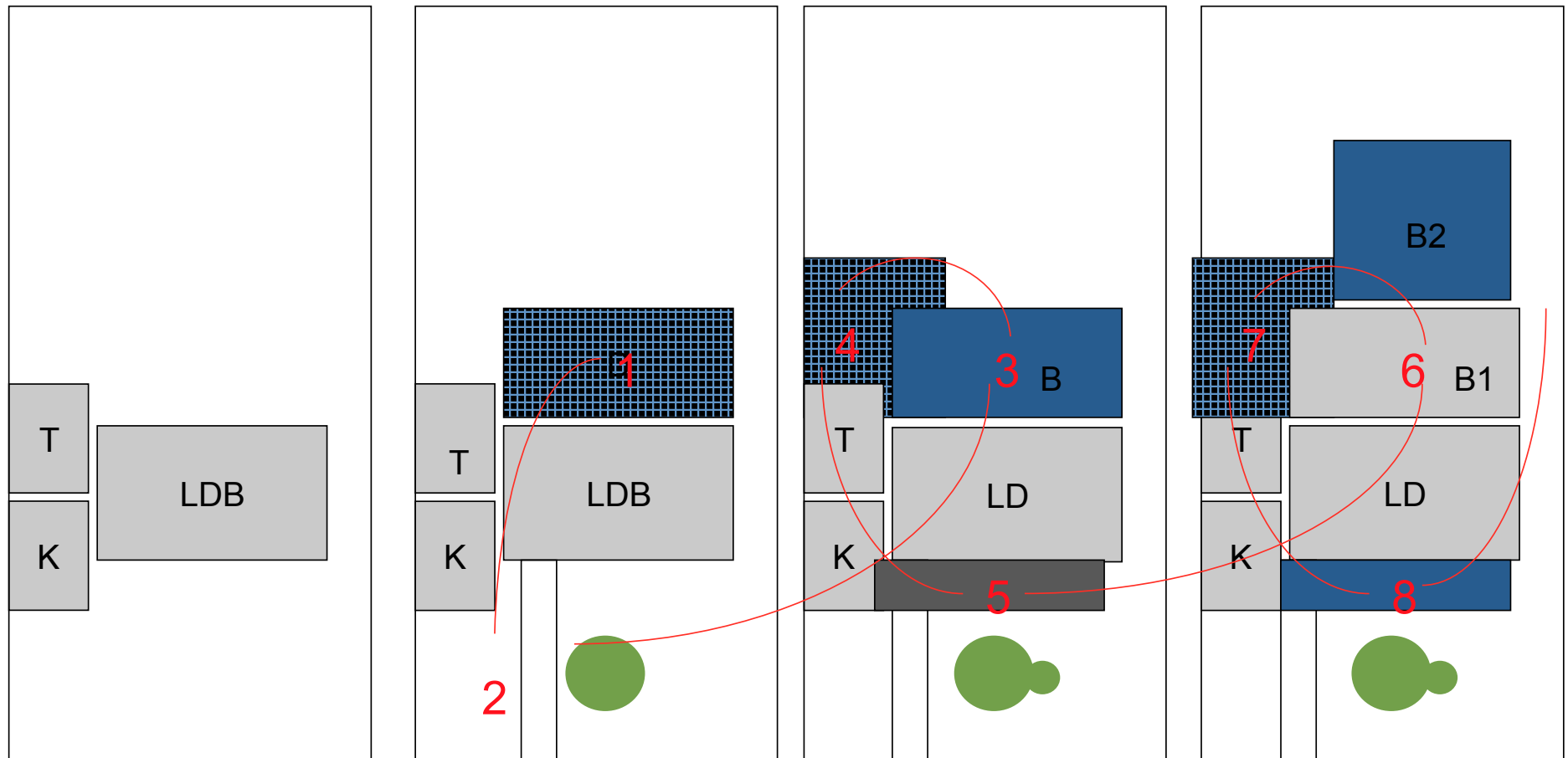
THREE ASPECTS OF INCREMENTAL BUILDING:

- to reach a minimum space



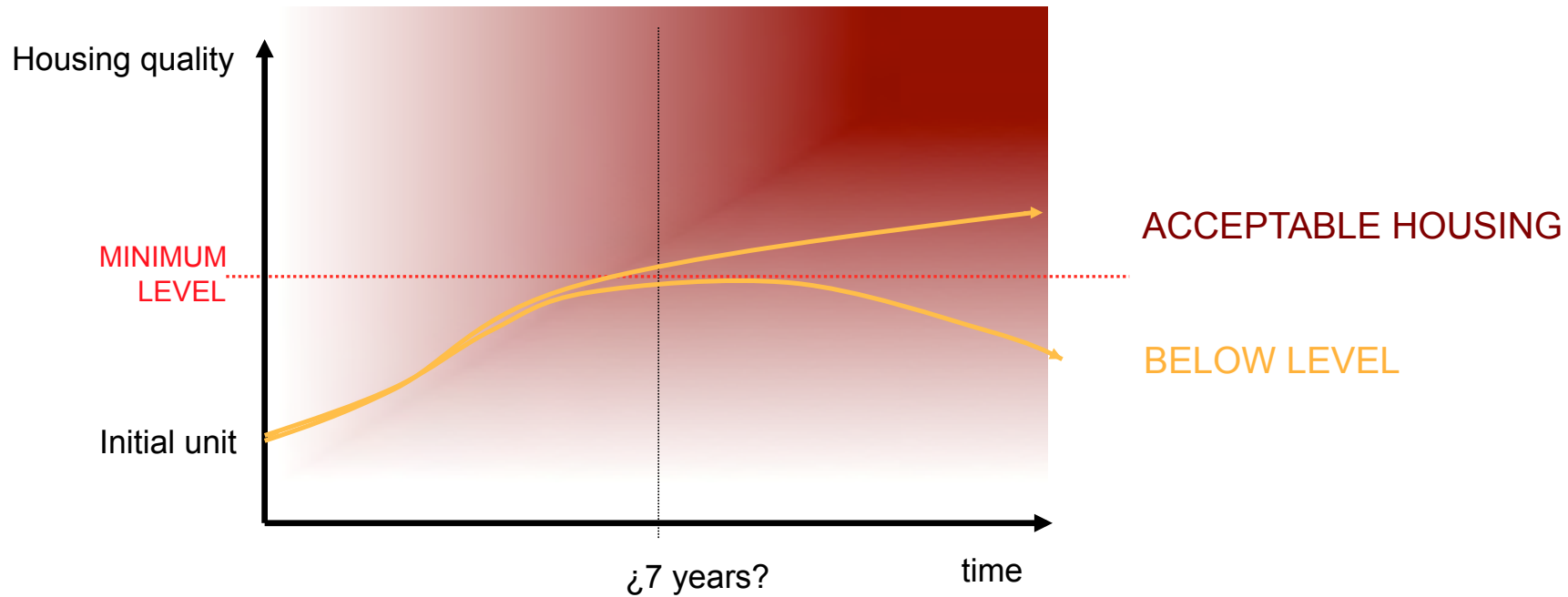
THREE ASPECTS OF THE INCREMENTAL BUILDING

- to reach a minimum space
- construction as an improvement process



THREE ASPECTS OF THE INCREMENTAL BUILDING

- to reach a minimum space
- construction as an improvement process
- family and house time line



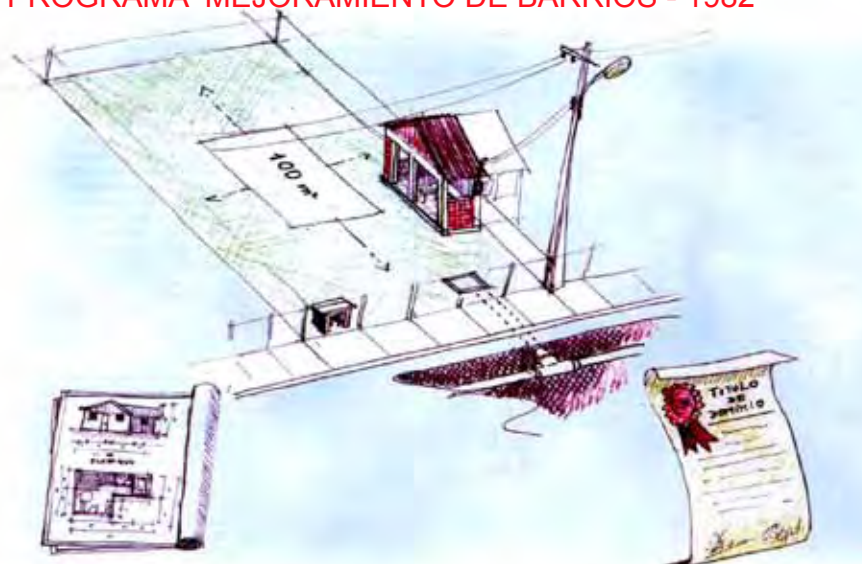


INFORMAL SECTOR 1
INCREMENTAL PROCESS 2
PROGRAMMES AND CASES 3



| | 1950 1951 1952 1953 1954 1955 1956 1957 | 1958 1959 1960 1961 1962 1963 | 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 | 1974 1975 1976 1977 1978 1979 1980 1981 1982 | 1983 1984 1985 1986 1987 1988 1989 | 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 |
|------------------------------------|--|--|--|--|--|--|
| Autoconstrucción y Ayuda Mutua | | | | | | |
| Asentamientos Informales | | | | | | |
| Programa de Erradicaciones | | | | | | |
| Operación Sitio | | | | | | |
| Campamentos | | | | | | |
| Hogares Allegados a Sitio | | | | | | |
| Programa Mejoramiento de Barrios | | | | | | |
| Programa Vivienda Progresiva | | | | | | |
| Programa Chile Barrio | | | | | | |
| Vivienda Social Dinámica sin Deuda | | | | | | |
| PROGRESIVIDAD: | AUTOCONSTRUCCION | ERRADICACION | NUEVAS SOLUCIONES | RADICACION | SIN APOYO ESTATAL | RADICACION + NUEVAS SOLUCIONES |
| | ETAPA I | ETAPA II | ETAPA III | ETAPA IV | ETAPA V | ETAPA VI |

PROGRAMA MEJORAMIENTO DE BARRIOS - 1982



| | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|------------------------------------|------------------|------|------|------|------|------|------|------|--------------|------|------|------|------|------|------|------|-------------------|------|------|------|------|------|------|------|------------|------|------|------|------|------|------|------|-------------------|------|------|------|------|------|------|------|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Autoconstrucción y Ayuda Mutua | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asentamientos Informales | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Programa de Erradicaciones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operación Sitio | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Campamentos | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hogares Allegados a Sitio | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Programa Mejoramiento de Barrios | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Programa Vivienda Progresiva | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Programa Chile Barrio | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vivienda Social Dinámica sin Deuda | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROGRESIVIDAD: | AUTOCONSTRUCCION | | | | | | | | ERRADICACION | | | | | | | | NUEVAS SOLUCIONES | | | | | | | | RADICACION | | | | | | | | SIN APOYO ESTATAL | | | | | | | | RADICACION + NUEVAS SOLUCIONES | | | | | | | | | | | | | |
| | ETAPA I | | | | | | | | ETAPA II | | | | | | | | ETAPA III | | | | | | | | ETAPA IV | | | | | | | | ETAPA V | | | | | | | | ETAPA VI | | | | | | | | | | | | | |

Junta Militar de Gobierno

SERVU

PNDU-DS-420

Augusto Pinochet, Inrnt

Patricio Aylwin Azocar

Eduardo Frei Ruiz Tagle

PRMS

Ricardo Lagos Escobar



| | Galos Ibañez del Campo CORVI | Jorge Alessandri Rodríguez DPLZ PRIS | Eduardo Frei Montalva MINVU | Salvador Allende Gossens | Junta Militar de Gobierno | SERVU PNDU-DS420 Augusto Pinochet Inart. | | Patricio Aylwin Azocar | Eduardo Frei Ruiz Tagle PRMG | Ricardo Lagos Escobar |
|------------------------------------|--|--|--|--|--|--|--|------------------------|---------------------------------|-----------------------|
| | 1950 1951 1952 1953 1954 1955 1956 1957 | 1958 1959 1960 1961 1962 1963 | 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 | 1974 1975 1976 1977 1978 1979 1980 1981 1982 | 1983 1984 1985 1986 1987 1988 1989 | 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 | | | | |
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| | ETAPA I | ETAPA II | ETAPA III | ETAPA IV | ETAPA V | ETAPA VI | | | | |



| | Gaitan Ibáñez | | | | | | | | | | | | | | | | | Jorge Alessandri | | | | | | | | | | | | | | | | | Eduardo Frei | | | | | | | | | | | | | | | | | Salvador Allende | | | | | | | | | | | | | | | | | Junta Militar | | | | | | | | | | | | | | | | | Augusto Pinochet | | | | | | | | | | | | | | | | | Patricio Aylwin | | | | | | | | | | | | | | | | | Eduardo Frei | | | | | | | | | | | | | | | | | Ricardo Lagos | | | | | | | | | | | | | | | | |
|------------------------------------|------------------|------|------|------|------|--------------|------|------|------|------|-------------------|------|------|------|------|------------|------|------------------|------|------|-------------------|------|------|------|------|--------------------------------|------|------|------|------|------|------|------|------|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------------------|------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Autoconstrucción y Ayuda Mutua | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asentamientos Informales | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Programa de Erradicaciones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operación Sitio | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Campamentos | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hogares Allegados a Sitio | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Programa Mejoramiento de Barrios | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Programa Vivienda Progresiva | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Programa Chile Barrio | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vivienda Social Dinamica sin Deuda | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROGRESIVIDAD: | AUTOCONSTRUCCION | | | | | ERRADICACION | | | | | NUEVAS SOLUCIONES | | | | | RADICACION | | | | | SIN APOYO ESTATAL | | | | | RADICACION + NUEVAS SOLUCIONES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ETAPA I | | | | | ETAPA II | | | | | ETAPA III | | | | | ETAPA IV | | | | | ETAPA V | | | | | ETAPA VI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|-------------------------------------|---|
| incremental building in city centre | 1 |
| plot densification | 2 |
| elemental | 3 |

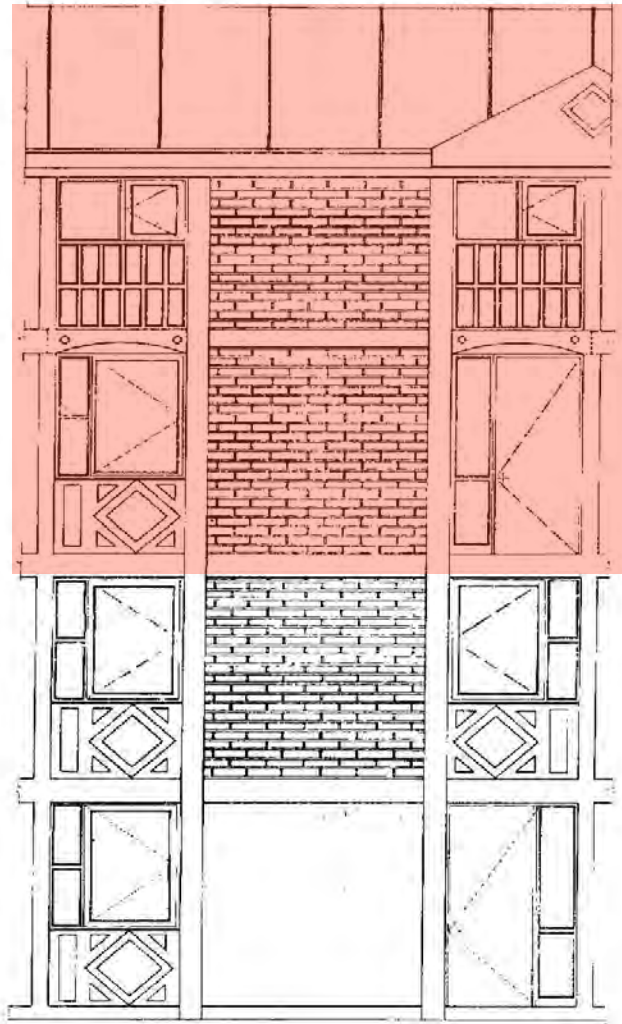
| | |
|-------------------------------------|---|
| incremental building in city centre | 1 |
| plot densification | 2 |
| elemental | 3 |

Situation previous to intervention

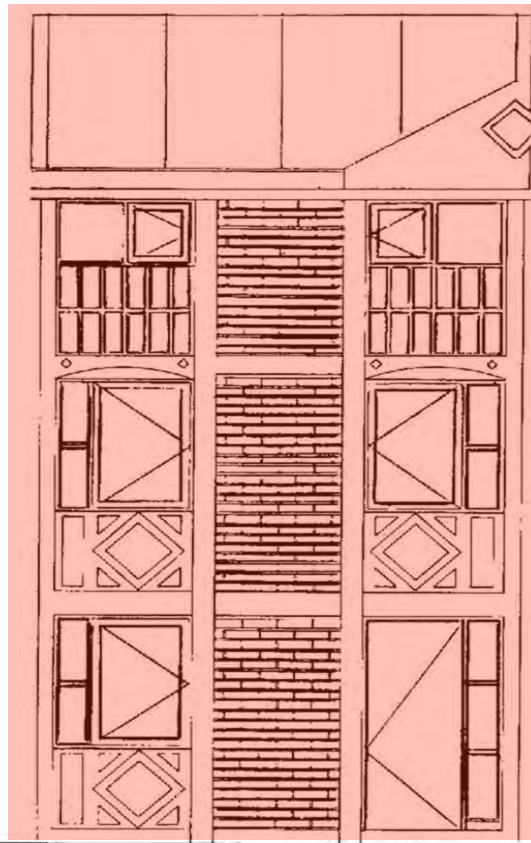




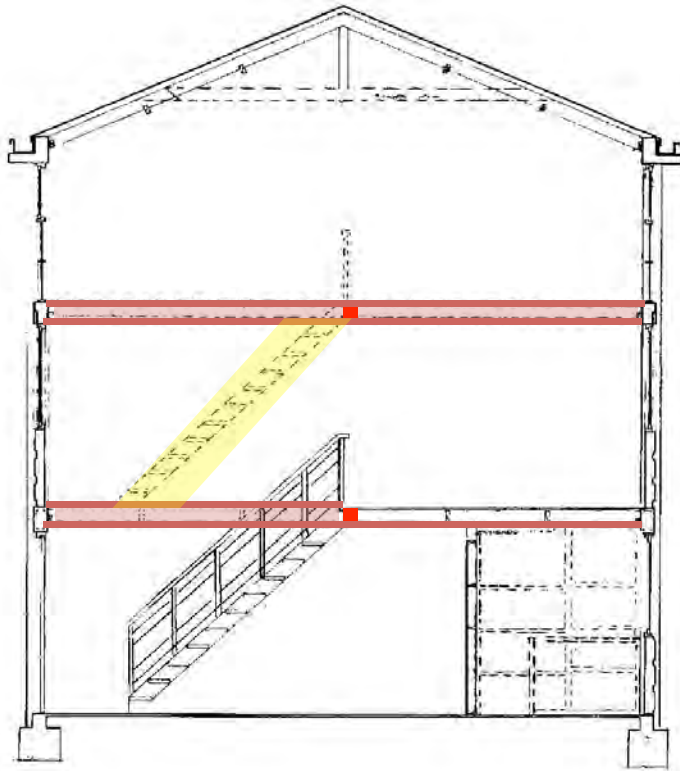
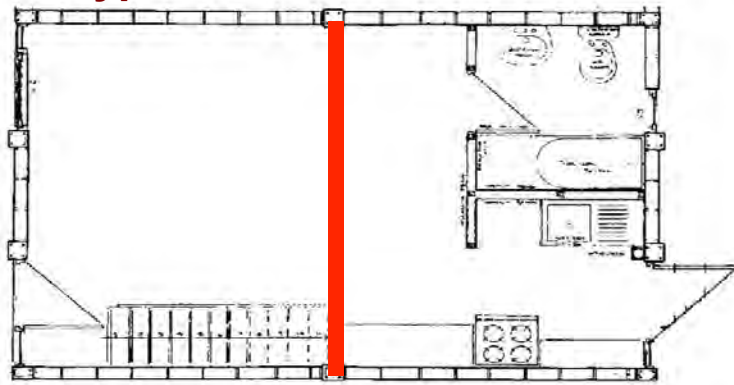
House Type A – two floors



House Type B – three floors



House Type B – three floors





COMUNIDAD ANDALUCIA

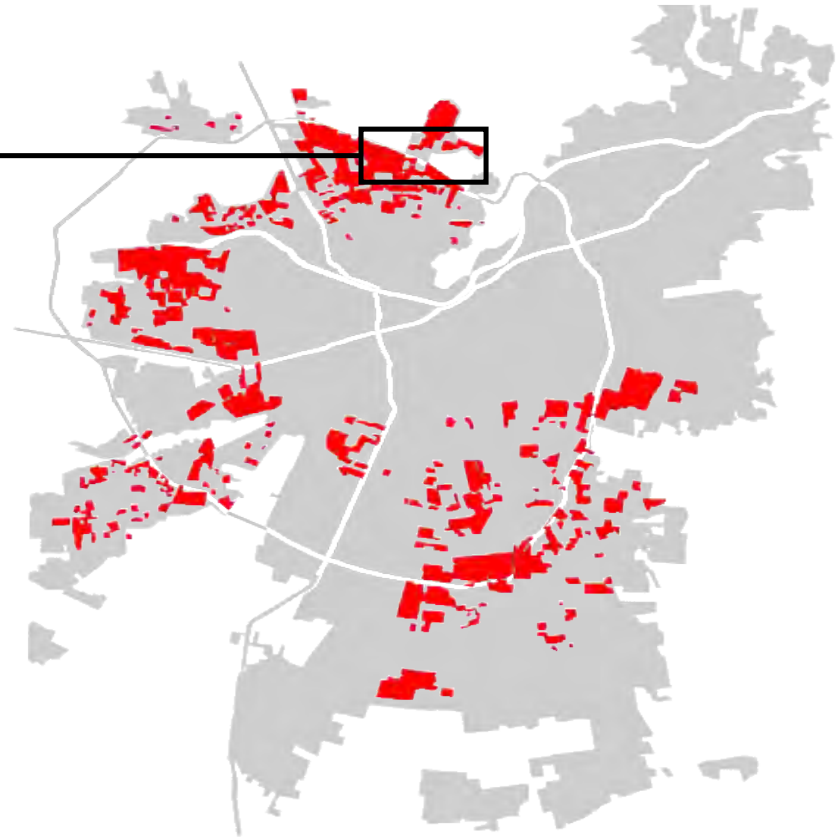
Arquitecto: Fernando Castillo Velasco

| | |
|-------------------------------------|---|
| incremental building in city centre | 1 |
| plot densification | 2 |
| elemental | 3 |

9x18 POBLACIONES IN SANTIAGO



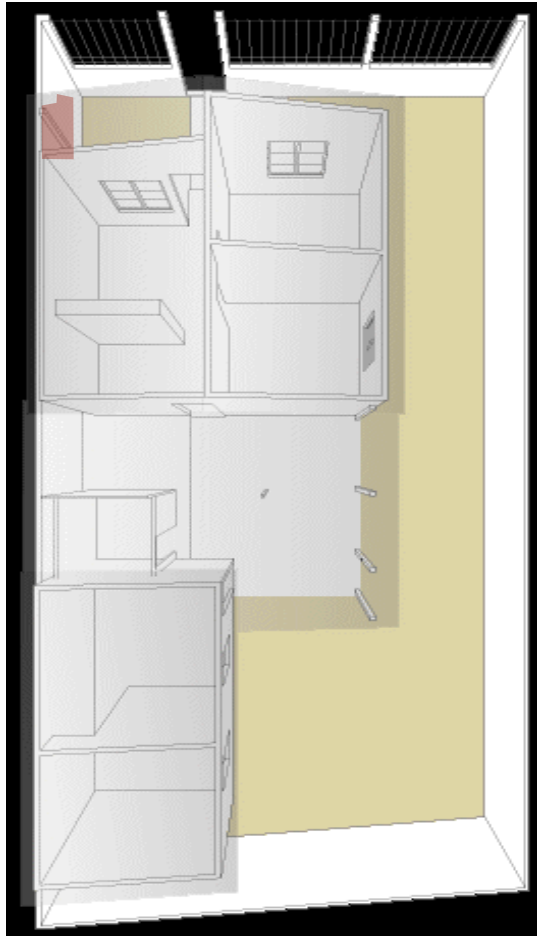
Urban grid in 9x18 plots



The allegados

In the analyzed poblaciones, there is on average more than one family of allegados per plot.

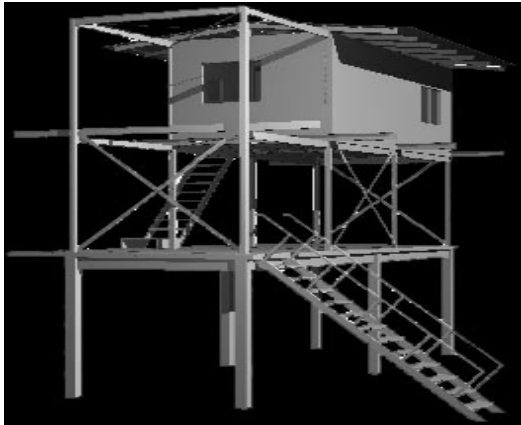
98% of the allegados are family relations to the plot owners



Allegado family



Main family



THE HOUSE

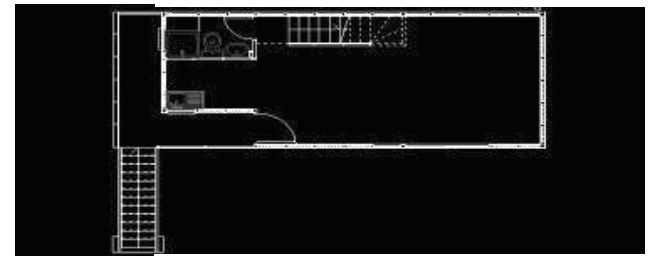


Front Elevation

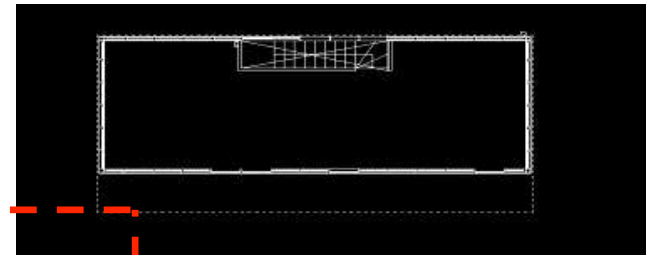
Ground floor: plot owner 32 m² roof



First floor allegado: 29 m²



Second floor: additional 32 m²



↓ OWNER



The radication strategy consists on the construction of a new floor, through the construction of a concrete slab that allows the allegado to receive a new independent house in second and third floors.

PILOT PROJECT 2003

Financing:

1. Government Subsidy:

280 U.F. (6.430 €)

2. Beneficiary:

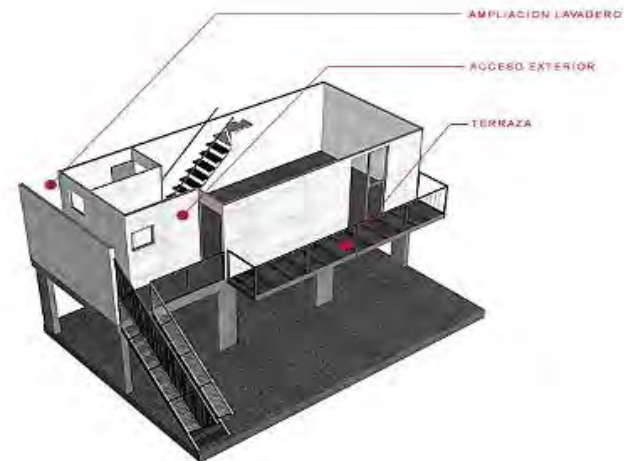
Savings 10 U.F. (230 €)

3. Other Funds:

Demand Organization: Fundación Rodelillo.

Project Development: P.U.C., Fundación Rodelillo, Fundación Invica.

Architect: Francisco Vergara y Equipo Lote 9x18



The house from the street





incremental building in city centre 1
plot densification 2
elemental 3



In spite of poor housing conditions, due to community and good location in the city (access to urban services) ... the demand was to STAY

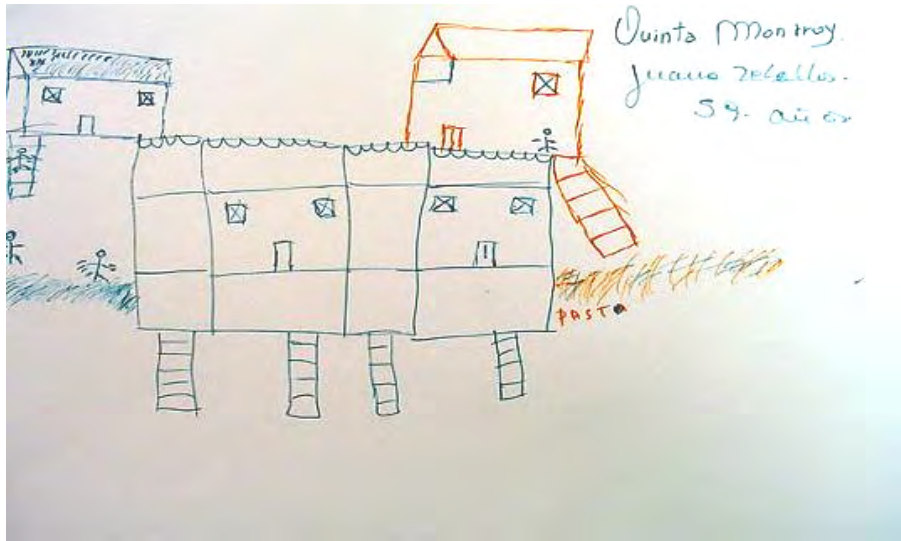
Radication was the answer

BUT
The plot was 3 times the price normally paid for social housing



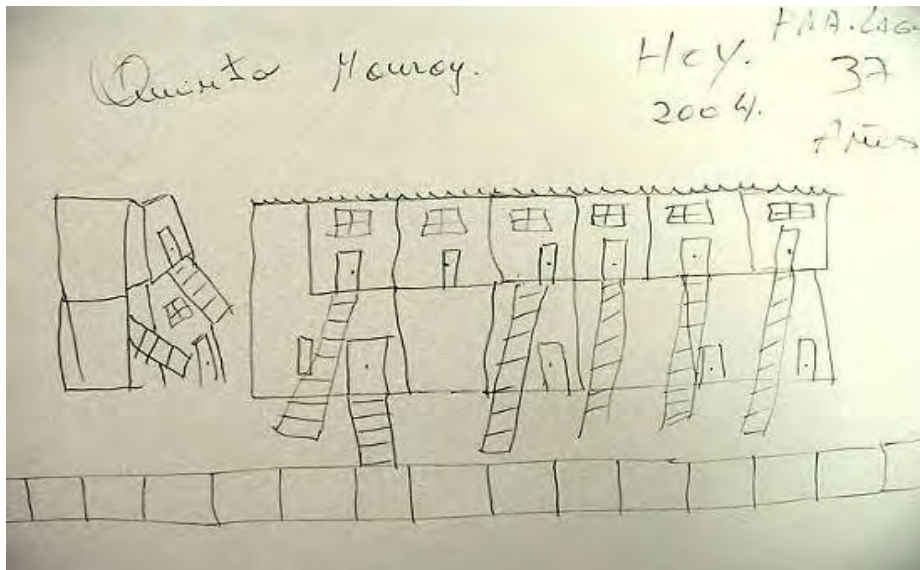
ELEMENTAL



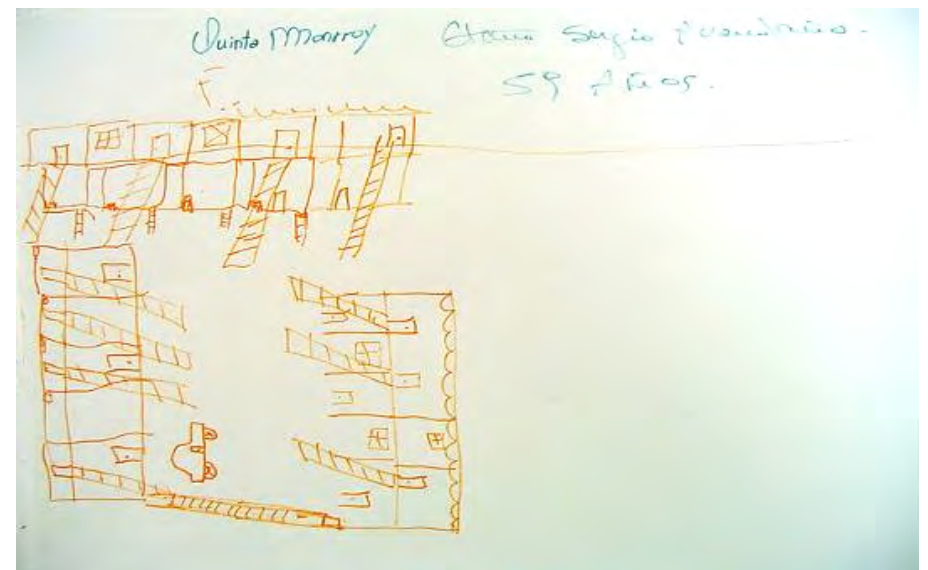


Juana Zeballos

PAA Lagos



the houses by the future inhabitants



Sergio Avendaño

1. Planned growth to 72 m²
2. Ventilated kitchen and toilet
3. Definitive structure and external walls
4. Crossed ventilation
5. No corridors or shared stairs
6. Modular rooms 3x3 mts
7. Colective space for 20-30 families

This was the result:



Arquitecto: Alejandro Aravena y Equipo Elemental





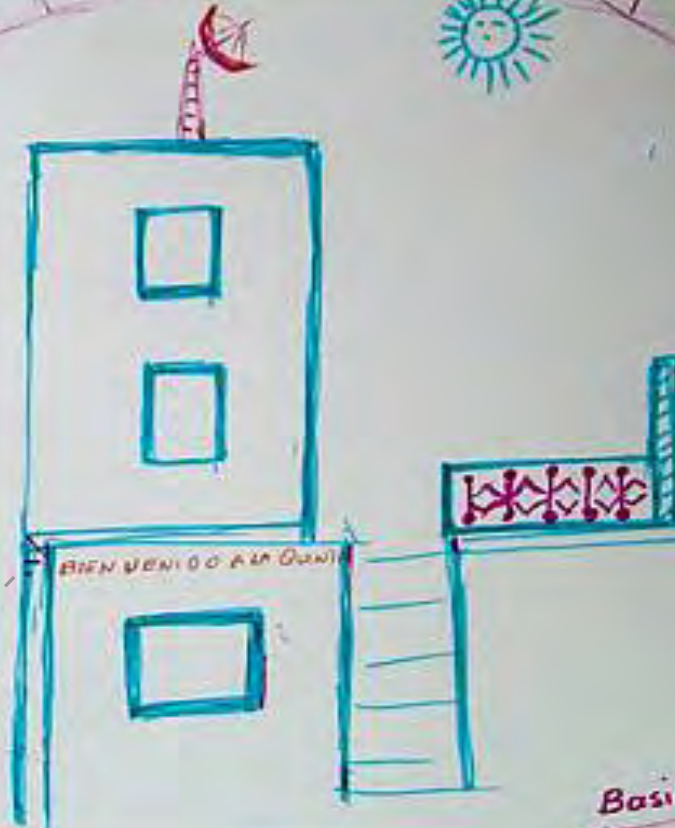








Quinta Monroy 2004



Welcome to the Quinta

Basilio Quispe H
54.

the end.