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REVIEW of VIETNAM POLICY on BRICK KILN

Hoang Anh Le, PhD.
Faculty of Environmental Sciences (FES)
VNU University of Science
Vietnam National University (VNU), Hanoi, Vietnam

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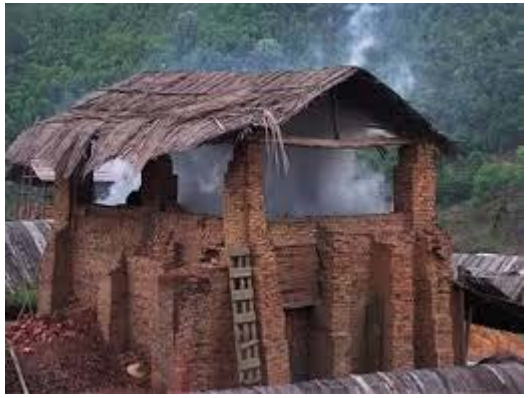
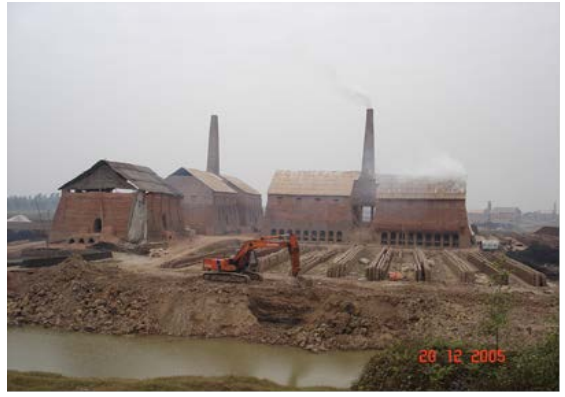
1 Current Status of Brick Kiln in Vietnam

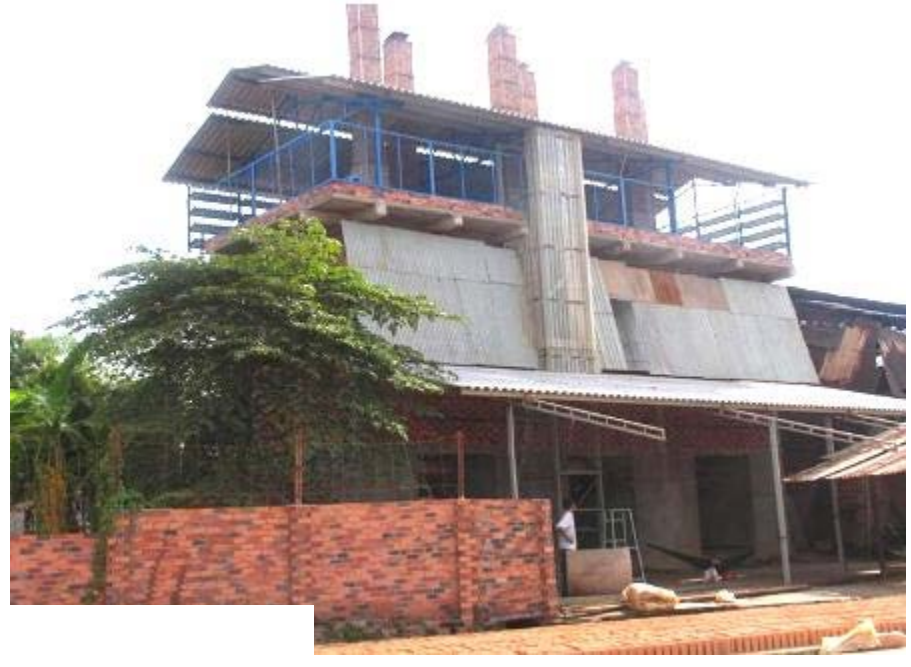
Brick kiln types in Vietnam

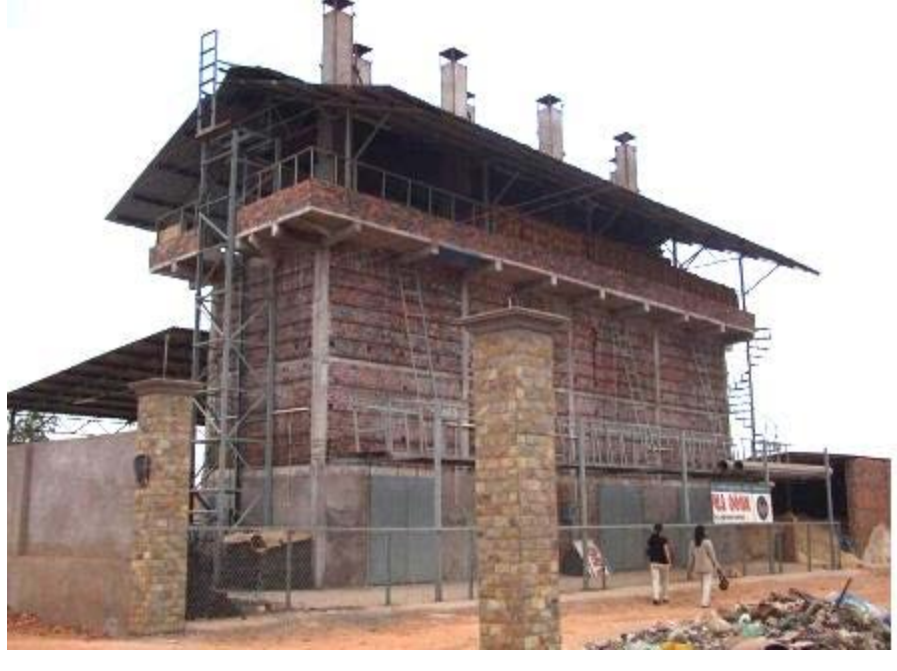
- ❑ Traditional brick kiln
- ❑ Traditional - Improved brick kiln
- ❑ Tunnel brick kiln
- ❑ Vertical Shaft Brick Kiln (VSBK)
- ❑ Channel brick kiln





Tunnel brick kiln





Kiln Type	Investment rate (Mil. VND/ 1 mil. Brick.year)	M50 archived (%)	Price per kg of brick	Burning cost (VND)	Env. impacts	Env. treatment possibility	Minimum size for economical benefit (mil./year)	Broken rate due to burning (%)
Traditional	100	< 60	350	140	++++	Difficult	2	>2
VSBK	120	>80	390	110	+	N/A	6	7
Thailand rice husk kiln	100	>80	360	120	++	Easy	3	1
Improved rice husk (Habla type)	100	≤ 80	320	100	++	Easy	6	.5
Tuynel	200	>90	400	120	+++	Neutral	15	.5
Hoffman	100	>85	280	75	+++	Neutral	10	.5

Environmental impacts of brick manufacturing process

- Air pollutants from brick manufacturing process;
- Impact of emission on ambient air quality;
- Land use / land cover changes;
- Impacts to soil environment;
- Loss of forests and biological diversity.

3 Current Policies for Brick Kiln Sector

- The Government of Vietnam issued a decision to ban the traditional brickmaking production within the urban perimeter in the next 5 years (Decision No 15/2000/QD-BXD dated 24 July 2000 of the Ministry of Construction), and it will take full effect in the entire country by 2017.

- Most of the provinces issued regulations to ban the use of agricultural soil, soil of some special land such as historical/heritage sites, soil of dams or irrigating works, and so on.

- Implication of removing all traditional, traditional-improved, and VSBK kilns.

- The Prime Minister issued Directive No. 10/CT-TTg in 2012 aimed to boost use of unbaked building materials and restrict production and use of baked clay bricks.

- The most important distinguishing feature of Vietnamese brick is the complete absence of the practice of manual brick-moulding and the use of simple brick-making machinery. Even the smallest brick-making plant uses a simple extruder for brick moulding. These extruders are generally driven by a small diesel engine.

- The other distinguishing feature in Vietnam, compared to South Asian countries, is the pro-active, even interventionist, role played by the government in shaping the policy for the sector. Vietnam has a separate Department of Building Materials in the Ministry of Construction at the national level and Departments of Construction at the provincial level. Besides, there is a significant public sector presence in brick-manufacturing through SOEs (State Owned Enterprises) and VIGLACERA (Vietnam Construction Glass and Ceramic Corporation). The involvement of the government in the brick industry is thus much larger than in South Asia. Apart from this, the Vietnamese government has also incorporated institutional capacity building programmes through various R&D and training institutions such as the Vietnam Institute for Building Science and Technology (ISBT) and the Vietnam Institute for Building Materials Science and Technology (IBMST).

- Training programme are devised to look for alternative more energy-efficient brick making. Provincial associations of brick makers are formed to make it easier to share new technology with even the small brick making unit of rural areas. Capacity and training is provided to ensure Ambient Air Monitoring at brick kiln sites and their vicinity to streamline environment-related dispute settlement by local authorities.

- By putting the policy of replacing all baked building materials, including clay bricks, with alternative building materials strictly by 2020 in place, the government has been able to exert pressure on the informal sector to phase out use of burnt clay bricks. The policy further provides for the use of about 15-20 million tonnes of industrial waste such as thermoelectric ash, blast furnace slag, etc., in the production of building material.

National Technical Regulation on Industrial Emission of Inorganic Substances and Dusts

(QCVN 05:2013/BTNMT)

$$C_{max} = C \times K_p \times K_v$$

Flow rate (m^3/h)	K_p
$P \leq 20.000$	1
$20.000 < P \leq 100.000$	0,9
$P > 100.000$	0,8

Classification of area and region		Coefficient Kv
Class 1	Interior of special class city [1] and class I city [1]; special-use forest [2]; ranked natural heritage and cultural and historical vestige[3]; industrial manufacturing, processing, trading, servicing premises and other industrial activities less than 2 km far from the boundary of these areas	0,6
Class 2	Interior of city and town at class II, III, IV [1]; suburb of special class and class I city which equal to or above 02 km far from the interior thereof; industrial manufacturing, processing, trading, servicing premises and other industrial activities less than 2 km far from the boundary of these areas	0,8
Class 3	Industrial park, city at class V [1];; suburb of city and town at class II, III, IV which equal to or above 02 km far from the interior thereof; industrial manufacturing, processing, trading, servicing premises and other industrial activities less than 2 km far from the boundary of these areas[4] .	1,0
Class 4	Rural area	1,2
Class 5	Mountainous rural area	1,4

No.	Parameter	Concentration (mg/Nm^3)	
		A	B
1	Total dust	400	200
2	Dust containing silica	50	50
3	Ammonia and ammonium compounds	76	50
4	Antimony and its compounds, calculated by Sb	20	10
5	Arsenic and its compounds, calculated by As	20	10
6	Cadmium and its compounds, calculated by Cd	20	5
7	Lead and its compounds, calculated by Pb	10	5
8	Carbon monoxide, CO	1000	1000
9	Chlorine	32	10
10	Copper and its compounds, calculated by Cu	20	10
11	Zinc and its compounds, calculated by Zn	30	30
12	Hydrogen chloride, HCl	200	50
13	Fluoride, HF, or other inorganic compounds of fluorine, calculated by HF	50	20
14	Hydrogen sulfide, H2S	7,5	7,5
15	Sulfur dioxide, SO2	1500	500
16	Nitrogen oxides, Nox, calculated by NO2	1000	850
17	Nitrogen oxides, NOx (for chemical production facilities), calculated by NO2	2000	1000
18	H_2SO_4 or SO_3 vapor, calculated by SO_3	100	50
19	HNO3 vapor (other source), calculated by NO2	1000	500

Column A: applied until 12/31/2014
Column B: applied from 1/1/2015

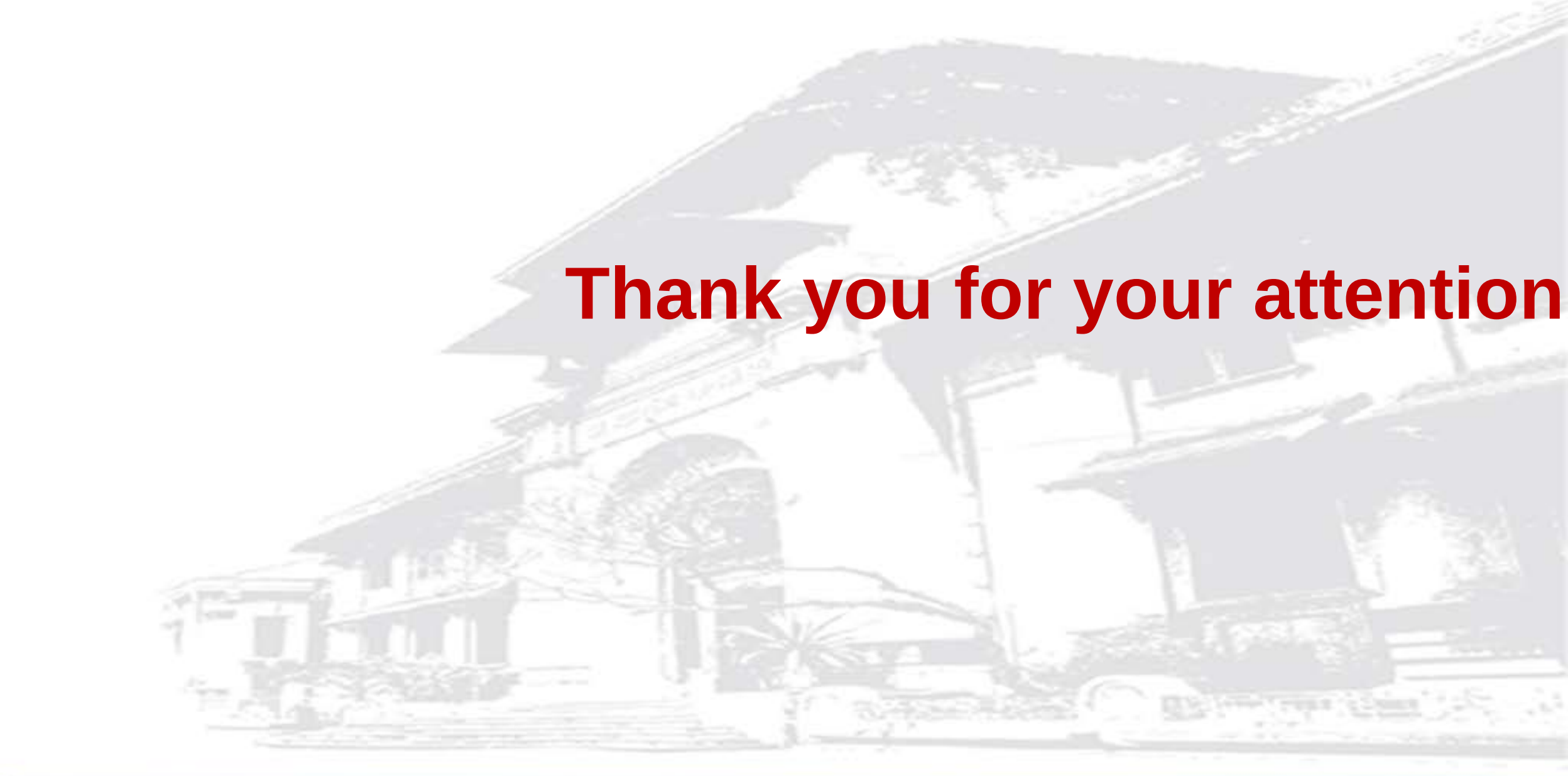
National Technical Regulation on Ambient Air Quality

(QCVN 05:2013/BTNMT)

Bảng 1. Giá trị giới hạn các thông số cơ bản trong không khí xung quanh

Đơn vị: Microgam trên mét khối ($\mu g/m^3$)

TT	Thông số	Trung bình 1 giờ	Trung bình 8 giờ	Trung bình 24 giờ	Trung bình năm
1	SO_2	350	-	125	50
2	CO	30.000	10.000	-	-
3	NO_2	200	-	100	40
4	O_3	200	120	-	-
5	Tổng bụi lơ lửng (TSP)	300	-	200	100
6	Bụi PM_{10}	-	-	150	50
7	Bụi $PM_{2,5}$	-	-	50	25
8	Pb	-	-	1,5	0,5
Ghi chú: dấu (-) là không quy định					



Thank you for your attention