



ACTIONS AND NEED TOWARD CLIMATE PROTECTION IN VIETNAM'S CONSTRUCTION SECTOR



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Commiment on climate protection from the Government of Vietnam

- ✓ **Achieve net-zero emissions by 2050, along with the cooperation and support of the international community in terms of finance and technology**
- ✓ **No new coal fired power plants from 2030**
- ✓ **Declaration on forest anf land use**
- ✓ **Join the Global Adaptation Alliance**
- ✓ **30% reduction in methane emissions by 2030 compared to 2020 level**



Recent legal documents on climate protection

Legal document	Effectuated from	Contents relating to climate protection
Law on Environment Protection	Jan 2022	Regulate responsibilities of organisations, individuals in climate adaptation, reduction of GHG emissions
Decree no. 06/2022/NĐ-CP	Jan 2022	Regulate the mitigation of greenhouse gas emissions and protection of the ozone layer
Decision no. 01/2022/QĐ-TTg	Jan 2022	Promulgate the list of sectors, greenhouse gas-emitting establishments subject to greenhouse gas inventory and the list will be updated in every two years.
Decision no. 896/QĐ-TTg	July 2022	National strategy on climate change to 2050 to give out the orientation, solution, progress to achieve net-zero emission by 2050
Decision no. 385/QĐ-BXD	May 2022	Action plan of construction sector on climate protection to 2030 and orientation to 2050

Decree 06/2022/ND-CP with Targets on GHG mitigation



For all sectors: At least 563.8 ton CO2 by 2030

Industry and Trade, Transportation, Agriculture/Forestry & Land Use ,
Construction, Natural Resources and Environment

For construction sector:

At least 74.3 ton CO2 by 2030

Areas:

Production of building materials

*(cement, ceramic tiles, sanitary wares, fired
clay bricks, lime, glass, etc.)*

Buildings



Decision 01/2022/QĐ-TTg promulgate the list of sectors, greenhouse gas emitting establishments subject to GHG inventory



06 sectors: Energy, Transportation, **Construction**, Industry Process, Agriculture/Forestry & Land Use, Wastes

Industry and Trade 1662

(power plants, steel plants, chemical products manufacturers, ...)

Transportation 70

(airports, transportation companies, ...)

Construction 104

(cement plants, hotels, resorts, shopping malls, offices, ...)

Sofitel Metropole Hanoi hotel (1.271 TOE), Keangnam Hanoi Tower (8.092 TOE)

Hoang Thach cement (55.944 TOE), But Son cement (202.157 TOE),

Xuan Thanh cement (497.664 TOE)

Natural Resources and Environment 76

(waste treatment plants, environment companies, ...)

Commitment of Construction Sector on climate protection

2623/QĐ-TTg - *Urban development*
2013-2020

84/QĐ-TTg - *Plan for urban development to 2030*

1266/QĐ-TTg - *Strategy for development of building materials to 2030 and orientation to 2050*

09/2021/NĐ-CP - *Management on building materials*



COP26

385/QĐ-BXD *Action plan for climate protection to 2030 and orientation to 2050*

01/2018/TT-BXD – *Urban green growth indicators*

15/2017/ TT-BXD - *QCVN 09:2017/BXD Energy efficiency buildings*

13/2017/ TT-BXD - *Unfired masonry products*

419/QĐ-BXD - *Action plan on green growth to 2020 and orientation to 2030*

811/QĐ-BXD

Action plan for climate change 2016-2020

Decision 385/2022/QĐ-BXD Action plan of construction sector on climate protection to 2030 and orientation to 2050

- ✓ **Climate Adaptation and Mitigation** 74,3 mil. ton CO₂
- ✓ **Priorities** (*urban development, production of building materials and construction of buildings*) with the following **targets by 2030**:
 - 25% low carbon emission & green urban areas
 - 25% building materials certified green labels
 - 25% GHG reduction in buildings compared to 2020 level
- ✓ **Standardisation, technical regulations, legal documents**
- ✓ **Energy optimisation** *in design, construction, operation*
- ✓ **Research and development** (*materials, technologies, pilots*)
- ✓ **Harmonisation of scientific, local, traditional aspects**
- ✓ **International collaboration**



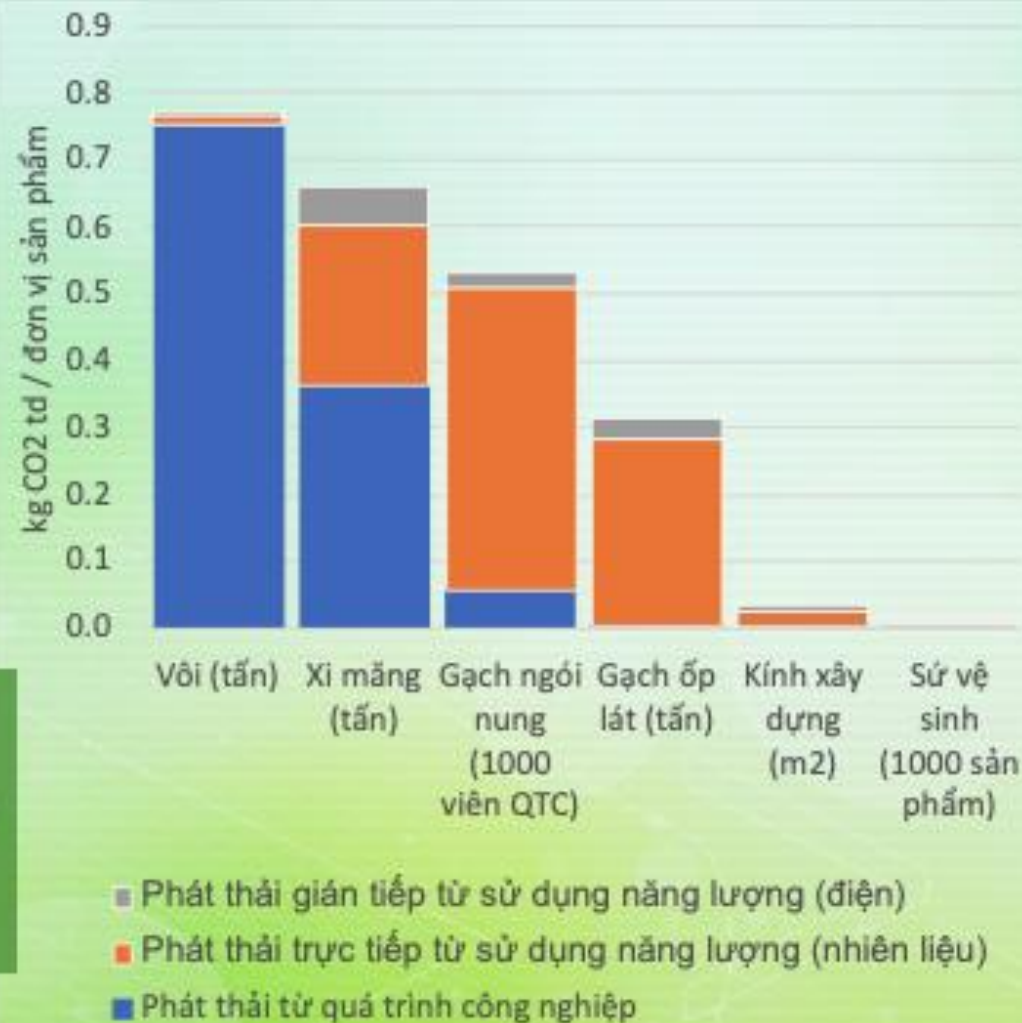
VIGLACERA-LowET50
SHGC– 0.519
TCVN 11857:2017



Building materials – BAU (2016)

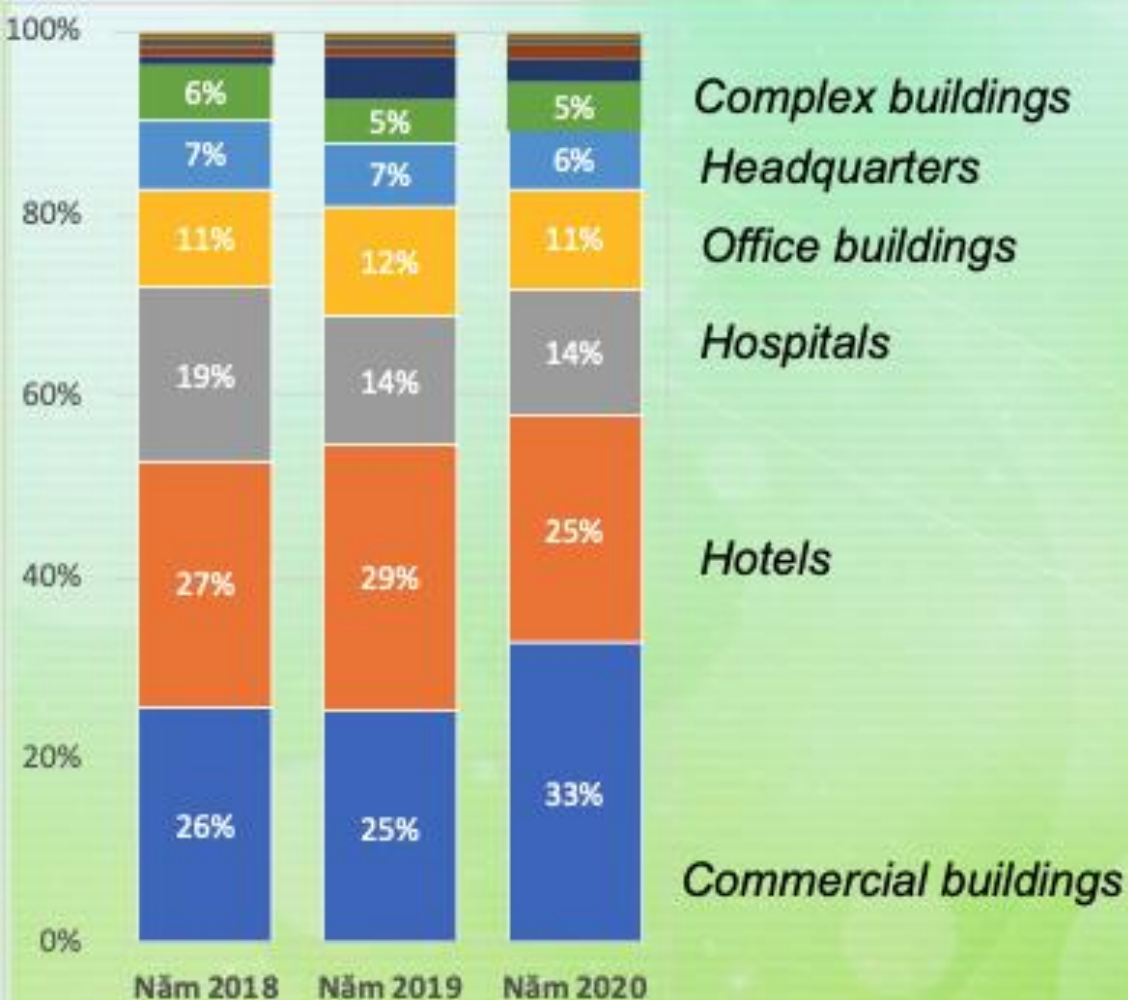


Emission factor



Buildings with energy consumption

Energy factor related with building types



Year	Quantity	Mil. TOE
2018	408	0,56
2019	472	0,66
2020	385	0,55

Decision 01/2022/QĐ-TTg

GHG Inventory	Quantity	Mil. TOE
Commercial	22	0,05
Hotels	15	0,02
Complex	9	0,03
Office, Headquarter	8	0,02

* List is updated in every 2 years followed

Solutions for GHG mitigation in production of building materials

- ✓ **Optimisation process burning clinker (reduce energy)**
- ✓ **Fly ash, GGBS, pozzolan, lime replacing clinker**
- ✓ **Waste heat recovery**
- ✓ **Carbon capture storage CCS**
- ✓ **Liquefied Petroleum Gas LPG**
- ✓ **Modernisation technology making fired clay bricks**
- ✓ **Non fired masonry products (light weight concrete blocks, wall panels)**



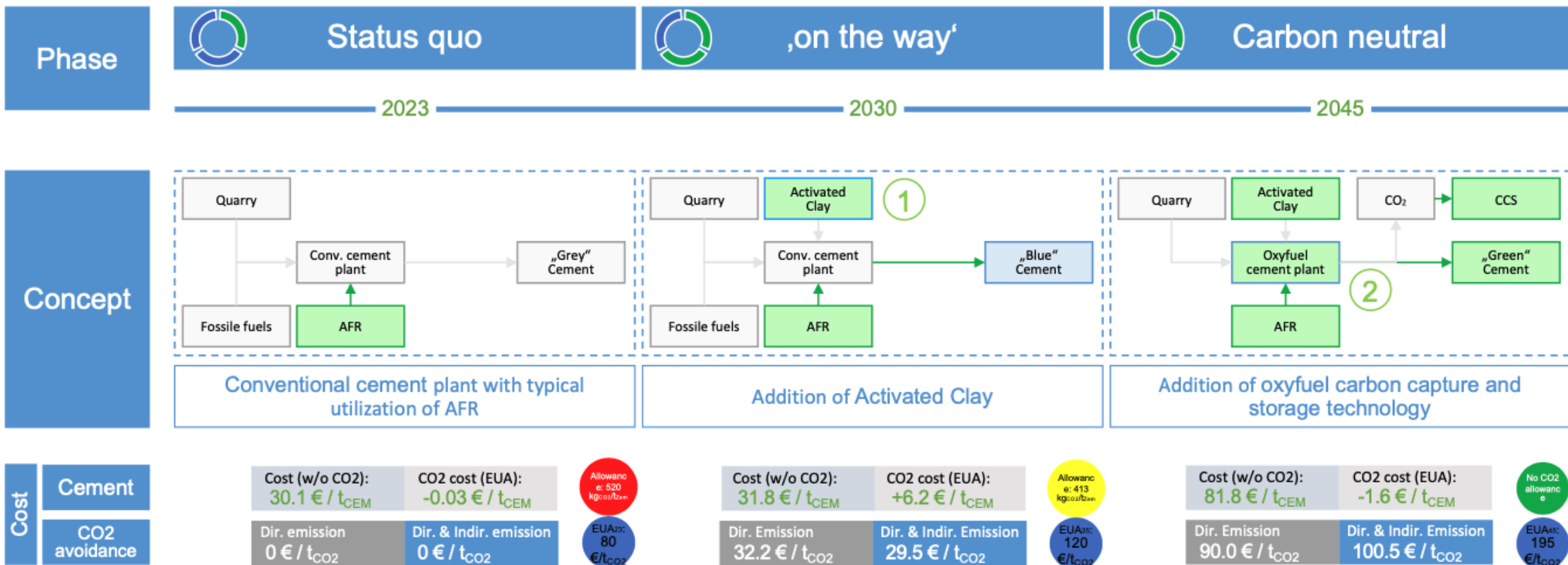
Solutions for GHG mitigation

in production of cement

a German model

Evolution of the cement price along the pathway to carbon neutrality
Example 2.000 tpd cement plant in Germany

Net zero scenario for Germany 2023-2045



Solutions for GHG mitigation in buildings

- ✓ Energy optimisation in design and construction
- ✓ Low-energy & Green building materials (Labels)
- ✓ High performance / energy efficient air conditioners
- ✓ Energy efficient appliances
- ✓ Electrical saving lights
- ✓ Solar hot water heaters
- ✓ Solar power



Life Cycle Assessment for Building Materials

THE LCA OF A CONSTRUCTION PRODUCT

Life Cycle Assessment (LCA) is a process that determines the raw material and energy requirements, atmospheric emissions, solid wastes and other emissions for the entire life cycle of a product !



Key-questions for in-depth discussions in the workshop

1. Which bottlenecks for effective climate protection actions can be addressed by cooperative research between Germany and Vietnam?

2. Which research questions will be relevant in 2030, 2040 and 2050 for construction, urban development, energy and climate adaptation in light of the Paris Agreement commitments in Vietnam and in Germany?

3. Could a research-to-implementation-roadmap be drafted to guide effective research towards climate-change mitigation and climate adaptation in Vietnam and in Germany?

4. How does bilateral cooperation contribute to Vietnam's and Germany's respective science and innovation strategies?