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LIFE CYCLE ASSESSMENT AND ECOLOGICAL FOOTPRINT OF BUILDING IN SPAIN

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ECOLOGICAL FOOTPRINT OF BUILDING

1.- METHODOLOGY

2.- RESULTS AND DISCUSSION



1.- METHODOLOGY

ECOLOGICAL FOOTPRINT

Use categories

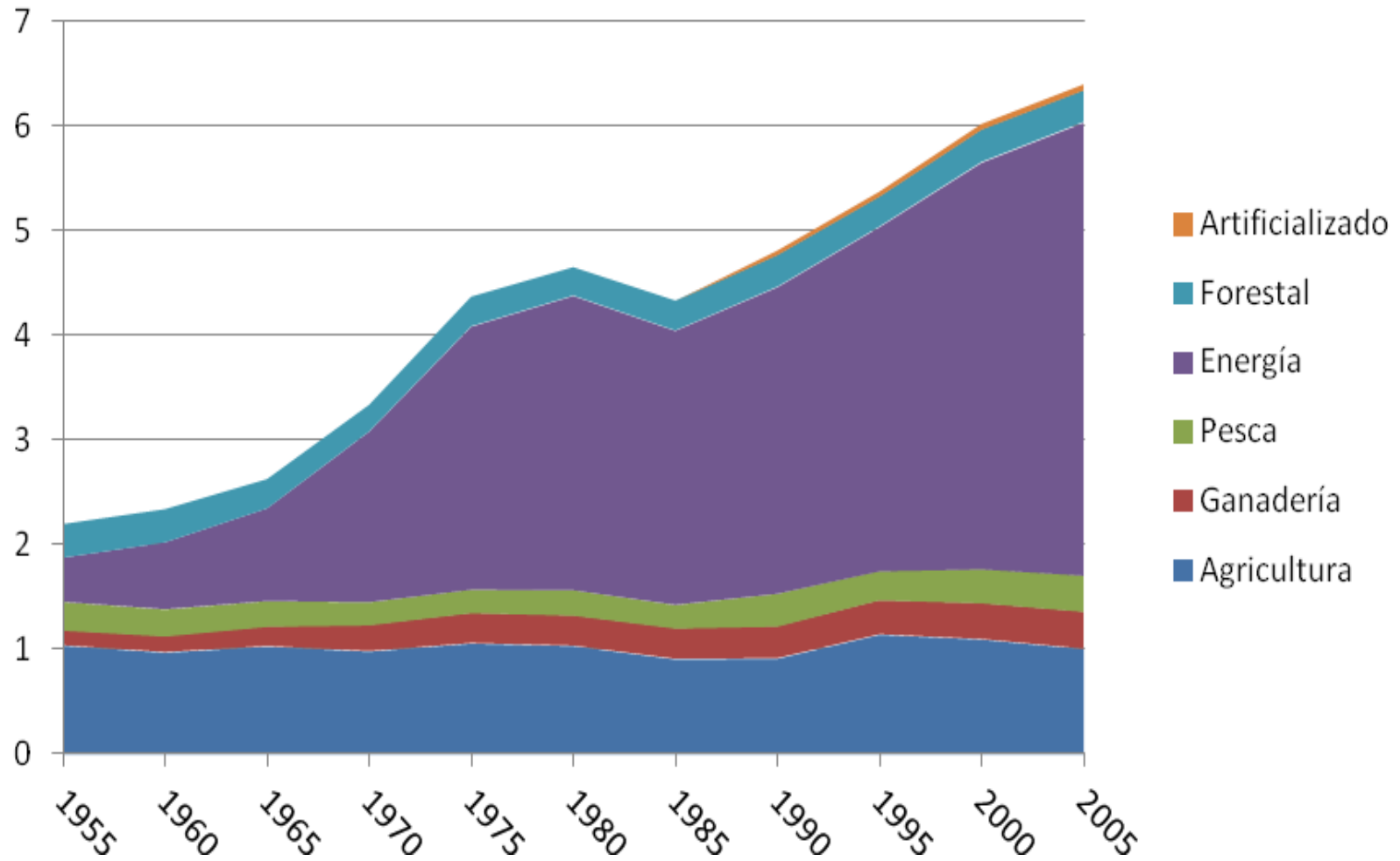
Food
Forestry
Goods
Energy
Infrastructures
Services

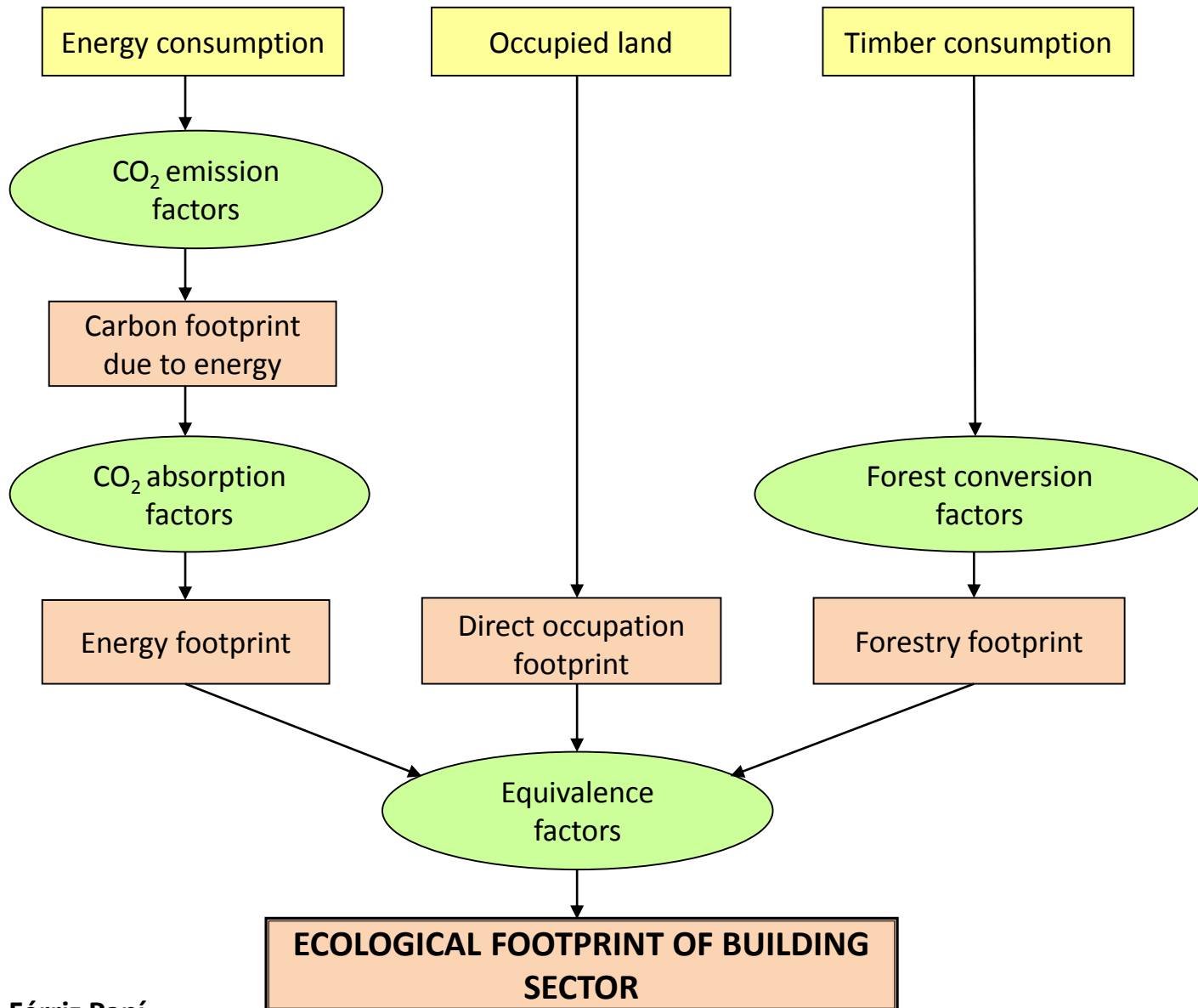
Productive land

Cropland
Grazing land
Forests
Productive sea
Built land
CO₂ absorption



EVOLUTION OF ECOLOGICAL FOOTPRINT IN SPAIN (ha/hab)







2.- RESULTS AND DISCUSSION

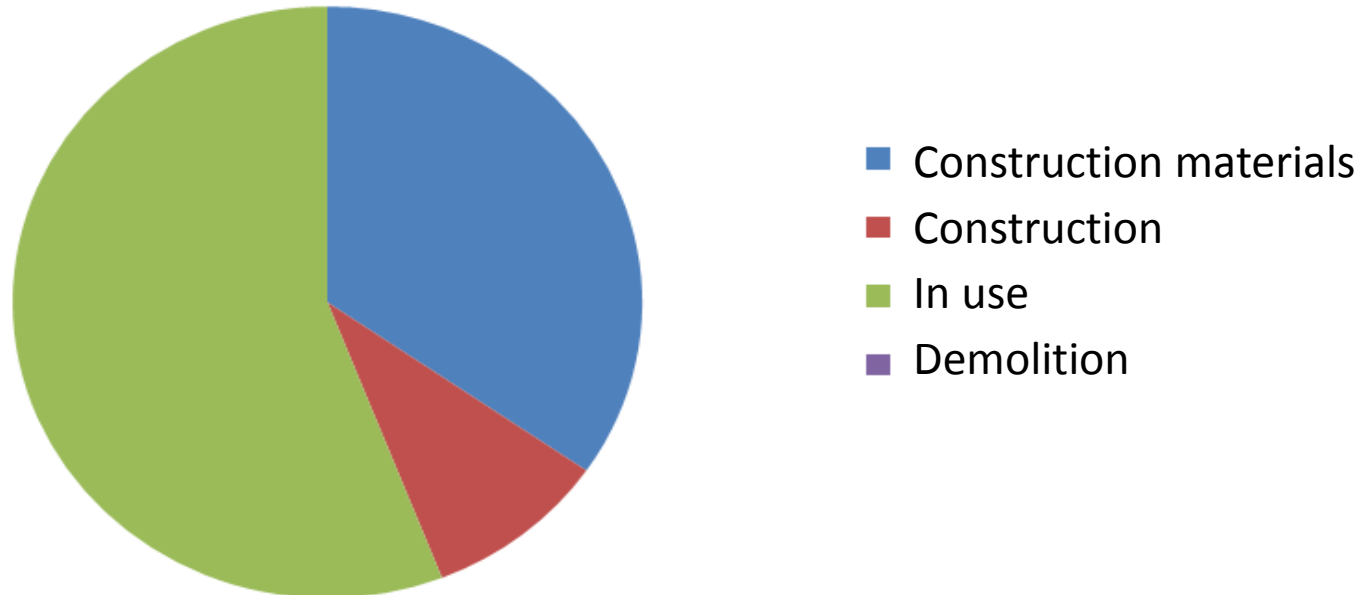
	ha/m ²	ha/hab
Energy footprint	0.005524	0.859651
Direct occupation footprint	0.000112	0.015428
Forestry footprint	0.000374	0.052567
TOTAL	0.006010	0.927646

Standard area



2.- RESULTS AND DISCUSSION

Significance of building life cycle stages

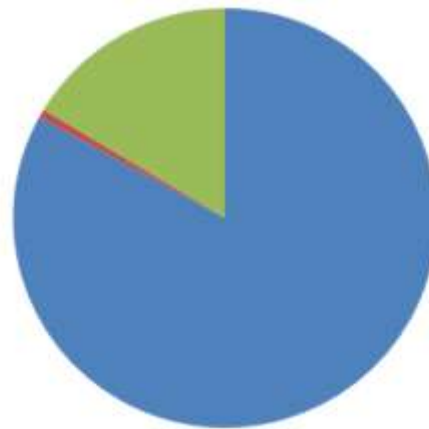




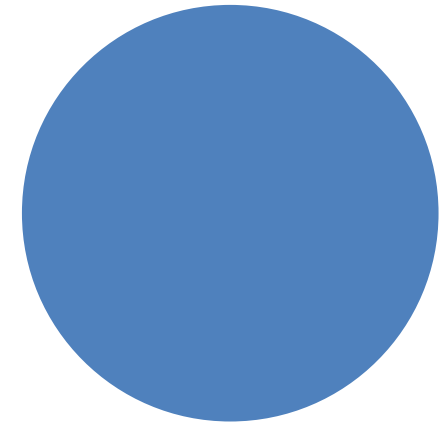
2.- RESULTS AND DISCUSSION

Distribution of partial footprints per stage

Construction materials



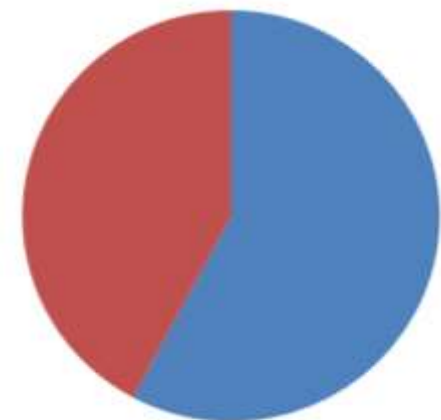
Construction



In use



Demolition and end of use



- Energy footprint
- Direct occupation footprint
- Forestry footprint



FLOWS NOT INCLUDED IN FOOTPRINT ESTIMATION

NATURAL RESOURCES CONSUMPTION

ECOLOGICAL RUCKSACK

3,4 T of natural Resources per new built m²

WATER CONSUMPTION

WATER FOOTPRINT

681,8 l of water per existing built m²

WASTE PRODUCTION

Weight/Volume per type of waste



TOOL ANALYSIS

METHODOLOGY APPLICATION

OBTAINED RESULTS

FUNCTIONALITY AND COMPLEMENTARITY



METHODOLOGY APPLICATION

EF	
Legislation	No oficial
Original data	Energy, land and timber
Coefficients	Difficult to calculate
Information organization and classification	Use categories and productive land



EXPRESSION OF RESULTS

EF	
Expression of results	Just one parameter: productive land Easier to understand There is missing information



FUNCTIONALITY AND COMPLEMENTARITY

EF

Focused more on the study of territory balance

More pedagogic use

No identification of consumptions and emissions

Some of them are not considered

Easy to express

Improvements to achieve in procedure



PROPOSALS FOR A BETTER IMPLEMENTATION

Development of public environmental databases

Improvement of circular economy in the construction industry

Possibility of assessment for materials and construction methods

Improvement of environmental assessment in the Building life cycle

Assessment of territory impact of Building

Study of territory balance and urban planning