

Low Carbon City Development in Thailand

Dr. Songwoot Graipaspong
Board of Directors,
The Federation of Thai Industries

UNFCCC: COP23/Bonn

Thai Pavilion

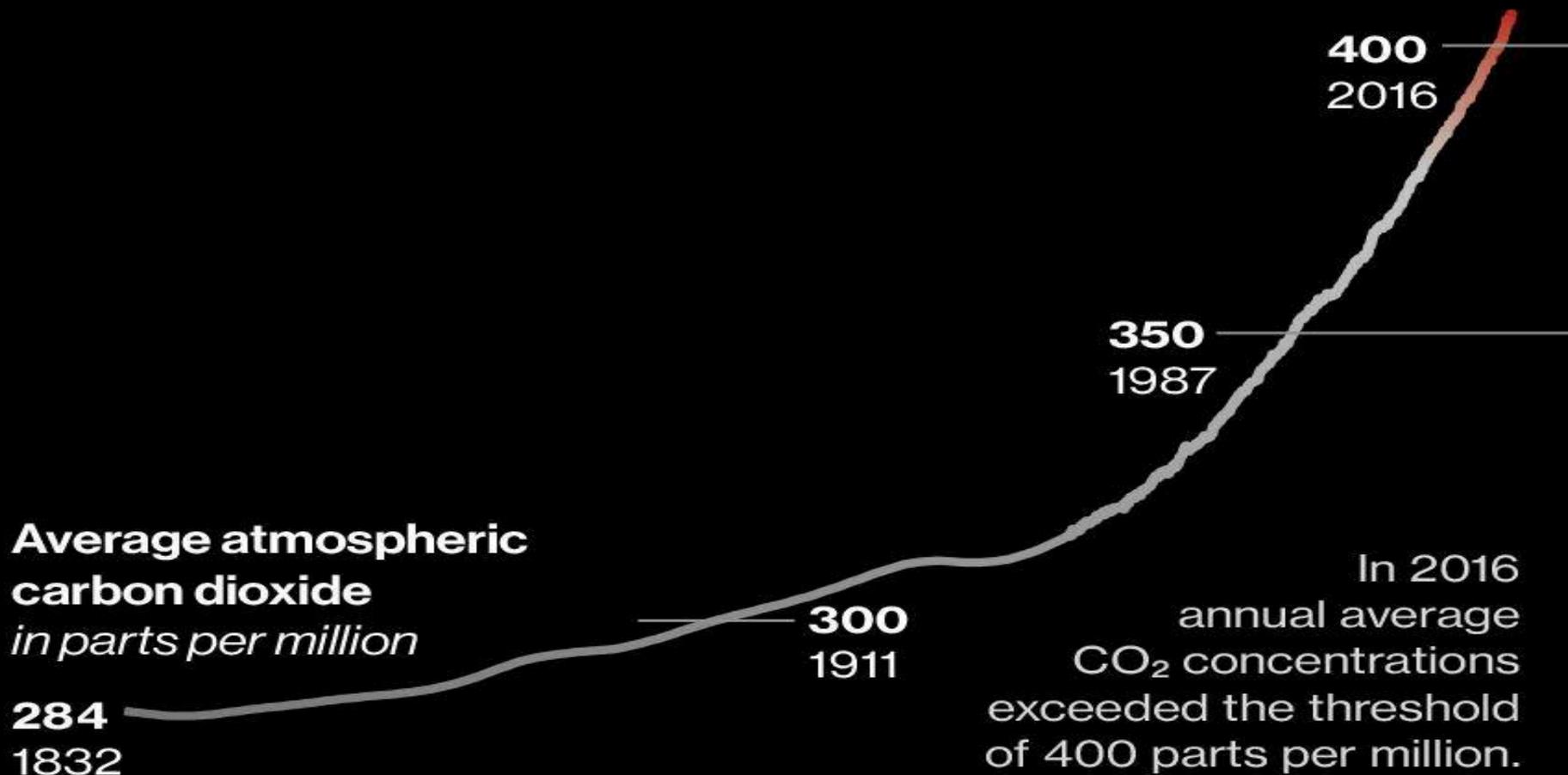
Smart City



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THE PEOPLE V. CLIMATE CHANGE



#MYCLIMATEACTION



INSTRUMENT OF RATIFICATION

WHEREAS the Paris Agreement was opened for signature at the United Nations Headquarters in New York on 22 April 2016 and remains open until 21 April 2017, in accordance with Article 20 (1) of the Agreement;

WHEREAS the Paris Agreement was signed by the Government of the Kingdom of Thailand on 22 April 2016;

WHEREAS Article 20 (1) of the Paris Agreement provides that the Agreement shall be subject to ratification, acceptance or approval by States and regional economic integration organizations that are Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and that the instruments of ratification, acceptance, approval or accession shall be deposited with the Secretary-General of the United Nations;

THE GOVERNMENT OF THE KINGDOM OF THAILAND, having considered the aforesaid Agreement, hereby confirms and ratifies the same and undertakes to faithfully perform and carry out all the stipulations therein contained.

IN WITNESS WHEREOF, this Instrument of Ratification is signed and sealed by the Prime Minister of the Kingdom of Thailand.

DONE in Bangkok, this 16th Day of September in the Year Two thousand Five hundred and Fifty-nine of the Buddhist Era, corresponding to the Year Two thousand and Sixteen of the Christian Era.

General *Prayut Chan-o-cha* (Ret.)

(Prayut Chan-o-cha)
Prime Minister of the Kingdom of Thailand

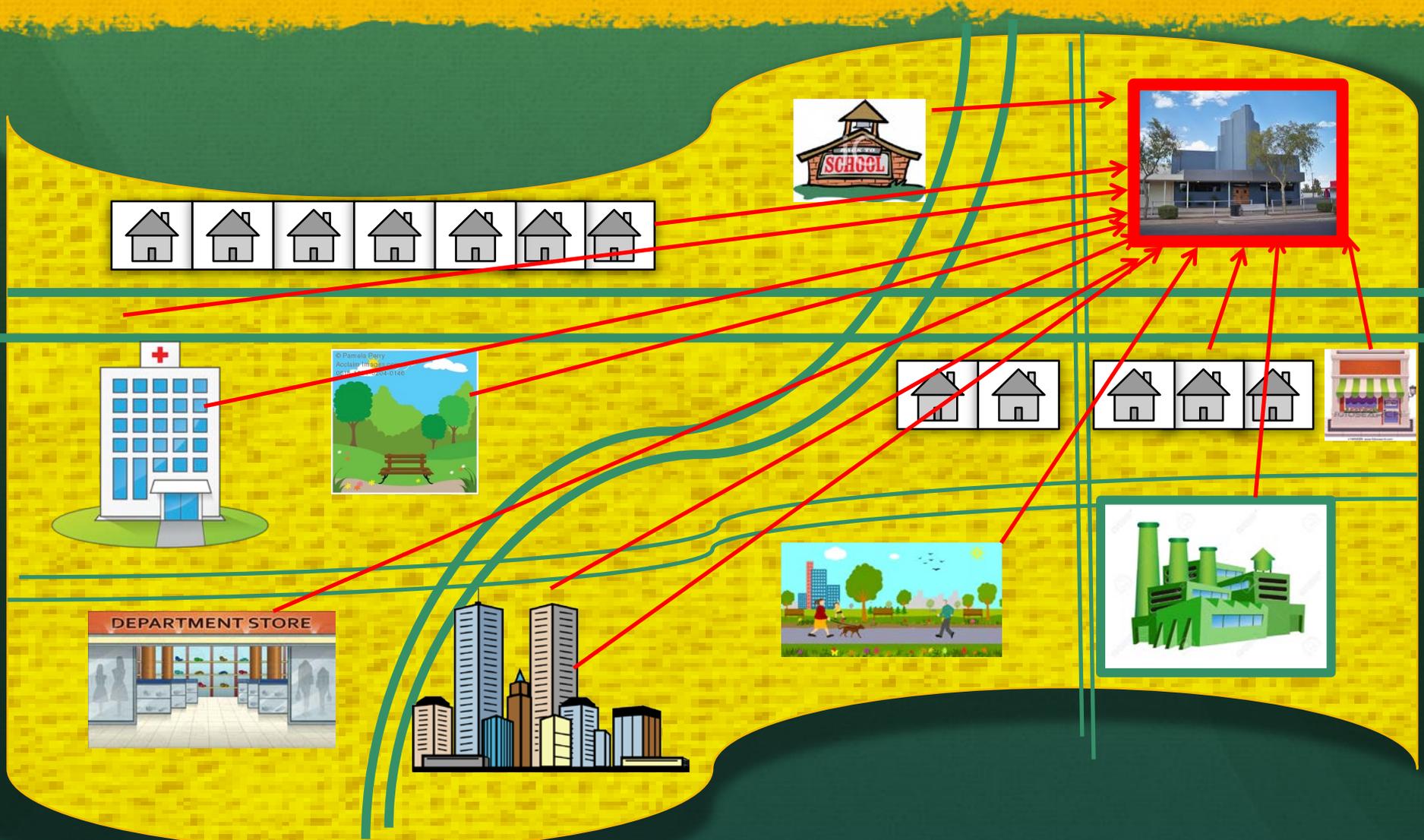
Environmental Friendly Smart Cities

- Yokohama smart city
- Leader
- Scientist + Architect + Engineering
- Private Manufacturing
- Internet network
- Discipline of Stakeholders
- Data Center & Management

Smart City



Smart City



Future City EcoModel City

How to make a sustainable city

By selecting cities that challenge to tackle the common issues of humanity such as the environment and aging, encouraging the creation of stories of success unparalleled in the world, and spreading them, we aim to achieve a sustainable society.

In the "FutureCity" Initiative, we are working on a pioneering project for the realization of cities in which anyone would want to live and cities where everyone enjoys vitality, that continue to create the three values of environmental, social and economic value.

In the Eco-Model Cities, by taking full advantage of local resources, and by exceeding cross-sectoral boundaries and boundaries between entities, we are striving to realize regional models that achieve both low-carbon and sustainable development.

MODEL CITY



Chiyoda City

Chiyoda, the city where everyone protects the irreplaceable Earth environment



WHAT'S NEW

All News Event FutureCity EcoModel more

- 2017/08/31 **Event** Announcement of The 7th International Forum on the "FutureCity" Initiative
- 2016/09/14 **Event** Announcement of The 6th International Forum on the "FutureCity" Initiative
- 2015/12/09 **Event** Announcement of International Forum on the "FutureCity" Initiative in Portland
- 2015/09/07 **Event** Announcement of The 5th International Forum on the "FutureCity" Initiative
- 2015/01/27 **Event** Report of The 4th International Forum on the "FutureCity" Initiative
- 2015/01/20 **Event** Announcement of International Forum on the "FutureCity" Initiative in Malaysia



Concept Of "FutureCity" Initiative



Projects of each FutureCity



Event information & International Forum



Promotion Council for the "FutureCity" Initiative

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Future City in Japan

(From: future-city.jp, 8/11/2017)

About Yokohama City

- Population: Approx. 3.73 million
- Area: 435 km²
- Main industries: Service, real estate, wholesale and retail, manufacturing

- **Creation of arts and culture and growth industries**, Functional business spaces
- **Low-carbon** and sustainable energy, water and sewage works, and waste collection service networks
- Total coordination between **healthcare, nursing care, welfare and raising children**.
- Living spaces blessed with **natural environment (water and greenery)** and geographical features.



Roles of city government, residents, business, etc.

- In cooperation with various stakeholders to promote cross-cutting initiatives for solving urban issues



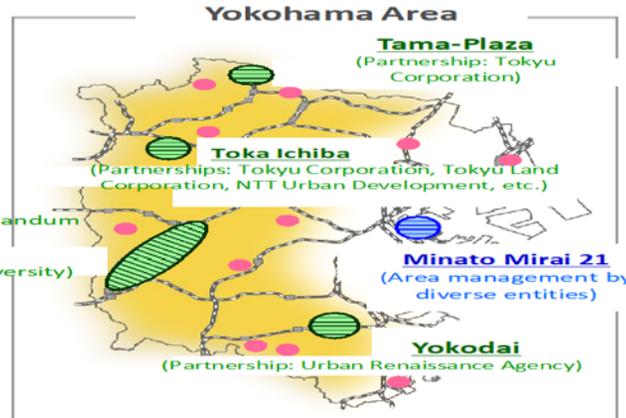
Community Building to Suit Regional Characteristics

- Projects that leverage the characteristics of the coastal urban area and suburban areas

<Suburban Areas>

Diverse parties such as the local community, private business, city government and university are working in coordination to solve local issues such as supporting elderly people, raising children, and rehabilitation of residential areas, etc., and to create a sustainable and attractive town planning model.

Areas along Sotetsu Izumino Line
(Partnerships/Memorandum : Sotetsu Holdings, Yokohama National University, Ferris University)



* Projects that leverage the characteristics of each area are in progress in 11 other areas of the city

<Coastal Urban Area>

Advanced community building through public-private partnership is underway in the Minato Mirai 21 district under the Minato Mirai 2050 Project Action Plan, and is being communicated as an environmental showcase to both Japan and abroad.

<p>Energy</p>  <p>Wind power generation</p>	<p>Greenery</p>  <p>Grand Mall Park</p>
<p>Activity</p>  <p>Smart Illumination Yokohama 2015 (DN Lighting Co., Ltd.)</p>	<p>Eco-Mobility</p>  <p>Community Cycles</p>

- Delivering and developing city development know-how in Yokohama both at home and abroad

環境モデル都市の取組(横浜市)

- ・概要:人口約369万人、総面積435km²
- ・ごみ減量における「市民力」の実績(G30で掲げたごみ排出量の30%削減を目標年限よりも5年前倒して達成)。
- ・温室効果ガス総排出量を2020年度までに25%、2050年度までに80%削減(1990年比)。
- ・環境最先端都市を目指し、地球温暖化対策を主導・促進するとともに、市内企業の力も最大限活用することで、経済的にも活力ある都市づくりを推進する。

脱温暖化行動の推進

○ヨコハマ・エコ・スクール(YES(イエス))

地球温暖化問題に関連した講座やイベントを開催し、家庭での脱温暖化行動・省エネ行動を喚起・促進。



太陽光パネルの学校設置の理解促進

○子ども『エコ活。』大作戦!

地球温暖化・生物多様性・3Rについて考える契機とするため、夏休み期間中に市内小学生が環境活動への取組を実践。



○国内外地域連携の推進

- ・C40(世界大都市気候先導グループ)を活用した国外への情報発信。
- ・下川町や小国町等と連携したカーボンオフセット事業。

温暖化対策に有効な制度の運用や仕組みの検討

○地球温暖化対策計画書制度

市内で一定規模以上の温室効果ガスを排出する事業者が、地球温暖化対策計画を作成・公表、実施状況を報告し、市がその内容を評価し、温暖化対策の取組を促進。



○CASBEE横浜

建築物を新築する際、建築主がその建物の「建築物環境配慮計画」を作成することにより、総合的な環境配慮の取組を促進。

エネルギーの安定供給・自立化と節電・省エネの推進

○横浜スマートシティプロジェクト (YSCP)

- ・市民・事業者・行政が一体となって、再生可能エネルギーの導入やエネルギーマネジメントシステム、次世代交通システム等を構築。
- ・「電力使用量等の見える化」や「省エネを促す仮想料金メニュー」を体験し、省エネの可能性を調査・分析する「省エネ行動実験」実施。

○横浜グリーンバレー (YGV)

横浜臨海部の横浜市金沢区をモデル地区として、「環境」を切り口とした産業の育成と環境教育の充実に取り組み、温室効果ガスの削減と経済活性化を飛躍的に促進。



YSCP実証イメージ図



企業と大学の連携による電力の見える化(YGV)

○市の施設への再生可能エネルギー設備、高効率設備導入

○中小製造業向けの節電対策設備助成

○脱温暖化モデル住宅の整備

環境配慮型まちづくりモデルの構築。

○コミュニティサイクル社会実験

街の中の複数のサイクルポートにおいて、自由に自転車の貸出・返却が可能。



脱温暖化モデル住宅地の全景



自転車及びサイクルポート

Smart city



Readiness of Reducing GHG Emission of The Industries in Thailand: The Long Process of Implementation

Dr.Songwoot Graipaspong
Board of Directors,
The Federation of Thai Industries

UNFCCC: COP23/Bonn

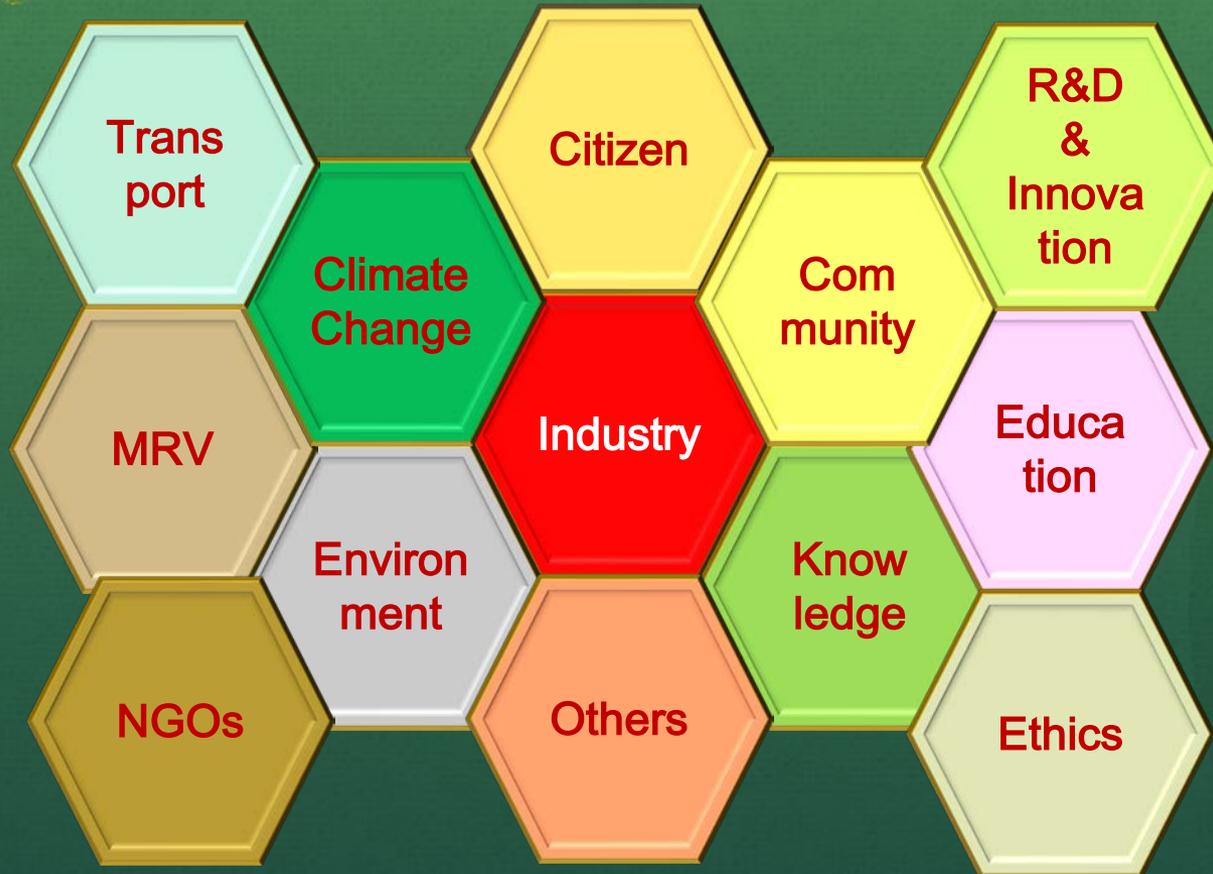
Thai Pavilion

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Industry

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Characteristic of Industries in Thailand

Long time established

45% of GDP

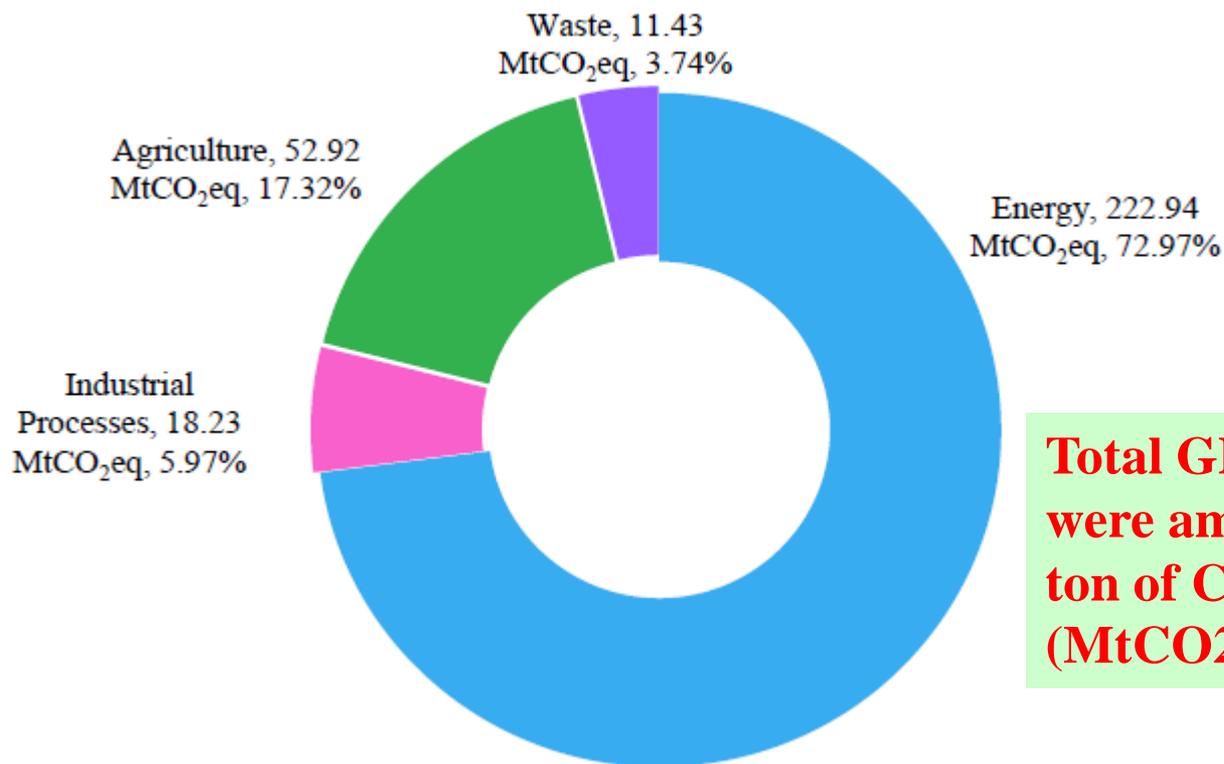
Highly Fragmented: > 50 Industries

High Technology to Low Technology

Conglomerate, Big Factories, SMEs

R&D is un-common (0.01% of Revenue)

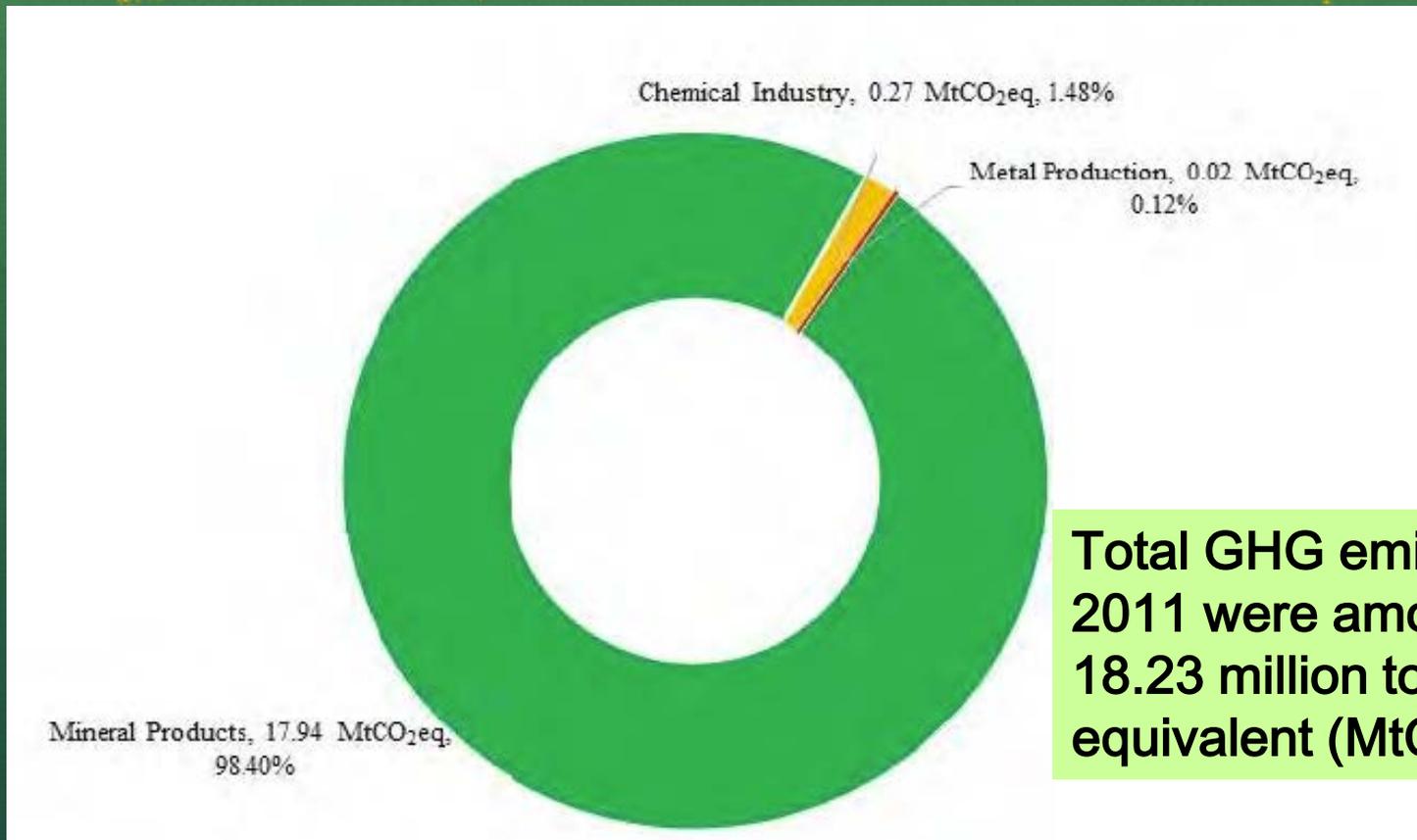
National GHG Inventory of Thailand for 2011



Total GHG emissions in 2011 were amounted to 305.52 million ton of CO₂ equivalent (MtCO₂eq).

Total GHG Emissions (excluding LULUCF) by Sector, 2011

Industrial GHG Emission at Processes



Total GHG emissions in 2011 were amounted to 18.23 million ton of CO₂ equivalent (MtCO₂eq).

GHG Emissions in Industrial Processes Sector, 2011

Industry target of mitigation

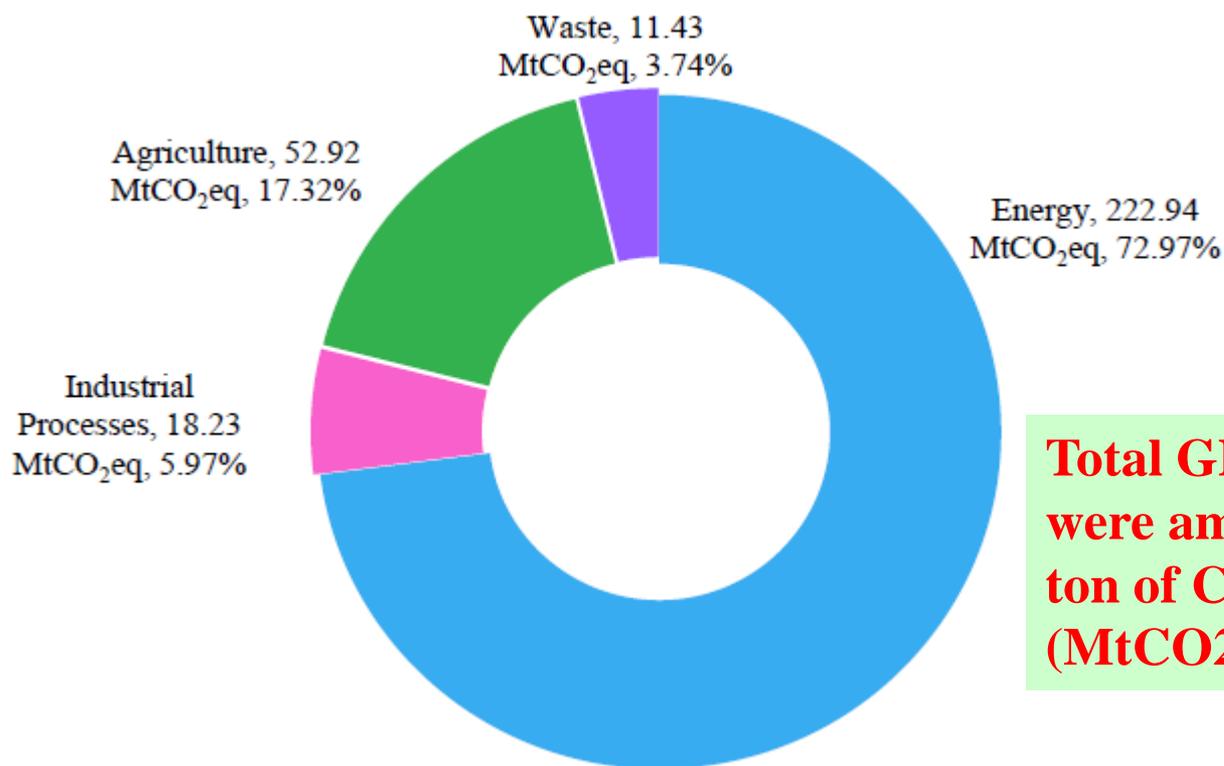
Table 2-1 National greenhouse gas inventory of Thailand for 2000 (thousand tons or gigagrams)

National greenhouse gas inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol and greenhouse gas precursors

Greenhouse gas source and sink categories	CO ₂ emissions	CO ₂ removals	CH ₄	N ₂ O	NO _x	CO	NMVOCs	SO _x
Total national emissions and removals	210,231.2	-52,374.0	2,801.5	40.0	907.0	5,624.4	759.5	618.8
1. Energy	149,914.6	0.0	413.9	2.5	873.3	4,773.0	668.1	605.7
A. Fuel combustion (sectoral approach)	149,914.6		164.8	2.5	873.3	4,773.0	668.1	605.7
1. Energy Industries	64,241.0		97.4	0.5	181.3	703.7	168.1	52.2
2. Manufacturing industries and construction	30,305.8		7.5	1.0	105.6	684.7	13.0	514.4
3. Transport	44,438.7		6.6	0.4	450.4	2,071.1	393.0	6.2
4. Other sectors	10,929.0	0.0	53.3	0.6	136.0	1,313.6	93.9	32.9
B. Fugitive emissions from fuels	0.0		249.1		0.0	0.0	0.0	0.0
1. Solid fuels			32.0		0.0	0.0	0.0	0.0
2. Oil and natural gas			217.1		0.0	0.0	0.0	0.0
2. Industrial processes	16,052.6	0.0	6.4	0.6	0.2	2.6	51.2	0.8
A. Mineral products	16,052.6				0.0	0.0	5.5	7.7
B. Chemical industry	0.0		6.4	0.6	0.2	2.6	51.2	0.8
C. Metal production	6.6		0.0	0.0	0.1	0.0	0.0	0.1
D. Other production	0.0		0.0	0.0	1.0	3.7	34.7	4.6
E. Production of halocarbons and sulphur hexafluoride								
F. Consumption of halocarbons and sulphur hexafluoride								
G. Other	0.0		0.0	0.0	0.0	0.0	0.0	0.0
3. Solvent and other product use	0.0			0.0			0.0	

Mineral
Chemical
Metal

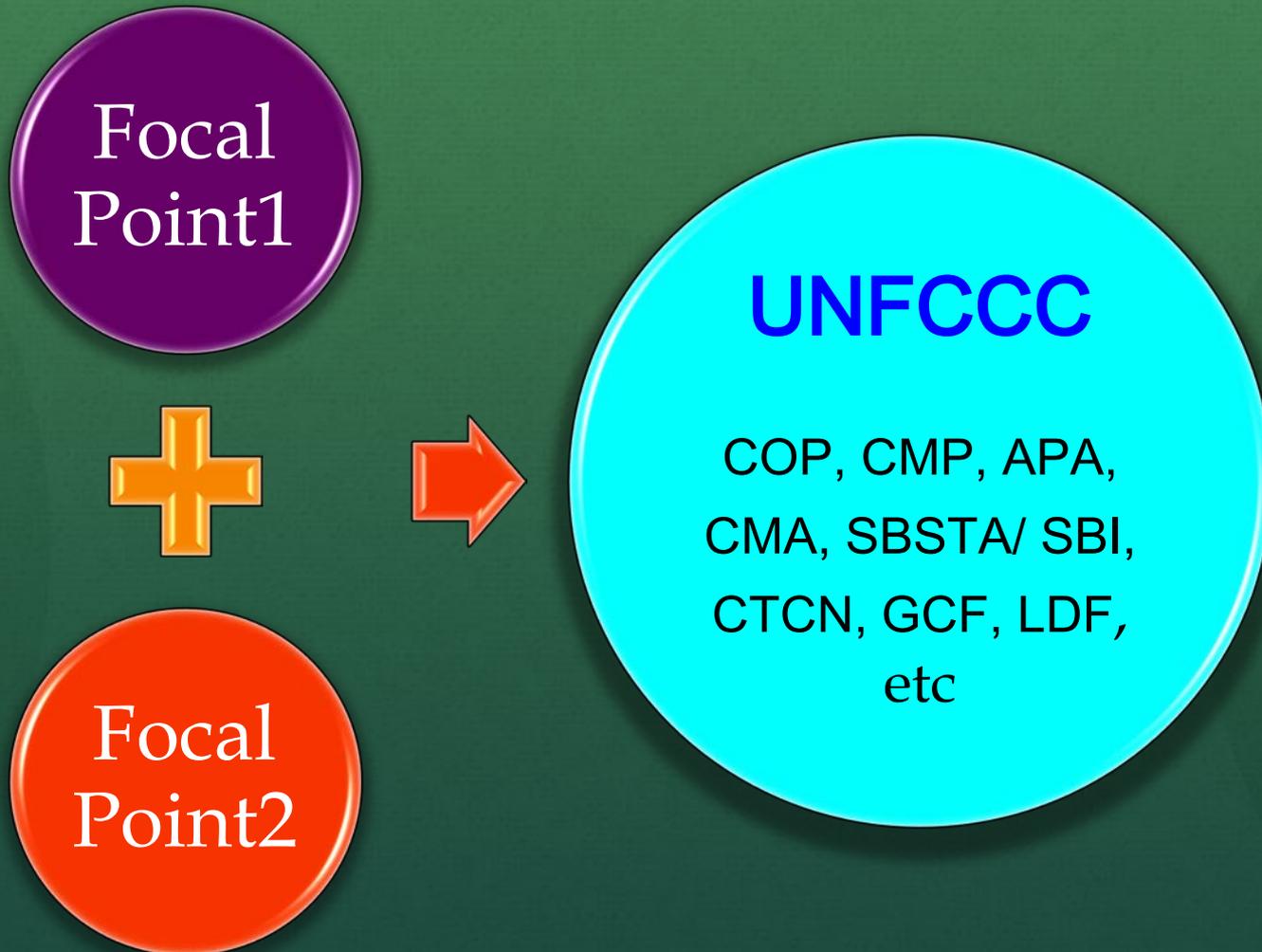
Key Findings from the National GHG Inventory of Thailand for 2011



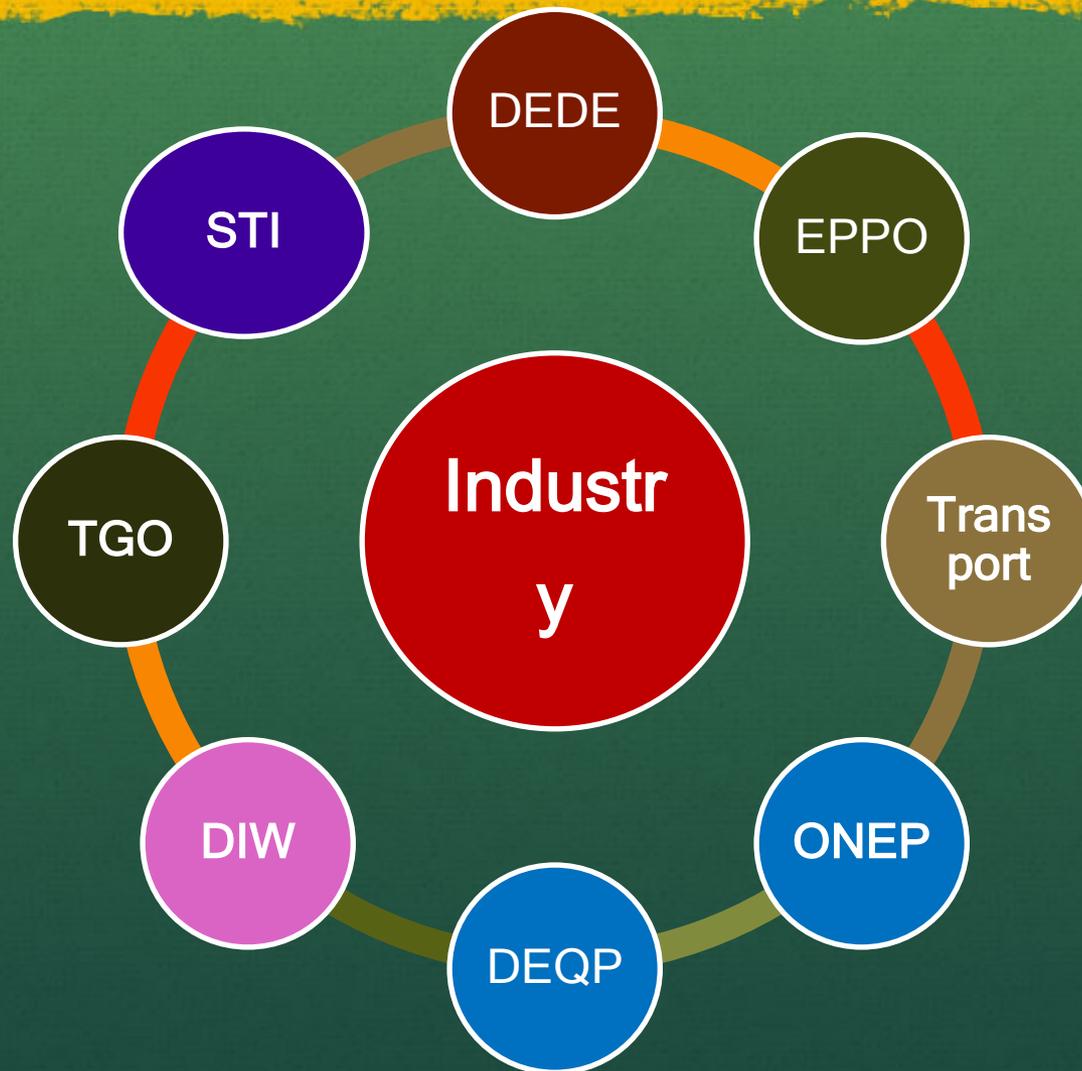
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Total GHG Emissions (excluding LULUCF) by Sector, 2011

Public Sectors Supports



Public Sectors Supports



Public Sectors Supports









Actions of Public-Private to Reduce GHG Emission



Actions of Public-Private to Reduce GHG Emission



(200 of 200,000 factories)





Actions of Public-Private to Reduce GHG Emission

Factory, TGO, STI, ONEP, IE, CTCN, GCF



Carbon Footprint Organization



Carbon Footprint Product



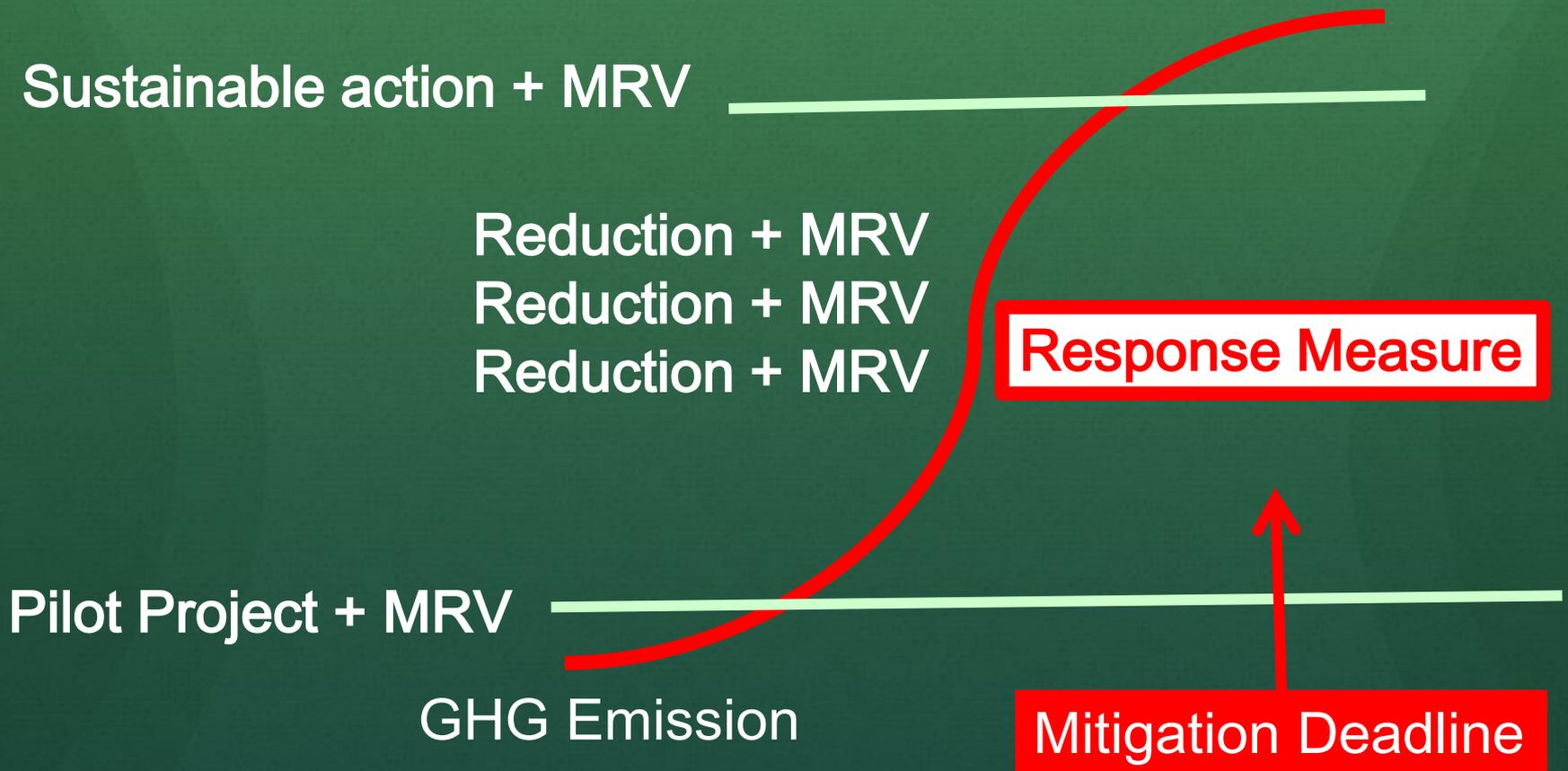
Benchmarking of the first Measuring



Future actions of GHG reduction emission

S-Curve of Industry Plan

(Songwoot, 2015)



S-Curve of Industry Plan

(Songwoot, 2015)

Sustainable action + MRV

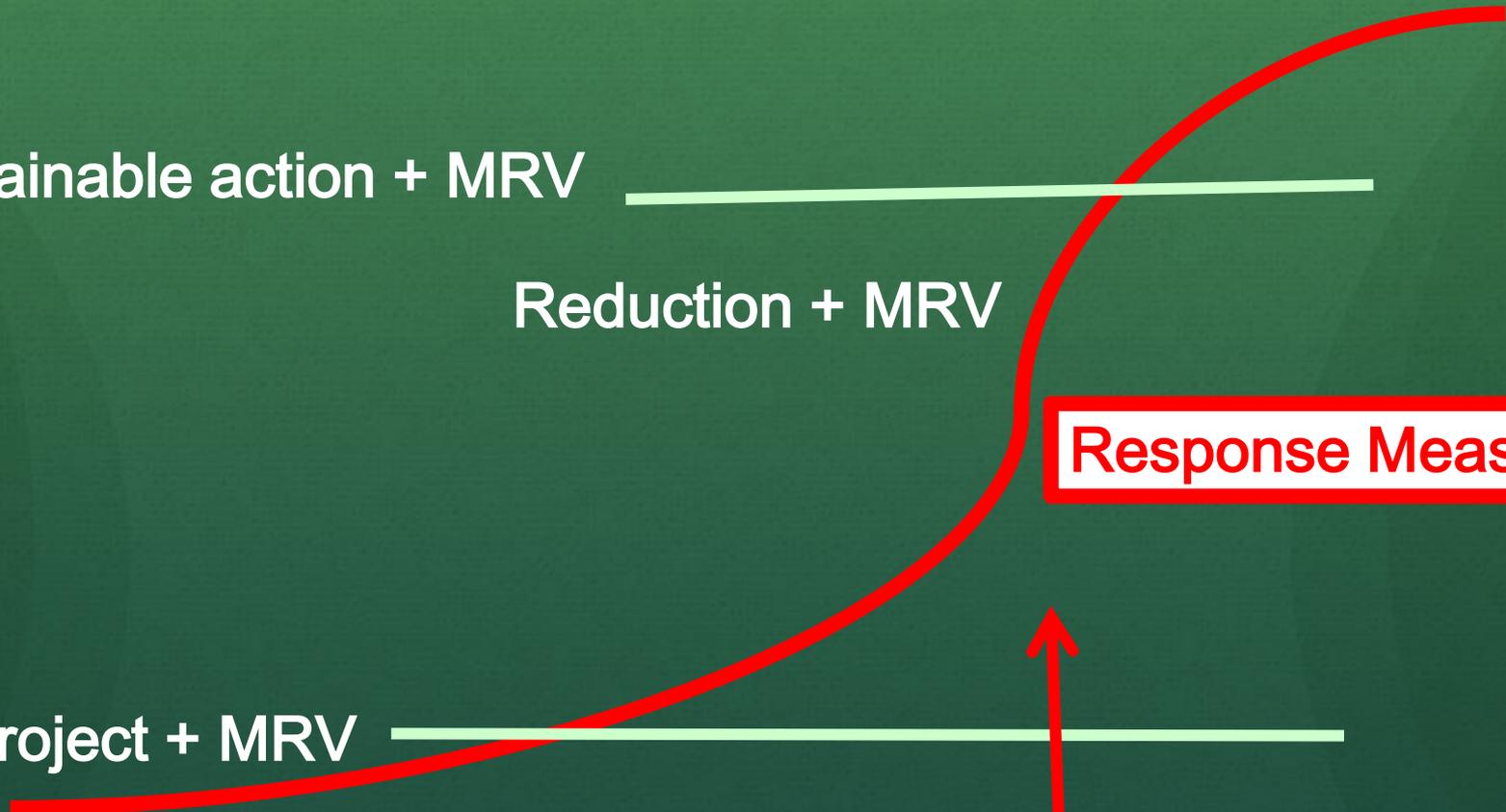
Reduction + MRV

Response Measure

Pilot Project + MRV

Mitigation Deadline

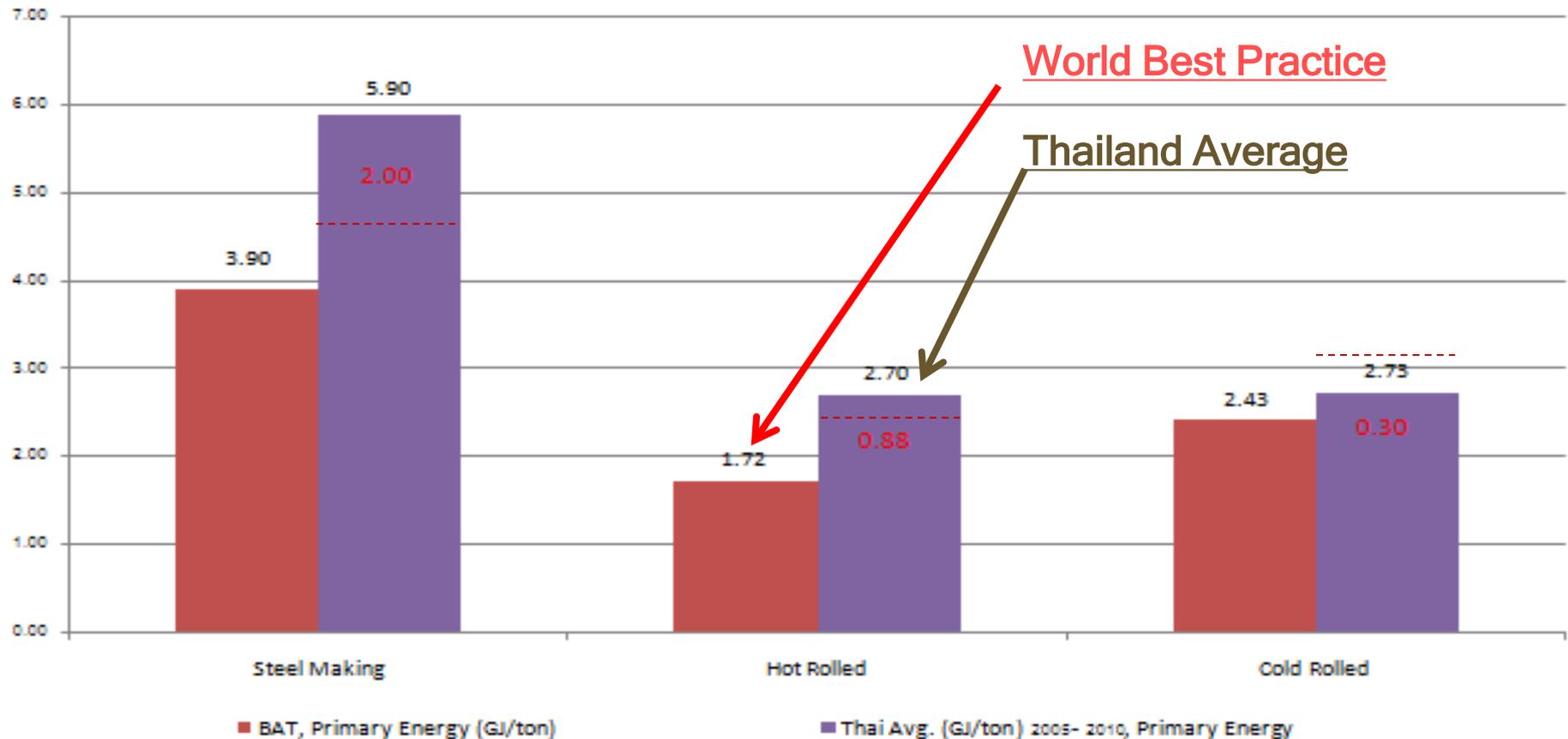
GHG Emission



Potential for energy conservation

10 – 33% Gap between Thai & World Best Practice

Primary, GJ/ton



A Long way to take Actions

(Songwoot, 2017)

1. Huge amount of industries and factories have less awareness of the global warming related to their activities.
2. They need the knowledge of GHG, Climate Change, MRV.
3. They need the support from local focal points of public sectors to prepare themselves before entering the mitigation measures,

A Long way to take Actions

4. There are the discrepancies among industries, such as the Plastic Industry and Pulp-Paper Industry are having different raw materials, production process, energy use, waste management, logistics, and risk management, etc.

A Long way to take Actions

5. In the same industry, there are upstream-midstream-downstream. These sub-industries have also different raw materials, production process, energy use, waste management, logistics, and risk management, etc.

A Long way to take Actions

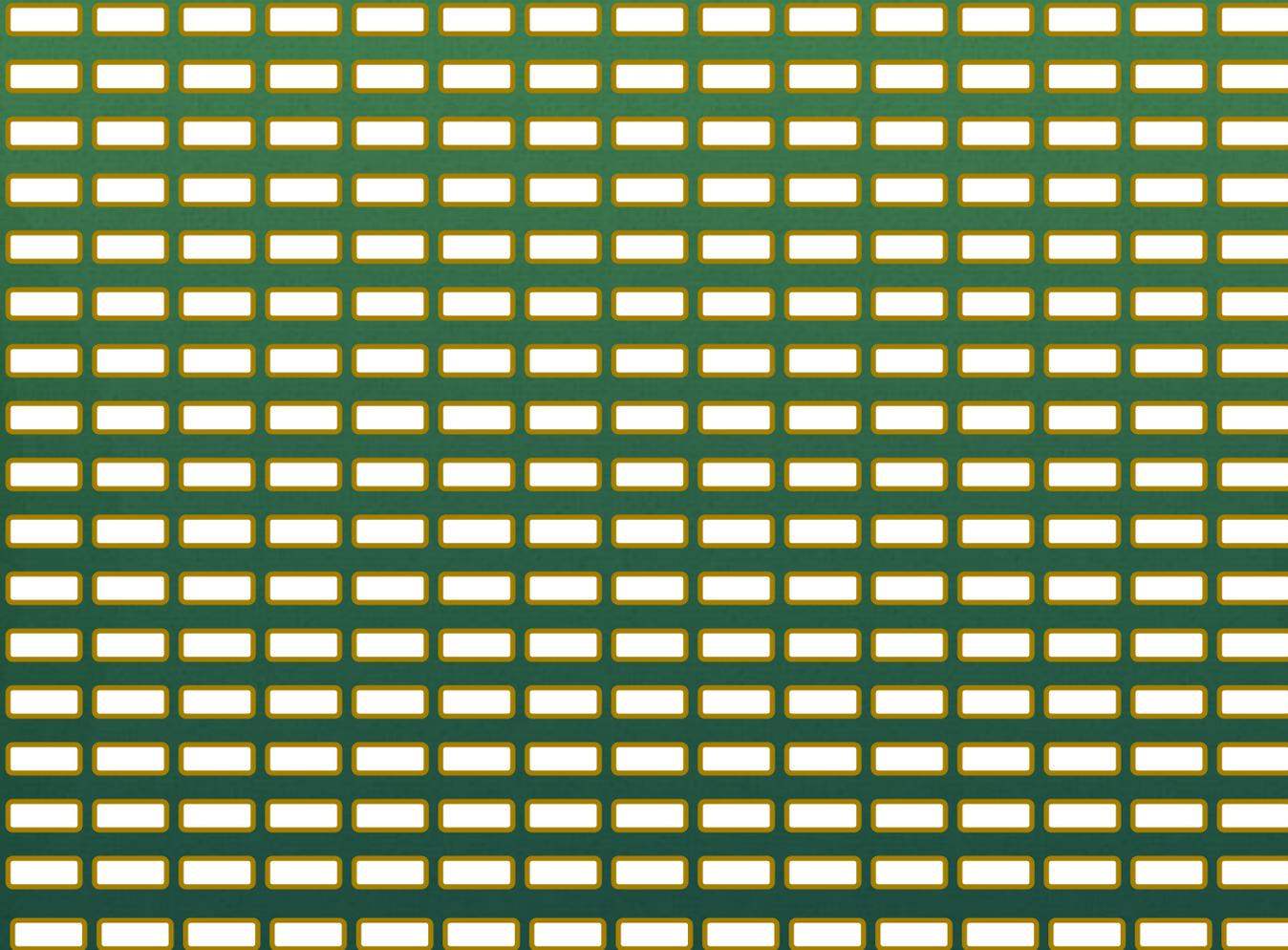
6. Conclusion Request (Songwoot, 2017)

- Assessment
- Expert consultation
- Technology Transfer + Financial Support
- Fossil Fuel Using in Process and Transportation 
- Better mode of Transportation
- Renewable Energy (Bio-fuel, Solar, Wind, etc.) 
- Reform of some Laws and Regulations
- Mitigation on GHG emission is acceptable
- Do it at the same time

สถาบันเหล็กและเหล็กกล้าแห่งประเทศไทย
IRON AND STEEL INSTITUTE OF THAILAND



Other Industries



- Steel
- Automotive
- Robotic
- Construction
- Food
- Aviation
- Chemical
- Petro-chemical
- Plastic
- Foundry
- Aluminium
- Hotel
- Big Mall
- Restaurant
- Pharmaceutical
- Telecom
- Bus
- Truck
- Train
- Air plane

A Long way to take Actions

7. They also need the technology analysis and technology transfer together with the financial support from the UNFCCC's bodies.
8. UNFCCC should choose well the right Independent Entity, Consultant, Expert to use the state of art in their consultancy assistances.

A Long way to take Actions

9. FTI could be the LINKAGE between the public and private sectors, because FTI knows the nature of each industries of factories.
10. Now, the public and private sectors must take all afford to support and assist them to move up to their awareness and actions to encounter the coming mitigation measures.

Steelman Steelheart



FINAL

1. We should not leave any one behind
1. We should be well prepared before the negative Impacts to the economy and the social, which **RESPONSE MEASURES** will effect the country.