Capacity-building on Development of NAMAs in a MRV manner in the Waste Sector in Vietnam

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Outline

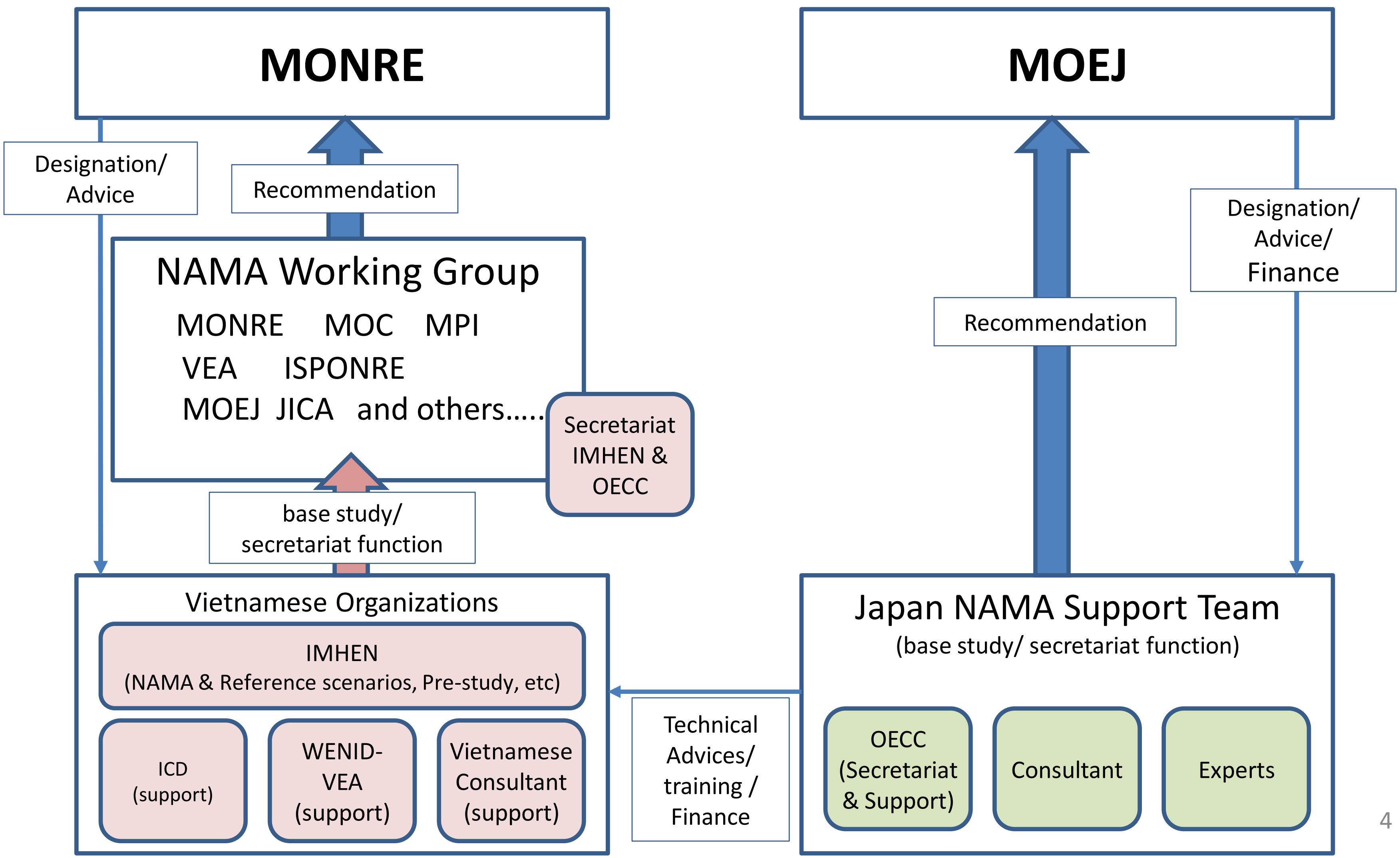
1. Background of capacity-building cooperation
2. Implementation Framework
3. Steps for GHG Quantification and consideration on MRV
4. Achievements, lesson learned and challenges
5. Way Forward

1. Background of capacity-building cooperation

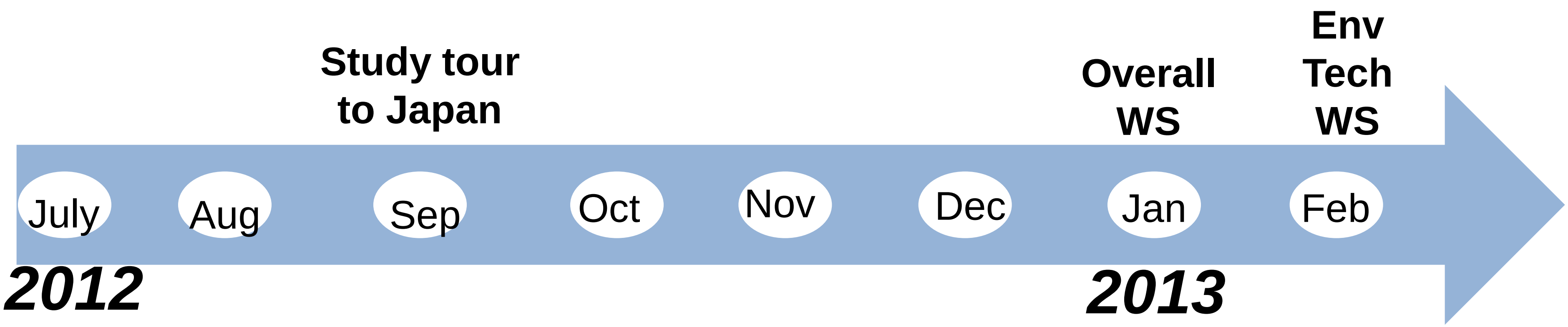
- At COP17 in Doha, the MONRE, Vietnam, supported by other ministries, and the MOEJ generally agreed to launch capacity-building on NAMAs in a MRVable manner;
- February 2012, “Workshop on NAMAs in a MRVable manner” was held in Hanoi, Vietnam, and experts discussed key issues in the Vietnam’s context and decided to choose waste as the target sector for the fiscal year 2012;
- July 2012, an inter-ministerial WG on NAMA/MRV in the waste sector has been established;

2. Implementation Framework

Working Group on NAMAs in a MRV manner in the Waste Sector



Schedule



Act 1. Identify BL and NAMA scenario in waste sector

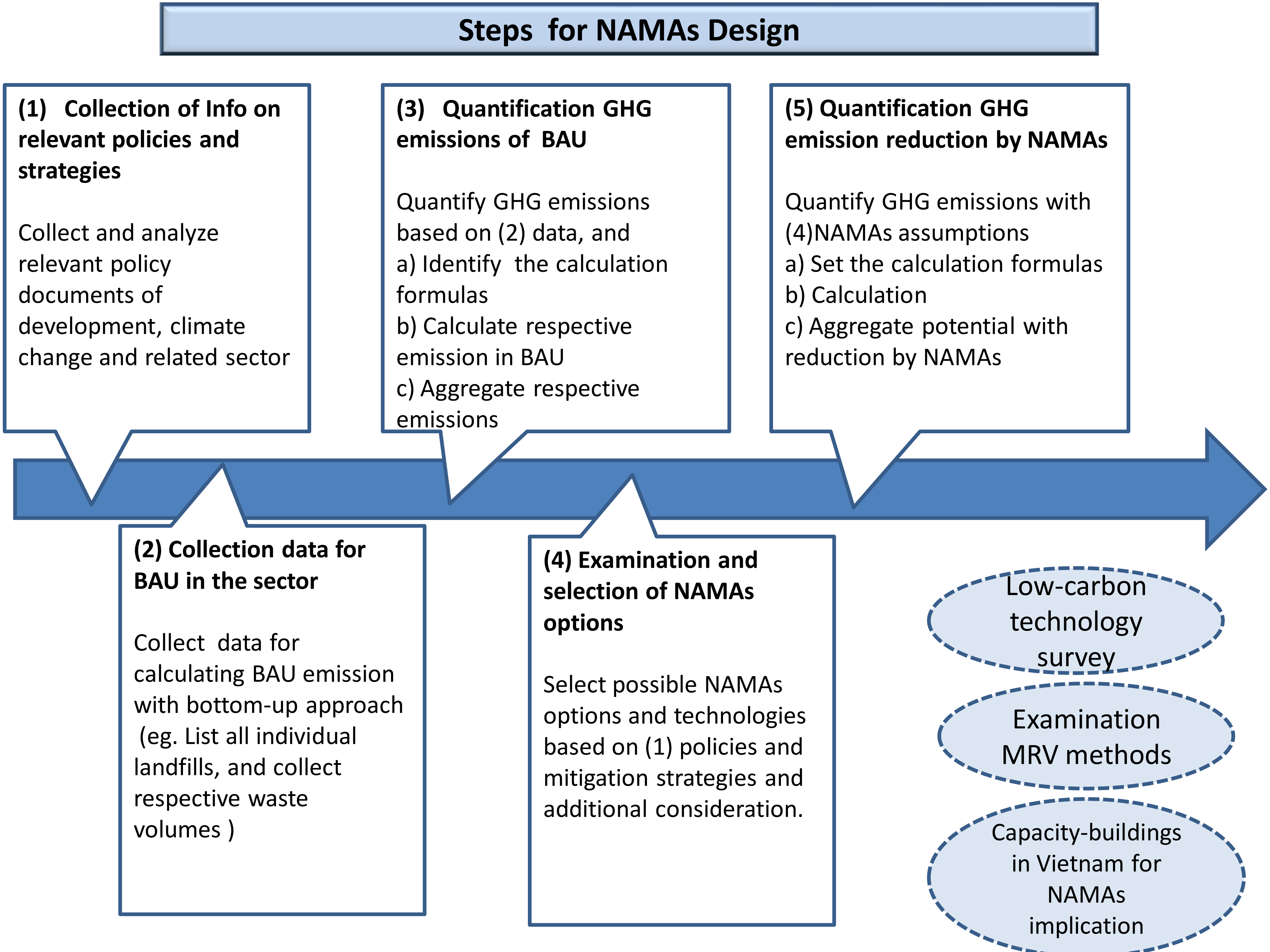
Act 2. Draft Guideline for NAMA selection in waste sector

Act 3. Draft a Guideline for MRV of NAMAs in waste sector

Act 4. Draft a Modality for Institutional Arragement for NAMA implementation in waste sector

Act 5. Collection information on technology to be employed in waste sector

Side event COP18



Source: OECC 2012

3. Steps for GHG Quantification and consideration on MRV

Quantifying GHG Emissions Reduction

Climate Change Sectoral Strategy

Vietnam's Waste Sector Strategy

Others

*Extract data and make fact sheets

Activity1:
Data and Info. collection

Fig 1. Waste Strategy in BAU and NAMAs

	2012	2020
BAU	XXX t-waste	X,XXX t-waste
NAMAs	-	X,XXX t-waste

Activity2:
GHG Emissions Calculation

Fig 2. GHG Emissions in BAU and NAMAs

	2012	2020
BAU	XXX t-CO2e	X,XXX t-CO2e
NAMAs	-	X,XXX t-CO2e

Activity3:
Identify Mitigation Actions

- XX Semi aerobic LFs
- XX Incineration boilers

Baseline Emissions Formula

amount of organic wastes

decay curve of degradable wastes

$$BE_y = \phi \cdot (1-f) \cdot GWP_{CH4} (1-Ox) \cdot \frac{16}{12} \cdot Frac \cdot DOC_f \cdot MCF \cdot \sum_{t=y_0}^{y} \sum_{j} A^{BL}_{j,t} \cdot DOC_j \cdot (1-e^{-k_j}) \cdot e^{-k_j \cdot (y-t)}$$

ϕ	1	Model correction factor
f	0	Methane captured factor (IPCC default)
GWP_{CH4}	25	Global Warming Potential of methane (IPCC AR4)
Ox	0	Oxidization factor of methane (IPCC defaul)
16/12	1.3333	CH_4/C molecular ratio
$Frac$	0.5	Fraction of methane in SWDS gas (IPCC default)
DOC_f	0.5	Fraction of degradable organic carbon (DOC) decomposable (IPCC default)
MCF	0.8	Methane correction factor for "unmanaged deep >5m" SWDS (IPCC default)
$A^{BL}{}_{j,t}$		Baseline annual amount of organic wastes of type *j* in year *t*. $A^{BL}{}_{j,t} = A_t * \%A_j$
DOC_j		DOC content of waste type *j* (table)
j		Waste type
k_j		Methane generation rate of waste type *j* (table)
$(1-e^{-kj})$		Constant for calculation of geometric series over *t*
y_0		Start year of the targeted waste disposal
y		Target year considered

CH4 Emissions at BAU

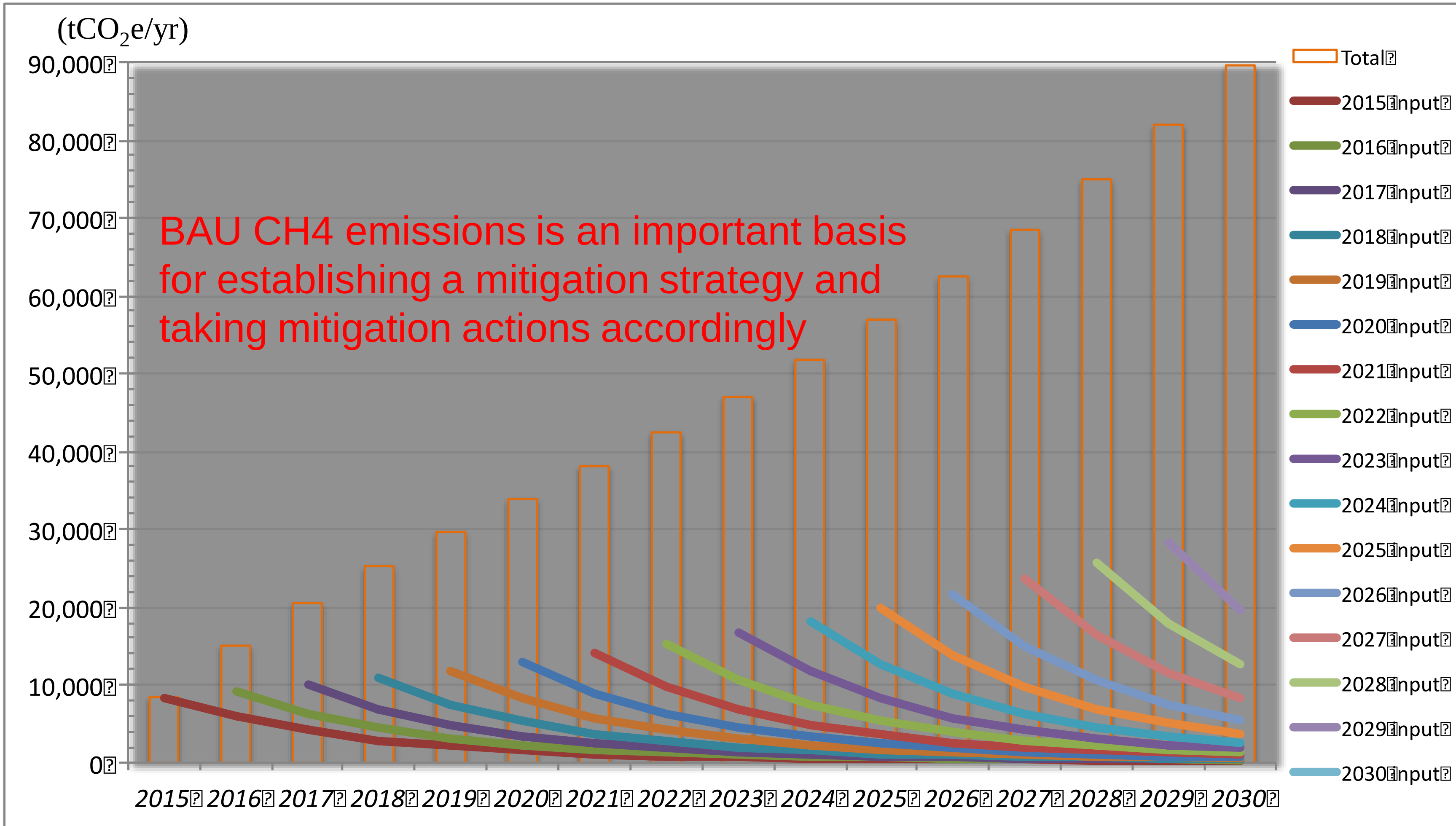
(preliminary calculation/ all LF CH4 aggregated)

Annual input waste total	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
A_t	6,177,136	6,609,131	7,203,953	7,852,309	8,559,017	9,329,328	10,168,968	11,084,175	12,081,751	13,169,108	14,354,328	15,646,218	17,054,377
Growth rate	9.0%												

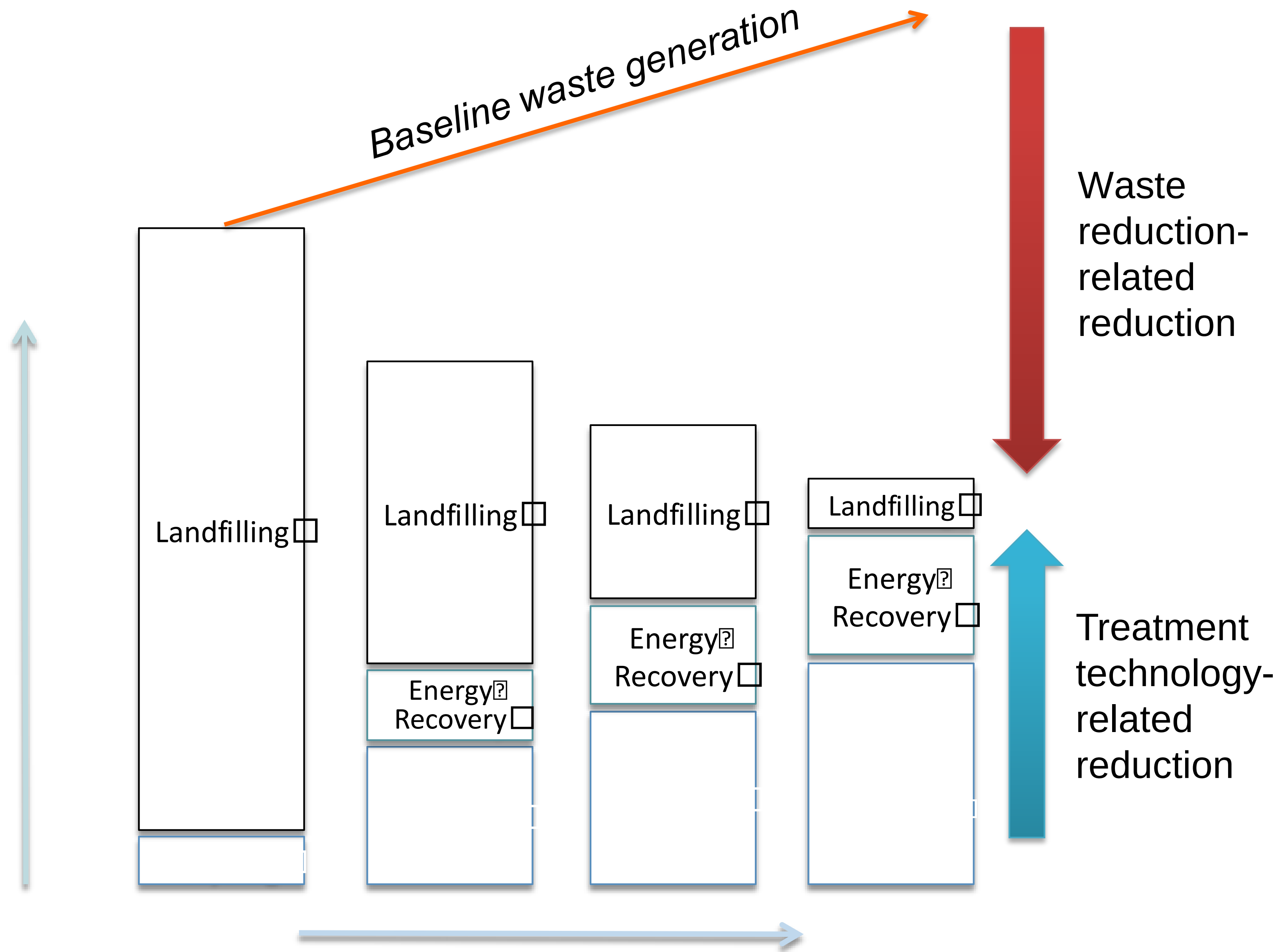
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2008	1,300,739	903,304	634,160	451,299	326,529	240,919	181,753	140,486	111,368	90,529	75,359	64,096	55,547
2009		1,391,706	966,477	678,510	482,861	349,365	257,767	194,464	150,311	119,157	96,860	80,630	68,579
2010			1,516,959	1,053,460	739,576	526,318	380,807	280,966	211,966	163,839	129,881	105,578	87,886
2011				1,653,485	1,148,271	806,138	573,687	415,080	306,253	231,043	178,584	141,570	115,080
2012					1,802,299	1,251,615	878,690	625,319	452,437	333,816	251,836	194,657	154,311
2013						1,964,506	1,364,261	957,772	681,598	493,157	363,859	274,502	212,176
2014							2,141,311	1,487,044	1,043,971	742,941	537,541	396,607	299,207
2015								2,334,030	1,620,878	1,137,929	809,806	585,919	432,301
2016									2,544,092	1,766,757	1,240,342	882,689	638,652
2017										2,773,060	1,925,765	1,351,973	962,131
2018											3,022,636	2,099,084	1,473,651
2019												3,294,673	2,288,002
2020													3,591,194
BE Total	1,300,739	2,295,010	3,117,596	3,836,754	4,499,535	5,138,860	5,778,276	6,435,160	7,122,874	7,852,227	8,632,470	9,471,977	10,378,716

Based on aggregated waste amount in Vietnam, based on NIES and JICA data

CH4 Emissions at BAU

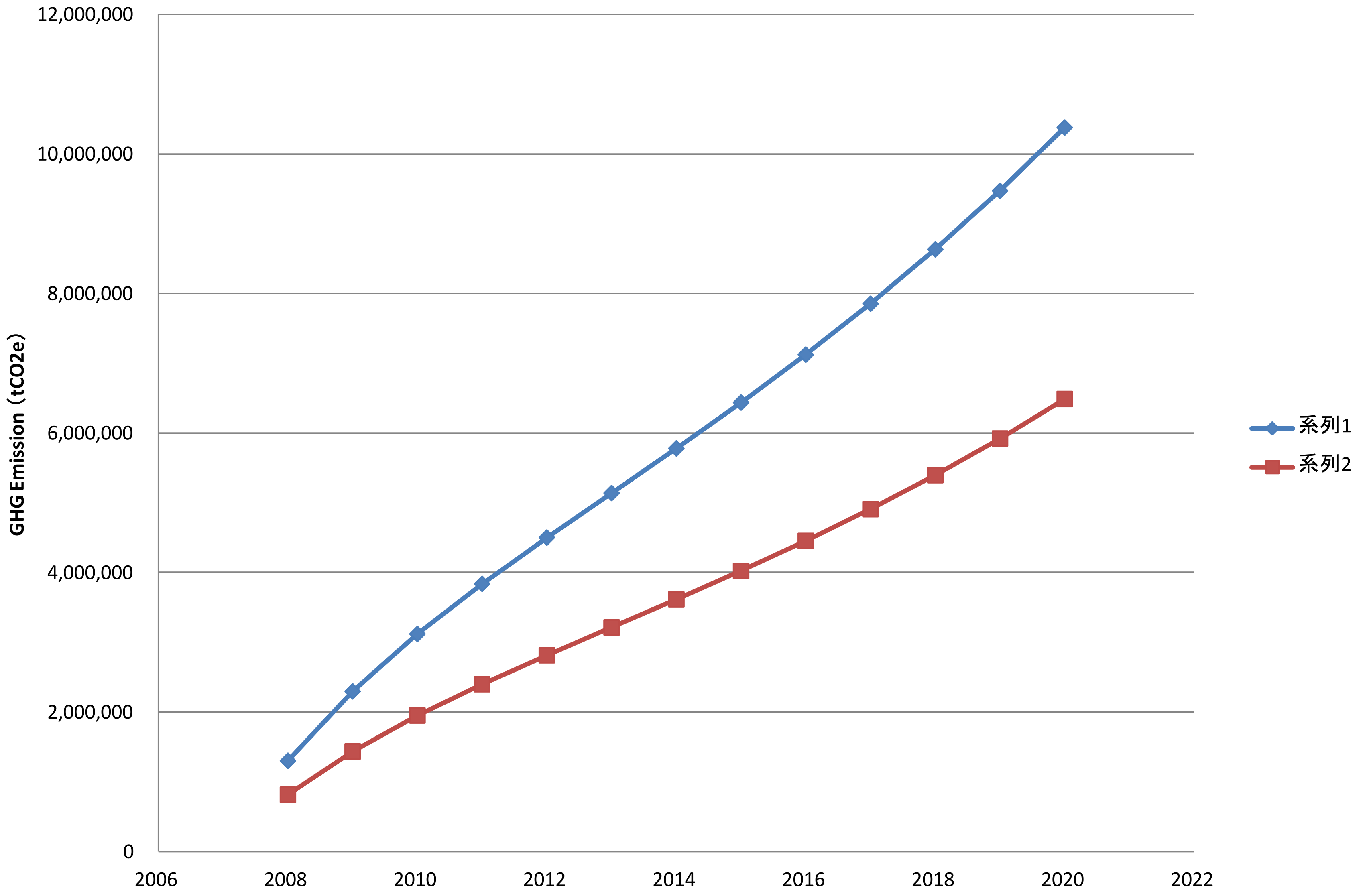


Source: Climate Experts

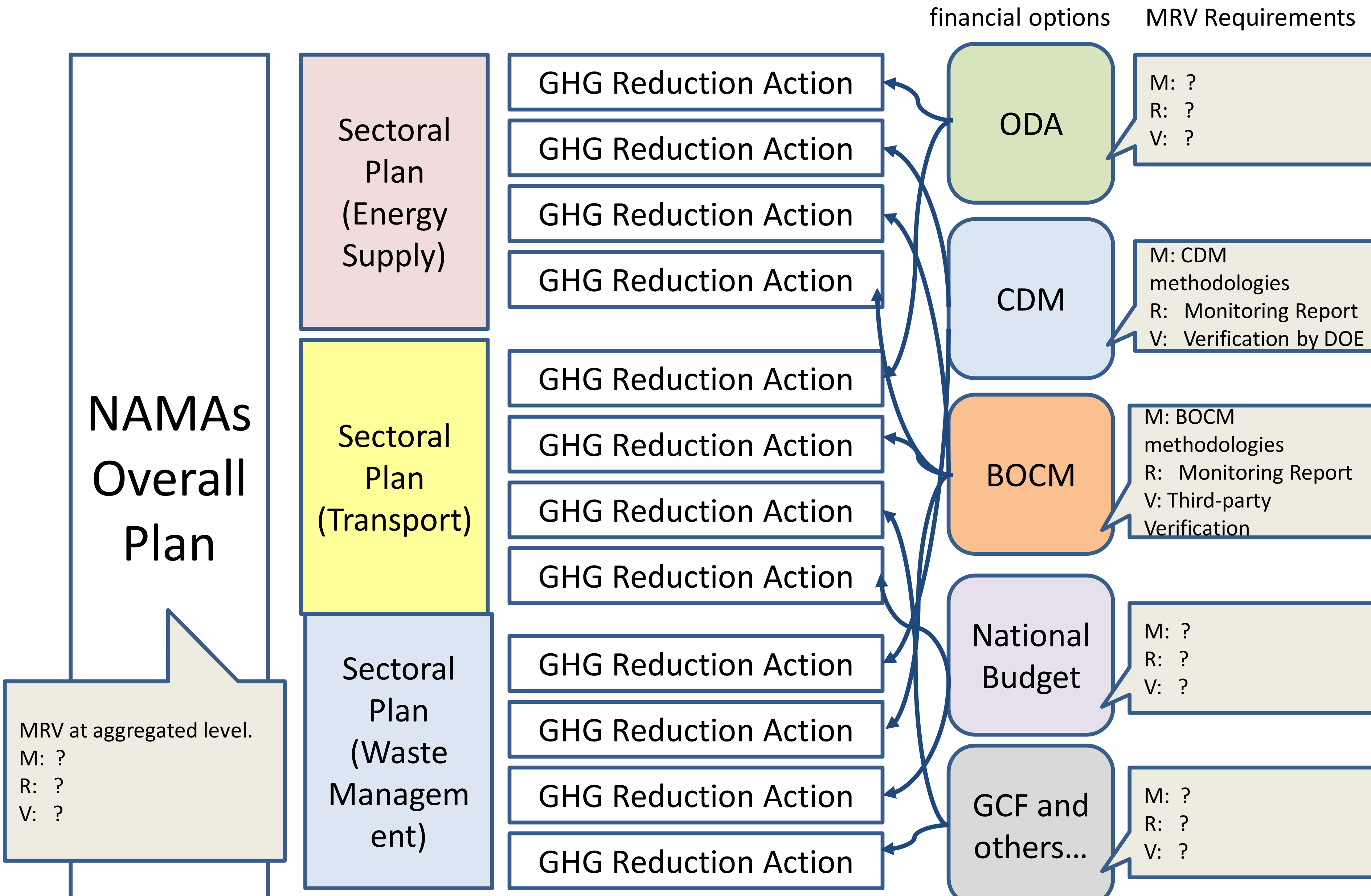


Source: Climate Experts

Preliminary Comparison between BAU and NAMA (with semi-aerobic LFs)



Think pieces for the Relationship between NAMA Overall Plan and respective NAMAs with different finances (and associated MRV requirements)



4. Achievements, lessons learned and challenges

Achievements and Lessons:

- General steps/approaches for NAMA development have been sorted out;
- Preliminary GHG quantification for BAU and NAMA have been done.

Challenges:

- How to build upon the existing data collection and reporting system

5. Way Forward

<Near Term Actions>

- Accuracy of breakdown of activity data (ie waste volume in respective landfills) should be improved.
- The secretariat will draft the implementation plan, including MRV at individual entity/project level, and MRV at policy level

<Longer Term Actions>

- Reporting system of the waste-related data should be strengthened.
- MRV at policy level need to be self-reviewed by the Government of Vietnam.

Thank you!