

VIVIENDA SUSTENTABLE EN MÉXICO

NAMA



ACCIONES NACIONALES
APROPIADAS DE MITIGACIÓN



Joint UN Environment – UNFCCC Workshop Mitigation in the Building Sector

Lessons learned from Mexican Housing NAMA

31 July 2017

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The Mexican Housing Sector

- Population growth around **1.7 Mio. per year**
- **Urbanisation rate approx. 79%** and still expected to rise
- **Approx. 28 million homes existing housing stock** (INEGI, 2010) with **one third** requiring total or partial renovation in 2030 (SEMARNAT / GIZ, 2011)
- It is estimated that on average **400.000 dwellings/ year will be built over the next 10 years**, mainly targeting low-income population (CONAVI, 2011)

Current policy:

- SEDATU (INCE 2013): focus on re-densification of inner-city districts as well as more compact, vertical building
- SEMARNAT: reduction of GHG emissions by 50% until 2050



Mitigation Scenarios *New Housing NAMA*

Scenario 1:

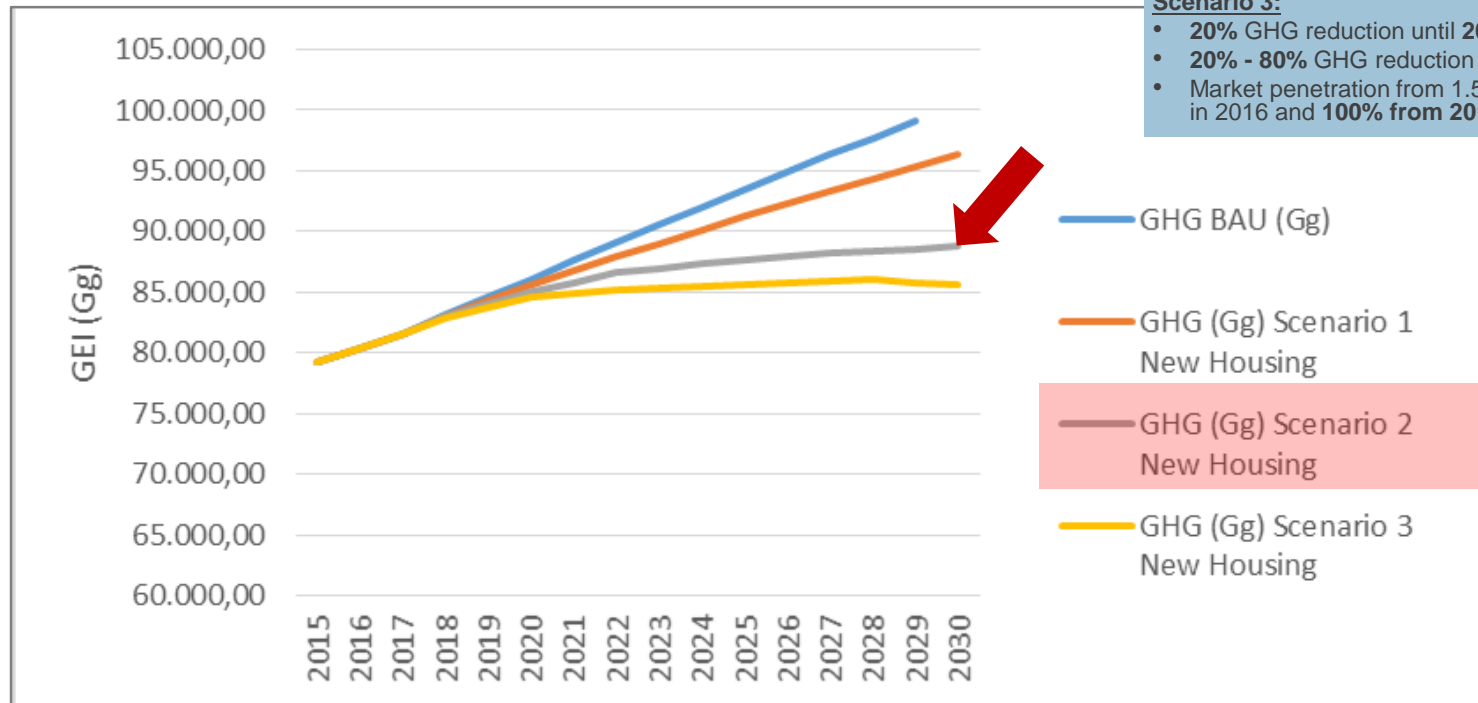
- 20% GHG reduction until 2030
- Market penetration from 1.5% in 2014 to 100% from 2020

Scenario 2:

- 20% GHG reduction until 2019
- 20% - 50% GHG reduction 2020 - 2030
- Market penetration from 1.5% in 2014 to 26% in 2017 and 100% from 2018

Scenario 3:

- 20% GHG reduction until 2017
- 20% - 80% GHG reduction 2018 - 2030
- Market penetration from 1.5% in 2014 to 16% in 2016 and 100% from 2018



MITIGATION POTENTIAL



Mitigation Scenarios *Existing* Housing NAMA

Scenario 1:

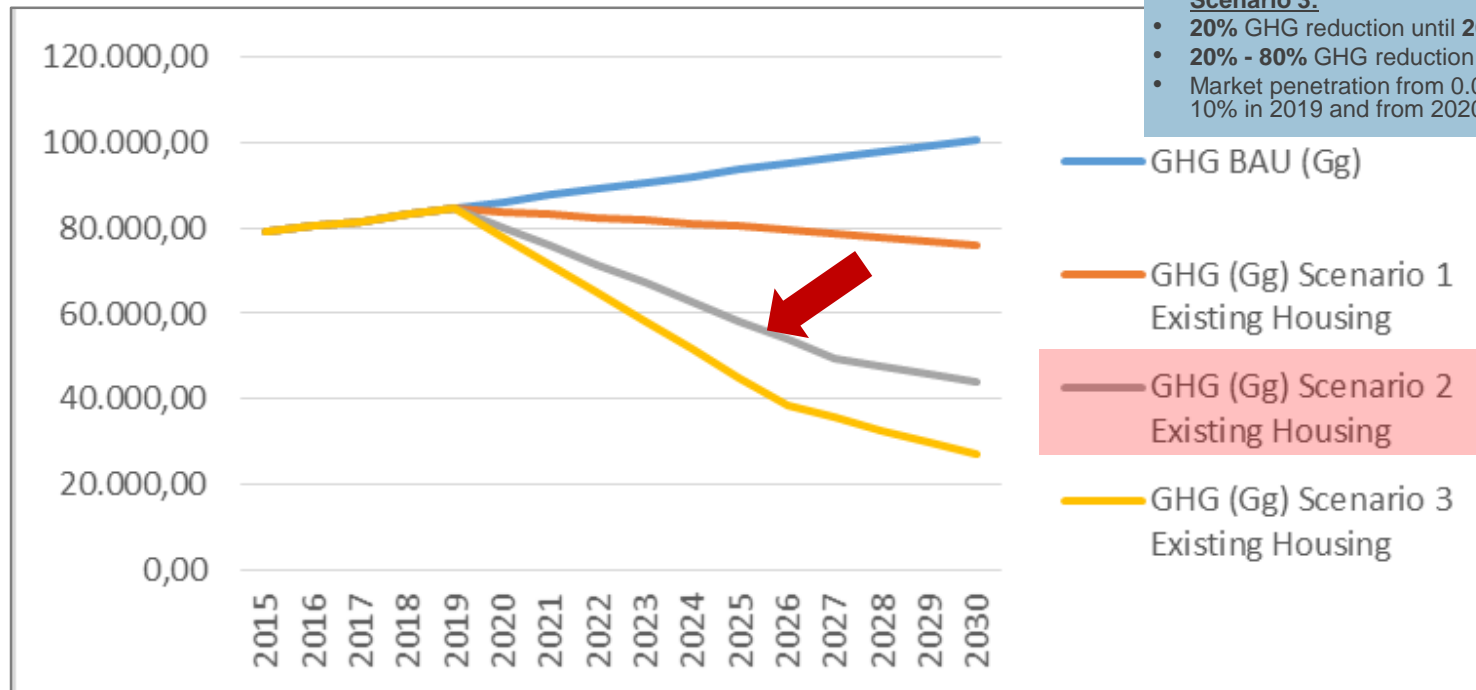
- 20% GHG reduction until 2030
- Market penetration from 0.04% in 2017 to 10% from 2020

Scenario 2:

- 20% GHG reduction until 2019
- 20% - 40% GHG reduction 2020 - 2030
- Market penetration from 0.04% in 2014 to 10% in 2019 and from 2020 +10% *per anum*

Scenario 3:

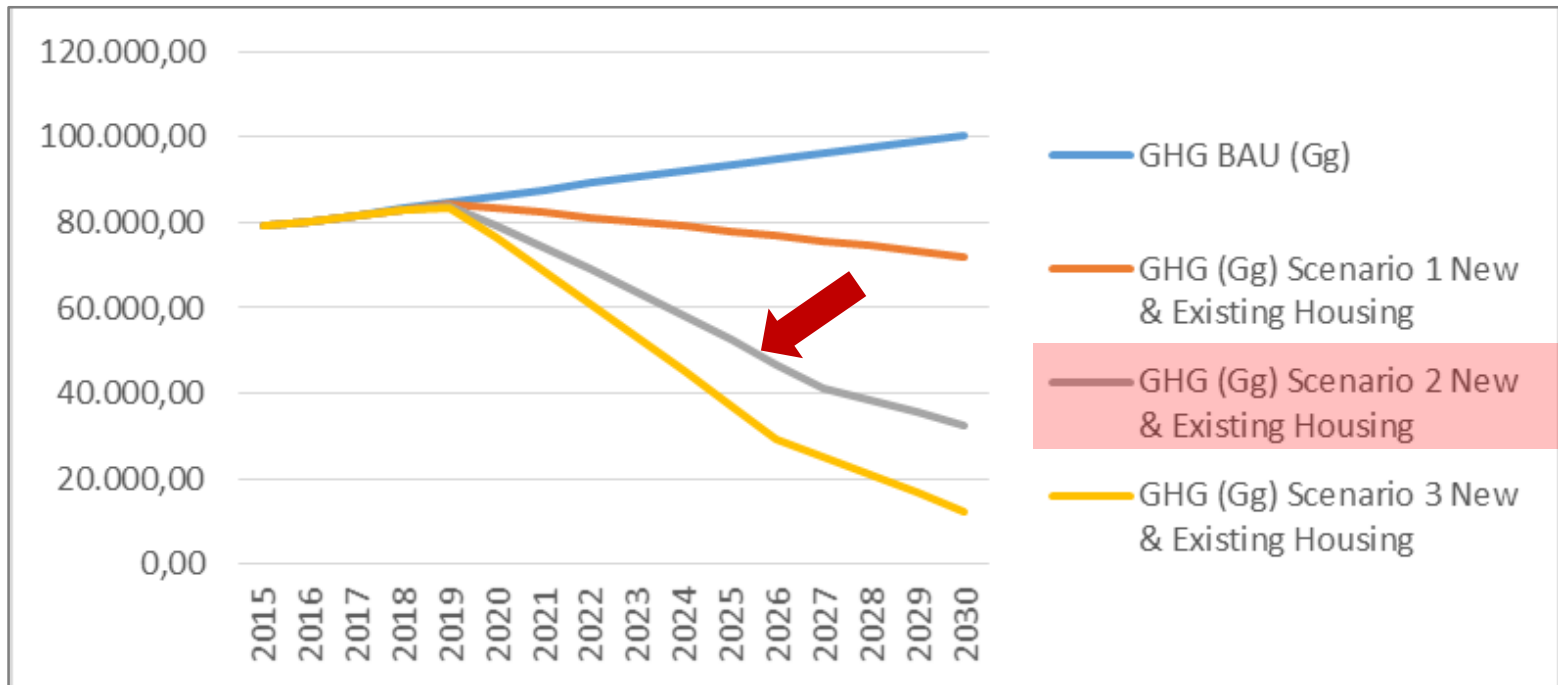
- 20% GHG reduction until 2019
- 20% - 80% GHG reduction 2020 - 2030
- Market penetration from 0.04% in 2014 to 10% in 2019 and from 2020 +10% *per anum*



MITIGATION POTENTIAL



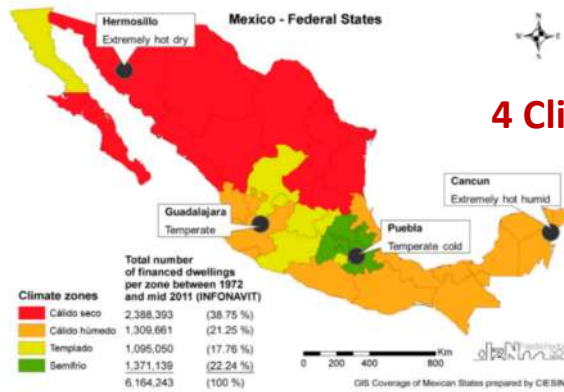
New Housing NAMA and Existing Housing NAMA



THE MEXICAN HOUSING NAMA



The *New* Housing NAMA



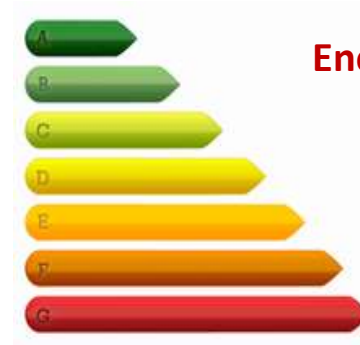
4 Climate Zones



3 Housing Prototypes



Whole House Approach



Energy Certification

THE MEXICAN HOUSING NAMA



Urban Sustainability Criteria for NAMA projects (in preparation)



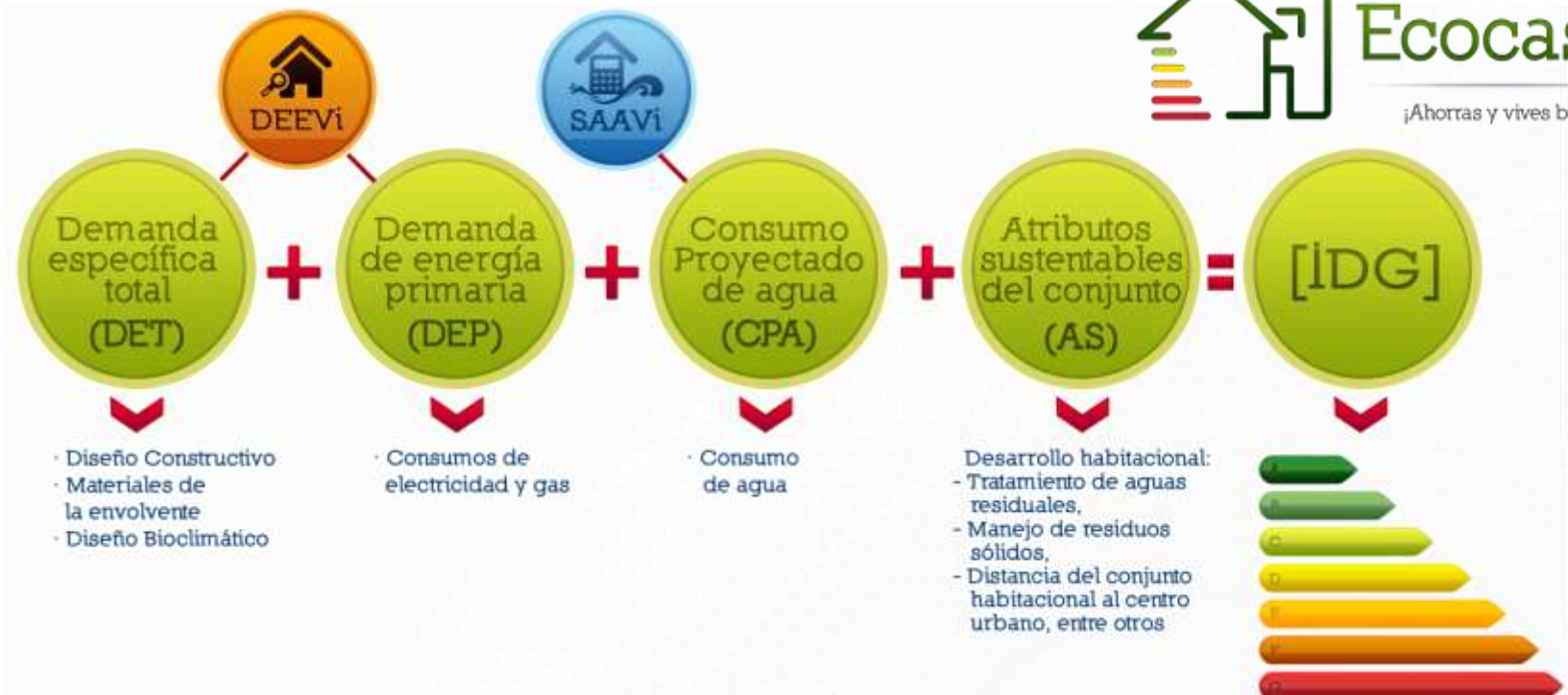
Criterios	Indicador	Parámetros a corto plazo (2016 - 2018)	Parámetros a corto mediano (2016 - 2020)	Parámetros a corto largo (2020 - 2030)
Proximidad a empleo	Densidad empleos/radio 5 km	10 empleos/ha	10 empleos/ha	30 empleos/ha
Proximidad a transporte	Hitos de transporte a 500 m	1 (no estructurados)	2 (no estructurados)	1 (estructurados)
Densidad y usos del suelo	Densidad habitacional*	>50% densidad permitida en el PHDU	>60% densidad permitida en el PHDU	>10% densidad permitida en el PHDU
Área promedio de manzanas	Área promedio de manzanas	<14 ha	<12 ha	<11 ha

Criterios	Indicador	Parámetros a corto plazo (2016 - 2018)	Parámetros a corto mediano (2016 - 2020)	Parámetros a corto largo (2020 - 2030)
Ordenamiento territorial	PHDU*	PHDU actualizado	PHDU actualizado y congruente con PEDU	PHDU actualizado y congruente con PEDU
	PCU*	U1, U2 y U3	U1 y U2	U1 y U2
	Comercio y/o servicios*	20%	25%	30%
Zona de riesgo	Atlas de riesgo	Municipal	Municipal	Municipal
		Estatal	Estatal	NA
Infraestructura básica	Cobertura de agua	100%	100%	100%
	Cobertura de drenaje	100%	100%	100%
	Cobertura de electricidad	100%	100%	100%
	Nº. de accesos*	2 accesos	3 accesos	Conjunto abierto
	Distancia a accesos**	<80m	<60m	<40m
Equipamiento y servicios	Redes DEESOL	Cumple	Cumple	Cumple
Vivienda desocupada	% viviendas desocupadas en 5 km	<10%	<10%	<5%

THE MEXICAN HOUSING NAMA



Development of Certification System for Energy and Water Demand (Global Performance Index)

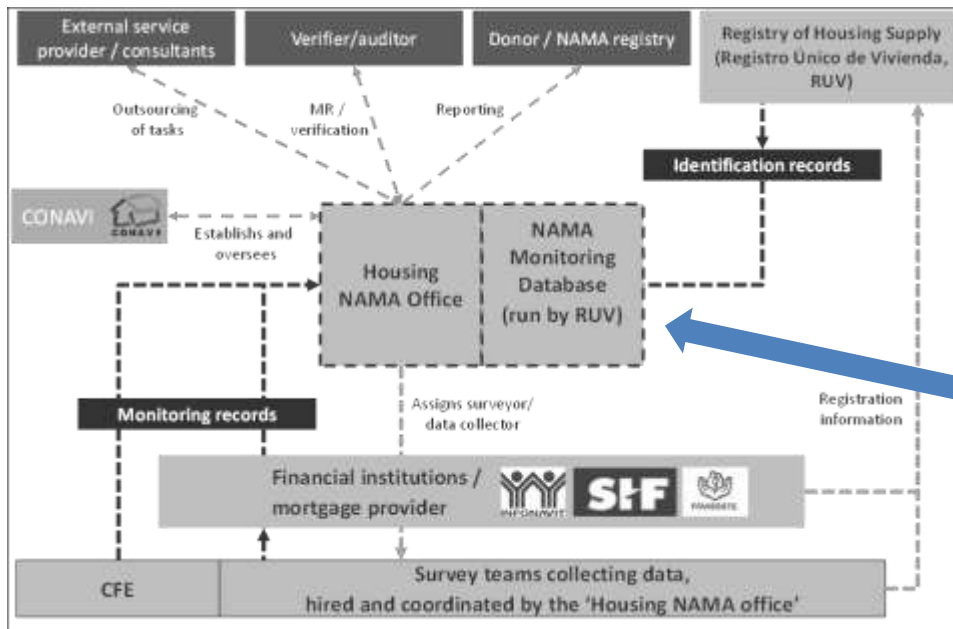


THE MEXICAN HOUSING NAMA

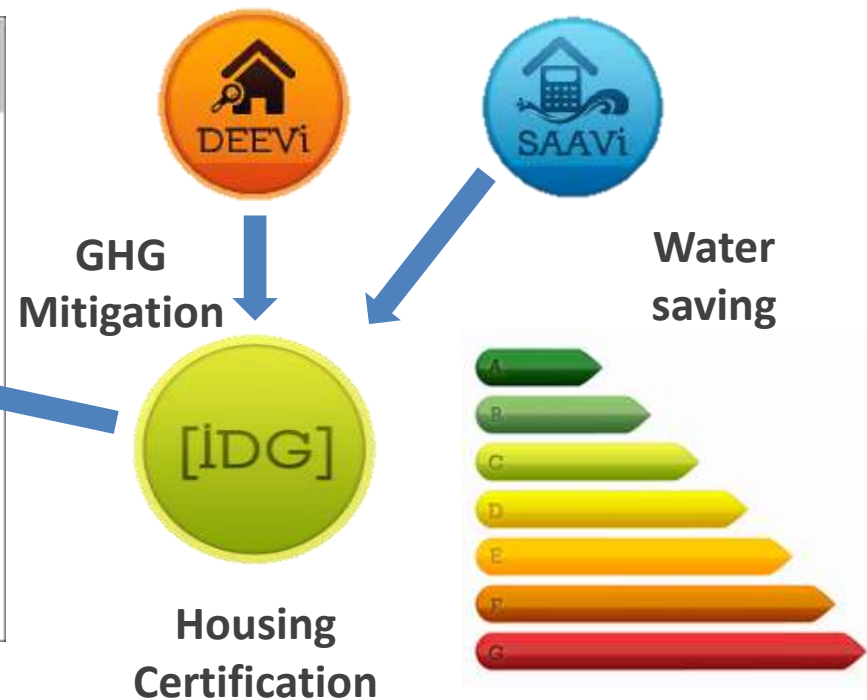


Monitoring, Reporting, Verification System (MRV)

MRV Framework



Ex – ante monitoring



Source: MRV for the NAMA of New Housing of Mexico. GIZ. 2012



The *Existing* Housing NAMA



Plan maestro fruto de consultoría

Paso 3*

Paso 1 y 2 + según clima: Aislamiento térmico en muros, hermeticidad ventilación controlada.

Paso 2

+ Aislamiento térmico en techo, colector solar, ventanas nuevas de alta calidad térmica (según clima), sombreadamientos, mejoradas.

Paso 1

Electrodomésticos altamente eficientes.

Línea Base

Sólo medidas de mantenimiento urgentes, sin medidas de eficiencia energética.

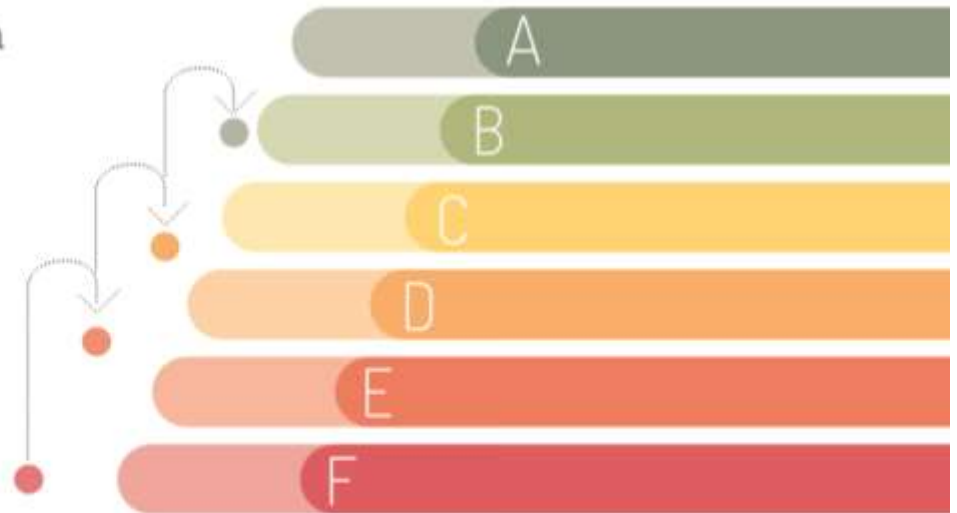
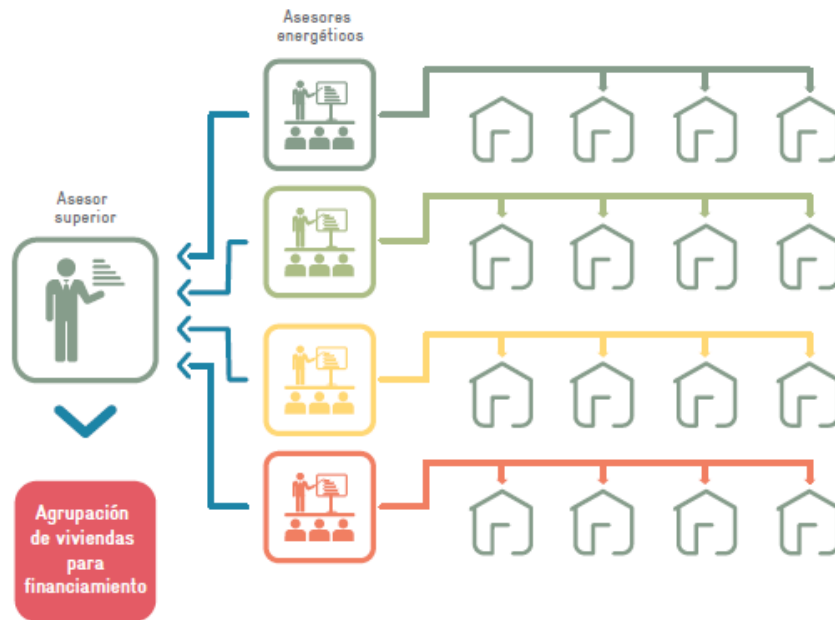


Figura 1: Rehabilitación paso a paso hacia el óptimo desempeño energético y ambiental, resumen general de ejemplos calculados para el Diseño Técnico de la NAMA VE

* EnerPHit - Diseño técnico NAMA VE: Rehabilitación paso a paso hacia el óptimo desempeño energético y ambiental.



The *Existing* Housing NAMA: Energy Advisors



Energy Advisor:

- Direct contact with the families
- Information from field data collection
- Makes the energy balance of the house
- Measure proposes depending of the climate zone
- Follow up on the measures implemented

Figura 9: Esquema de la combinación entre Asesores Energéticos y Asesor Superior
(Fuente: Passivhaus Institut).

FINANCING PROGRAMMES



Financing Programmes New Housing Sector



41.362 units

20% CO₂e reduction

Prioritizing of Subsidy

43.101 units

20% CO₂e reduction

Loan guaranties for bridge loan

Meta: 645-873 units

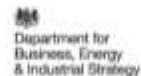
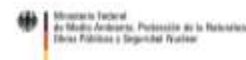
80% CO₂e reduction

Subsidy of 70% of the total extra cost of materials

8-11.000 units (TBC)

20% CO₂e reduction

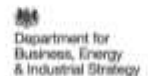
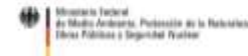
Loan guaranties for and Subsidy for extra cost



FINANCING PROGRAMMES



Financing Programmes *Existing* Housing Sector (*design phase*)





Success Factors in Mexico

- Matching of **Climate and Social Housing Agendas** of the Mexican Government.
- The New Housing NAMA provided the diverse stakeholders with a sector wide **clear and transparent concept** and technical design.
- **Complementation of financial means** of the national budget and the private housing developers with international climate financing.
- Linking **already existing financing mechanisms** and instruments of the Mexican government (e.g. subsidies to end users by CONAVI, bridge loans to housing developers by SHF) gradually to the NAMA design.
- Intensive cooperation between all **international donors** involved.



Lessons & challenges

In general:

- TA in NAMA implementation / financing programmes is essential

Public side:

- Coordination of diverse Actors of housing sector remains a challenge.
- Subsidies of electricity tariff system represents a major barrier for pursuing more ambitious mitigation levels (household gas not subsidized).
- Low level of enforcement of norms & regulations.

Housing developers:

- Still lack of knowledge, partially low construction quality of new NAMA measures



Finance mobilized:

- **International:** NAMA development triggered intern. financing
- **Public:** Subsidy of CONAVI prioritized for NAMA projects w. 20% mitigation
- **Private:** Leverage of private investment achieved, but difficult to quantify/verify due to industrial intellectual property (thus, being estimated)
- **Current discussion:** Green Bonds for housing programmes

Sector transformation:

- Two ways of measuring:
 - **Quantitative:** Some indicators help to quantify
 - **Qualitative:** Description of current situation, activities of actors, impacts
- Subjectivity at some level (qualitative part), should be stronger linked with NDC's, Agenda 2030 etc.



MRV: Monitoring:

- Monitoring of NAMA if NAMA financed + mitigation projected is time-delayed due to time delay between allocation of funding by national financiers and reporting on spending by local financiers
- Monitoring so far only **Ex-ante** (projection)

MRV: Reporting:

- First sectorwide NAMA mitigation report in March 2017
- Avoiding doble counting of combined financing (different programmes)

MRV: Verification:

- **Ex-post:** Difficult access to housing units for monitoring is a problem
- **Current discussion:** Access to consumption data via electricity provider
- **Sector-wide monitoring:** A national data base for entire housing sector is being created to contribute their data

NAMA SUPPORT PROJECT MEXICO

More Information:

www.nama-facility.org/projects/mexico.html

www.micasaesmimundo.com

www.gob.mx/conavi/acciones-y-programas/vivienda-sustentable?idiom=es

www.ecocasa.gob.mx/

[www.energypedia.info/wiki/Energy_Efficiency_in_Buildings - Mexico](http://www.energypedia.info/wiki/Energy_Efficiency_in_Buildings_-_Mexico)

NAMA SUPPORT PROJECT MEXICO

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