



Greenhouse Gas (GHG) Measurement, Reporting and Verification (MRV)

Bangkok, Thailand

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Summary of Presentation

- International Standards on GHG- MRV
- Thailand Activities on GHG-MRV
- Project Proposed Activities



International Standards on GHG-MRV

- Intergovernmental Panel on Climate Change (IPCC)
- Clean Development Mechanism (CDM)
- ISO-14064
- The Greenhouse Gas Protocol



IPCC Guidelines for Greenhouse Gas Inventories (1994, 1996, 2006)

- Thailand Initial National Communication
- Thailand Second National Communication



Clean Development Mechanism (CDM)

- The CDM have methodologies for every technology that reduces GHGs.
- Thailand has 64 registered CDM activities

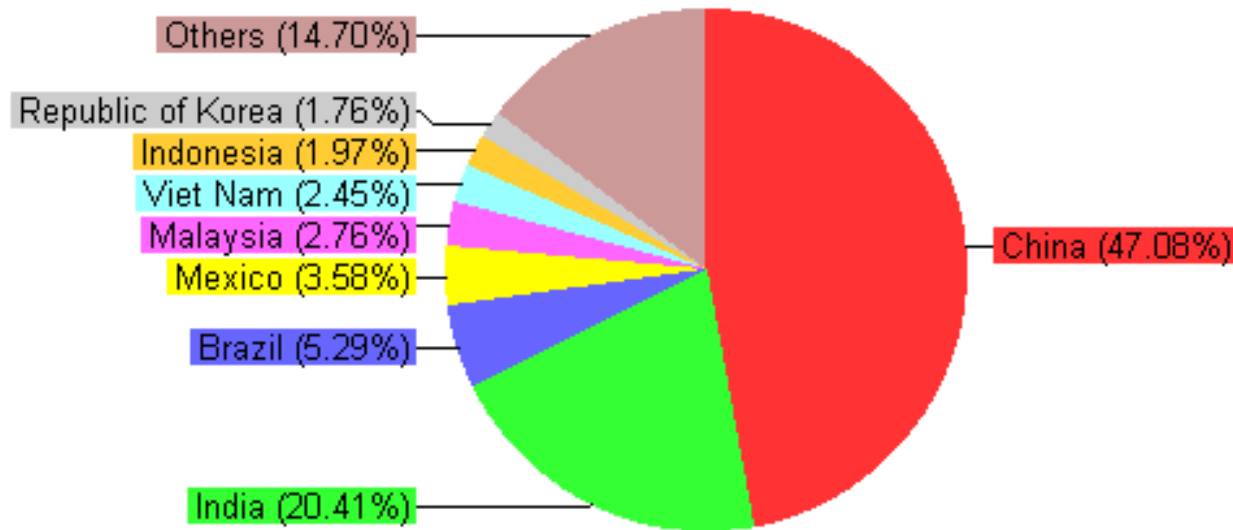


Thailand's 64 CDM-registered Projects

3,440,739 tons CO₂ eq. of emission
reduction per year



3,802 Total CDM-registered Projects 64 Projects from Thailand





01 Korat Waste to Energy

Description	(3 x 1.04) MW Anaerobic digestion of wastewater from starch industry
Project Participant(s)	Thailand: Korat Waste To Energy Company Limited UK & Switzerland: Trading Emissions PLC
Date Registered	16 Jun 07
CERs	310,843 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	714,546 CERs → issued for 01 May 2003 - 16 Jun 2007 324,732 CERs → withdrawn for 17 Jun 2007 - 25 Jul 2009 Awaiting issuance request for 26 Jul 2009 - 31 Jan 2011



02 A.T. Biopower Rice Husk Power Project

Description	22 MW Biomass power project
Project Participant(s)	Thailand: A.T. Biopower Co., Ltd. Japan: Mitsubishi UFJ Morgan Stanley Securities UK: Gazprom Marketing & Trading Singapore
Date Registered	18 Jun 07
CERs	70,772 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	100,678 CERs → issued for 21 Dec 2005 - 30 Jun 2007 Awaiting issuance request for 01 Jul 2007 - 31 Dec 2007



03 Khon Kaen Sugar Power Plant

Description	30 MW Biomass (Bagasse) power project
Project Participant(s)	Thailand: Khon Kaen Sugar Power Plant Company UK: Agrinergy Ltd
Date Registered	27 Jul 07
CERs	61,449 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 27 Jul 2007 - 31 Dec 2009



04 Dan Chang Bio-Energy Cogeneration Project

Description	41 MW Biomass (Bagasse) cogeneration project
Project Participant(s)	Thailand: Dan Chang Bio-Energy Co., Ltd. UK: Trading Emissions PLC
Date Registered	19 Oct 07
CERs	93,129 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 01 Nov 2004 - 31 Oct 2007



05 Phu Khieo Bio-Energy Cogeneration Project

Description	41 MW Biomass (Bagasse) cogeneration project
Project Participant(s)	Thailand: Phu Khieo Bio-Energy Co., Ltd. UK: Trading Emissions PLC
Date Registered	19 Oct 07
CERs	102,493 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 01 Nov 2004 - 31 Oct 2007



06 Jaroensompong Corporation Rachathewa Landfill Gas to Energy Project

Description	1 MW Landfill gas to energy project
Project Participant(s)	Thailand: Jaroensompong Co., Ltd. Japan: Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.
Date Registered	14 Mar 08
CERs	47,185 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 14 Mar 2008 - 31 Dec 2008



07 Ratchaburi Farms Biogas Project at SPM Farm

Description	(2 x 870 kW) Swine wastewater treatment project
Project Participant(s)	Thailand: SPM Feedmill Co., Ltd. Denmark: Danish Ministry of Climate and Energy
Date Registered	24 Mar 08
CERs	23,556 metric tonnes CO ₂ equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 24 Mar 2008 - 31 Mar 2011



08 Ratchaburi Farms Biogas Project at Nong Bua Farm

Description	(2 x 740 kW) Swine wastewater treatment project
Project Participant(s)	Thailand: Nong Bua Farm & Country Home Village Co. Denmark: Danish Ministry of Climate and Energy
Date Registered	27 Mar 08
CERs	15,958 metric tonnes CO ₂ equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 27 Mar 2008 - 31 Mar 2011



09 Ratchaburi Farms Biogas Project at Veerachai Farm

Description	950 kW Swine wastewater treatment project
Project Participant(s)	Thailand: Veerachai Farm Rangwai Denmark: Danish Ministry of Climate and Energy
Date Registered	28 Mar 08
CERs	32,092 metric tonnes CO ₂ equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 28 Mar 2008 - 31 Mar 2011



10 Surat Thani Biomass Power Generation Project in Thailand

Description	9.9 MW Biomass (empty fruit bunches) power plant
Project Participant(s)	Thailand: Surat Thani Green Energy Co., Ltd. Japan: Agritech Marketing Co. Ltd. ; Mitsubishi UFJ Morgan Stanley Securities Co., Ltd. ; NES Japan Co., Ltd.
Date Registered	10 May 08
CERs	106,592 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 10 May 2008 - 09 May 2009 Awaiting issuance request for 10 May 2009 - 09 May 2010



11 Cassava Waste To Energy Project, Kalasin, Thailand

Description	Wastewater treatment from a cassava processing plant
Project Participant(s)	Thailand: Cassava Waste To Energy Co., Ltd. Japan: Tokyo Electric Power Co., Inc. ; Toyota Tsusho Corporation
Date Registered	31 Jan 09
CERs	87,586 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	38970 CERs → issued for 31 Jan 2009 - 31 Dec 2009



12 Univanich Lamthap POME Biogas Project

Description	Wastewater treatment of palm oil mill effluent and electricity generation using a 952 kW biogas engine
Project Participant(s)	Thailand: Univanich Palm Oil Public Co. Ltd ; Carbon Bridge Pte Ltd Liechtenstein: Government of the Principality of Liechtenstein ; Foundation Myclimate
Date Registered	01 Feb 09
CERs	43,650 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	4346 CERs → issued for 01 Feb 2009 - 31 Mar 2009 Awaiting issuance request for 01 Apr 2009 - 31 Dec 2010



13 Chumporn applied biogas technology for advanced waste water management

Description	Anaerobic digestion of palm oil mill effluent
Project Participant(s)	Thailand: Chumporn Palm Oil Public Company Limited Germany: Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH
Date Registered	09 Feb 09
CERs	23,448 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 09 Feb 2009 - 31 Aug 2010



14 Chao Khun Agro Biogas Energy Project

Description	Anaerobic digestion of wastewater from the cassava processing factory
Project Participant(s)	Thailand: Thai Biogas Energy Company Sweden: Swedish Energy Agency Spain: Kingdom of Spain
Date Registered	09 Mar 09
CERs	48,167 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 09 Mar 2009 - 31 Mar 2011



15 Jiratpattana Biogas Energy Project

Description

Anaerobic digestion of wastewater from the cassava processing factory + Power generation (2 x 1.05 MW)

Project Participant(s)

Thailand: Thai Biogas Energy Company
Sweden: Swedish Energy Agency
Spain: Kingdom of Spain

Date Registered

16 Mar 09

CERs

24,726 metric tonnes CO2 equivalent per annum

Request(s) for Issuance

Awaiting issuance request for 16 Mar 2009 - 31 Mar 2011



16 CYY Biopower Wastewater treatment plant including biogas reuse for thermal oil replacement and electricity generation Project

Description	Anaerobic digestion of wastewater from starch manufacturing plant + Power generation (2 x 1.36 MW)
Project Participant(s)	Thailand: CYY Bio Power Co Ltd Switzerland: South Pole Carbon Asset Management Ltd Austria: Kommunalkredit Public Consulting GmbH
Date Registered	25 Mar 09
CERs	97,468 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 25 Mar 2009 - 02 Aug 2009 Awaiting issuance request for 03 Aug 2009 - 31 Dec 2010



17 Siam Quality Starch Wastewater Treatment and Energy Generation Project

Description	Anaerobic digestion of wastewater from starch manufacturing plant + Heat generation (17.068 MW(th))
Project Participant(s)	Thailand: Siam Quality Starch Co., Ltd Japan: Mitsubishi UFJ Securities Co.Ltd.
Date Registered	15 Apr 09
CERs	98,372 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 15 Apr 2009 - 30 Nov 2009



18 Catalytic N₂O Abatement Project in the tail gas of the Caprolactam production plant

Description	Reduction of N ₂ O emission of the tail gas emitted from Ammonium Nitrite Preparation process by installation of a DeN ₂ O catalyst
Project Participant(s)	Thailand: UBE Chemicals (Asia) Public Company Limited Japan: Mitsubishi Corporation
Date Registered	16 Jun 09
CERs	142,402 metric tonnes CO ₂ equivalent per annum
Request(s) for Issuance	37422 CERs → issued for 16 Jun 2009 - 30 Sep 2009 Awaiting issuance request for 01 Oct 2009 - 30 Sep 2010



19 Univanich TOPI Biogas Project

Description	Wastewater treatment + methane destruction (3 x 953 kW)
Project Participant(s)	Thailand: Univanich Palm Oil Public Co. Ltd ; Carbon Bridge Pte Ltd Other Parties: N/A
Date Registered	24 Aug 09
CERs	41,174 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 01 Oct 2009 - 31 Dec 2010



20 Thachana Palm Oil Company Wastewater Treatment Project

Description

Wastewater treatment of palm oil mill effluent and electricity generation (2 x 1 MW)

Project Participant(s)

Thailand: Thachana Palm Oil Co., Ltd.
Japan: Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.

Date Registered

29 Aug 09

CERs

23,844 metric tonnes CO₂ equivalent per annum

Request(s) for Issuance

N/A



21 Green Glory Wastewater Treatment and Electricity Generation

Description	Treatment of wastewater from palm oil processing plant + power generation (1 MW)
Project Participant(s)	Thailand: Green Glory Co., Ltd. Japan: Marubeni Corporation
Date Registered	31 Aug 09
CERs	16,916 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 01 Oct 2009 - 31 Jul 2011



22 Wastewater Treatment with Biogas Technology in a Tapioca Processing Plant at Roi Et Flour

Description

Anaerobic digestion of wastewater from tapioca industry +
electricity generation

**Project
Participant(s)**

Thailand: Roi Et Flour Co., Ltd
Denmark: Danish Ministry of Climate and Energy

Date Registered

05 Sep 09

CERs

40,276 metric tonnes CO₂ equivalent per annum

**Request(s) for
Issuance**

Awaiting issuance request for 05 Sep 2009 - 31 Aug 2010



23 Biogas project, Cargill Siam Borabu

Description	Anaerobic digestion of wastewater from starch production using UASB + electricity generation (2 x 1,364 kW)
Project Participant(s)	Thailand: Cargill Siam Ltd. Switzerland: Cargill International S.A.
Date Registered	05 Sep 09
CERs	52,881 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



24 Wastewater Treatment with Biogas Technology in a Tapioca Processing Plant at P.V.D.

Description	Anaerobic digestion of wastewater from starch production using UASB + electricity generation (3 x 952 kW)
Project Participant(s)	Thailand: P.V.D. International Co., Ltd. Denmark: Danish Ministry of Climate and Energy
Date Registered	10 Sep 09
CERs	50,663 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 10 Sep 2009 - 30 Aug 2010



25 Bionersis Project Thailand 1

Description	(2 x 1 MW) Landfill project
Project Participant(s)	Thailand: Bionersis (Thailand) Ltd France: Bionersis S.A. Netherlands: E.ON Carbon Sourcing GmbH
Date Registered	24 Sep 09
CERs	118,609 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	21594 CERs → issued for 01 Apr 2010 - 31 Dec 2010 Awaiting issuance request for 01 Jan 2011 - 31 Dec 2011



26 Srijaroen Palm Oil Wastewater Treatment Project in Krabi

Description	Wastewater treatment of palm oil mill effluent and electricity generation using a 1 MW biogas engine
Project Participant(s)	Thailand: Srijaroen Palm Oil Co., Ltd. Japan: Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.
Date Registered	16 Oct 09
CERs	20,429 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	13528 CERs → issued for 16 Oct 2009 - 30 Apr 2010



27 Kitroongruang Biogas Energy Project

Description	Anaerobic digestion of wastewater from the cassava processing factory + Power generation (1.4 MW)
Project Participant(s)	Thailand: Thai Biogas Energy Company UK: EcoSecurities International Limited Sweden: Swedish Energy Agency Spain: Kingdom of Spain
Date Registered	23 Oct 09
CERs	17,328 metric tonnes CO ₂ equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 23 Oct 2009 - 31 Mar 2011



28 Southern Palm Wastewater Treatment and Electricity Generation in Suratthani

Description	Wastewater treatment of palm oil mill effluent and electricity generation using a 1 MW biogas engine
Project Participant(s)	Thailand: The Southern Palm (1978) Co., Ltd. Japan: Marubeni Corporation
Date Registered	31 Oct 09
CERs	18,622 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 31 Oct 2009 - 31 Jul 2011



29 Bangna Starch Wastewater Treatment and Biogas Utilization Project

Description

Anaerobic digestion of wastewater from starch production using UASB + electricity generation (3 x 0.95 MW)

Project Participant(s)

Thailand: P & Papop Renewable Co., Ltd.
Switzerland: South Pole Carbon Asset Management Ltd.
Portugal: Luso Carbon Fund

Date Registered

10 Nov 09

CERs

41,701 metric tonnes CO₂ equivalent per annum

Request(s) for Issuance

Awaiting issuance request for 10 Nov 2009 - 31 Dec 2010



30 Eiamburapa Company Ltd. Tapioca Starch Wastewater Biogas Extraction And Utilization Project

Description	Anaerobic digestion of wastewater from starch production using UASB + electricity generation (2 x 0.95 MW)
Project Participant(s)	Thailand: Eiamburapa Company Ltd. (EBCL) Japan: SUMITOMO Corp.
Date Registered	16 Dec 09
CERs	56,004 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	16,050 CERs → issued for 16 Dec 2009 - 31 May 2010



31 Siam Cement (Ta Luang) Waste Heat Power Generation Project

Description	Heat recovery to generate 16.65 MW of electricity
Project Participant(s)	Thailand: Cemen Thai Energy Conservation Co., Ltd. Other Parties: N/A
Date Registered	08 Feb 10
CERs	46,413 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



32 Siam Cement (Thung Song) Waste Heat Power Generation Project

Description	Heat recovery to generate 7.88 MW of electricity
Project Participant(s)	Thailand: Korat Waste To Energy Company Limited Other Parties: N/A
Date Registered	12 Feb 10
CERs	26,262 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



33 Decha Bio Green Rice Husk Power Generation 7.5MW

Description

7.5 MW Biomass (Rice Husk) Power Project

**Project
Participant(s)**

Thailand: Decha Bio Green Co. Ltd.
UK and Northern Ireland: EDF Trading Limited (EDFT)

Date Registered

17 Feb 10

CERs

28,237 metric tonnes CO₂ equivalent per annum

**Request(s) for
Issuance**

10,377 CERs → issued for 17 Feb 2010 - 30 Jun 2010



34 Power Prospect 9.9MW Rice Husk Power Plant

Description

9.9 MW Biomass (Rice Husk) power project

Project Participant(s)

Thailand: Power Prospect Company Limited
Japan: Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.

Date Registered

25 Feb 10

CERs

35,367 metric tonnes CO2 equivalent per annum

Request(s) for Issuance

Awaiting issuance request for 25 Feb 2010 - 31 Aug 2010



35 V.P. Farms Pig Manure Methanisation, Methane Recovery and Energy Production Project

Description	Swine wastewater treatment with electricity generation (2 x 710 kW)
Project Participant(s)	Thailand: Foxsys Co. Ltd. Austria: Kommunalkredit Public Consulting GmbH ; Energy Technology Solutions GmbH
Date Registered	26 Feb 10
CERs	31,131 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



36 Siam Cement (Kaeng Khoi) Waste Heat Power Generation Project

Description	Heat recovery to generate 9.1 MW of electricity
Project Participant(s)	Thailand: Cementhai Energy Conservation Co., Ltd. Other Parties: N/A
Date Registered	12 Apr 10
CERs	29,354 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



37 Biogas from Ethanol Wastewater for Electricity Generation

Description	Wastewater treatment with electricity generation (1,240 kW)
Project Participant(s)	Thailand: Bio Natural Energy Company Limited Japan: EX Corporation
Date Registered	17 Jul 10
CERs	18,804 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



38 Active Synergy Landfill Gas Power Generation Project Nakhon Pathom

Description

Landfill project with capacity of 1,040 kW

**Project
Participant(s)**

Thailand: Active Synergy Co. Ltd
UK & Northern Ireland: EDF Trading Ltd (EDFT)

Date Registered

21 Sep 10

CERs

17,890 metric tonnes CO2 equivalent per annum

**Request(s) for
Issuance**

Awaiting issuance request for 18 Nov 2010 - 31 May 2011



39 TBEC Tha Chang Biogas Project

Description	Anaerobic wastewater treatment + electricity generation (1.4 MW)
Project Participant(s)	Thailand: Thai biogas Energy Company Limited (TBEC) & Carbon Bridge Pte Ltd Sweden and Spain: Swedish Energy Agency & Kingdom of Spain
Date Registered	28 Sep 10
CERs	51,823 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



40 Green to Energy Wastewater Treatment Project

Description

Palm oil wastewater treatment + electricity generation (1.42 MW)

Project Participant(s)

Thailand: Green to Energy Co., Ltd.
Japan: Agritech Marketing Co., Ltd. & NES Japan Company Limited

Date Registered

04 Oct 10

CERs

19,344 metric tonnes CO2 equivalent per annum

Request(s) for Issuance

N/A



41 Trang Palm Oil Wastewater Treatment Project

Description	Palm oil wastewater treatment + electricity generation (2 x 1 MW)
Project Participant(s)	Thailand: Trang Palm Oil Co., Ltd. Japan: Mitsubishi UFJ Securities Co., Ltd.
Date Registered	08 Dec 10
CERs	23,248 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



42 UB Tapioca Starch Wastewater Treatment Project

Description

Anaerobic digestion of wastewater from starch production using UASB + electricity generation (2 x 0.95 MW)

Project Participant(s)

Thailand: Ubon Biogas Co. Ltd.
UK & Northern Ireland: Camco Carbon Limited

Date Registered

30 Dec 10

CERs

59,851 metric tonnes CO₂ equivalent per annum

Request(s) for Issuance

Awaiting issuance request for 01 Feb 2011 - 31 Oct 2011



43 Mungcharoen Green Power - 9.9 MW Rice Husk Fired Power Plant Project

Description

9.9 MW Biomass (Rice Husk) power plant

Project Participant(s)

Thailand: Mungcharoen Green Power Co., Ltd.
Italy: Green Initiative Carbon Assets (GICA) S.A.

Date Registered

01 Jan 11

CERs

39,462 metric tonnes CO₂ equivalent per annum

Request(s) for Issuance

N/A



44 Bangkok Kamphaeng Saen West: Landfill Gas to Electricity Project

Description	Landfill project (16 MW maximum capacity)
Project Participant(s)	Thailand: Zenith Green Energy Co., Ltd UK & Northern Ireland: Xentolar Holdings Limited & Sindicatum Carbon Capital Ltd.
Date Registered	20 Jan 11
CERs	246,602 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	Awaiting issuance request for 03 May 2011 - 31 Oct 2011



45 Univanich Siam Biogas to Energy Project

Description	Palm oil wastewater treatment + electricity generation (0.95 MW)
Project Participant(s)	Thailand: Univanich Palm Oil Public Company Ltd UK & Northern Ireland: EcoSecurities International Limited (EIL)
Date Registered	20 Jan 11
CERs	27,194 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



46 Bangkok Kamphaeng Saen East: Landfill Gas to Electricity Project

Description

Landfill project (16 MW maximum capacity)

Project Participant(s)

Thailand: Bangkok Greenpower Co., Ltd.
UK & Northern Ireland: Sindicatum Carbon Capital Ltd. ;
Xentolar Holdings Limited

Date Registered

21 Jan 11

CERs

273,086 metric tonnes CO2 equivalent per annum

Request(s) for Issuance

Awaiting issuance request for 21 Jan 2011 - 31 May 2011
Awaiting issuance request for 01 Jun 2011 - 31 Oct 2011



47 Wastewater Treatment with Biogas System in Palm Oil Mill

Description	Palm oil wastewater treatment + electricity generation (1 MW)
Project Participant(s)	Thailand: Saengsiri Agro-Industries Co., Ltd. Denmark: Danish Ministry of Climate and Energy
Date Registered	10 Feb 11
CERs	12,134 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



48 S.K. Power Wastewater Project

Description

Palm oil wastewater treatment + electricity generation
(3 x 1.415 MW)

**Project
Participant(s)**

Thailand: S.K. Power Company Limited
UK & Northern Ireland: EDF Trading Limited

Date Registered

16 Feb 11

CERs

48,799 metric tonnes CO2 equivalent per annum

**Request(s) for
Issuance**

N/A



49 Wastewater Treatment with Biogas System in Palm Oil Mill at Saikhueng

Description

Palm oil wastewater treatment + electricity generation
(1 MW)

Project Participant(s)

Thailand: Thai Tallow and Oil Co., Ltd
Denmark: Danish Ministry of Climate and Energy

Date Registered

16 Feb 11

CERs

21,273 metric tonnes CO₂ equivalent per annum

Request(s) for Issuance

N/A



50 Wastewater Treatment with Biogas System in Palm Oil Mill at Bangsawan

Description	Palm oil wastewater treatment + electricity generation (1 MW)
Project Participant(s)	Thailand: Thai Tallow and Oil Co., Ltd. Denmark: Danish Ministry of Climate and Energy
Date Registered	23 Mar 11
CERs	16,442 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



51 T.H. Pellet Wastewater Treatment and Heat and Electricity Generation

Description	Palm oil wastewater treatment + electricity generation (1 MW)
Project Participant(s)	Thailand: T.H. Pellet Co., Ltd. Japan: Marubeni Corporation
Date Registered	09 Apr 11
CERs	35,151 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



52 Blue Fire Bio Wastewater Treatment And Biogas Utilization Project

Description

Anaerobic digestion of wastewater from starch production using UASB + electricity generation (3.128 MW)

Project Participant(s)

Thailand: Blue Fire Bio Co.,Ltd
Switzerland: South Pole Carbon Asset Management Ltd.

Date Registered

09 Apr 11

CERs

51,817 metric tonnes CO2 equivalent per annum

Request(s) for Issuance

N/A



53 JR One Wastewater Biogas to Electricity Project

Description	Palm oil wastewater treatment + electricity generation (2 x 1 MW)
Project Participant(s)	Thailand: JR One Company Limited UK & Northern Ireland: EDF Trading Limited
Date Registered	21 Apr 11
CERs	34,653 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



54 Wastewater Treatment with Biogas System (AFFR) in a Starch Plant for Energy & Environment Conservation

Description	Wastewater treatment from starch industry using Anaerobic Fixed film Reactor
Project Participant(s)	Thailand: Sima Interproduct Co., Ltd Denmark: Danish Ministry of Climate and Energy
Date Registered	10 Jun 11
CERs	16,636 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



55 Pitak Palm Wastewater Treatment and Biogas Utilization Project

Description

Anaerobic digestion of wastewater from starch production using UASB + electricity generation (1.063 MW)

Project Participant(s)

Thailand: Pitak Palm Oil Co.,Ltd.
Switzerland: South Pole Carbon Asset Management Ltd.

Date Registered

28 Jul 11

CERs

17,580 metric tonnes CO₂ equivalent per annum

Request(s) for Issuance

N/A



56 Chantaburi Starch Wastewater Treatment and Biogas Utilization Project

Description

Anaerobic digestion of wastewater from starch production using UASB + electricity generation (2 x 0.95 MW)

Project Participant(s)

Thailand: Chantaburi Starch Power Co., Ltd.
Switzerland: South Pole Carbon Asset Management Ltd.

Date Registered

28 Jul 11

CERs

32,740 metric tonnes CO₂ equivalent per annum

Request(s) for Issuance

N/A



57 Wastewater Treatment with Biogas System in Palm Oil Mill at Sikao, Trang

Description

Palm oil wastewater treatment + electricity generation
(1 MW)

Project Participant(s)

Thailand: OTACO Co., Ltd.
Denmark: Danish Ministry of Climate and Energy

Date Registered

08 Aug 11

CERs

11,109 metric tonnes CO₂ equivalent per annum

Request(s) for Issuance

N/A



58 Wastewater Treatment with Biogas System in Palm Oil Mill at Sinpun, Surat Thani

Description	Palm oil wastewater treatment + electricity generation (1 MW)
Project Participant(s)	Thailand: S.P.O. Agro-Industries Co., Ltd. Denmark: Danish Ministry of Climate and Energy
Date Registered	10 Aug 11
CERs	16,112 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



59 Metro Group Energy WWT Project

Description	Anaerobic digestion of wastewater from starch production using UASB + electricity generation (985 kW)
Project Participant(s)	Thailand: Metro Group Energy Company Limited Switzerland: South Pole Carbon Asset Management Ltd.
Date Registered	10 Aug 11
CERs	49,347 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



60 Wastewater Treatment with Biogas System (UASB) in a Starch Plant at Nakorn Ratchasima

Description

Anaerobic digestion of wastewater from starch production using UASB + electricity generation

Project Participant(s)

Thailand: Sima Interproduct Co., Ltd
Denmark: Danish Ministry of Climate and Energy

Date Registered

10 Sep 11

CERs

29,527 metric tonnes CO2 equivalent per annum

Request(s) for Issuance

N/A



61 Lopburi Solar Power Plant Project

Description	PV panels with installed capacity of 73.16MW-DC Gross
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Project Participant(s)	Thailand: Natural Energy Development Co., Ltd. Other Parties: N/A
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Date Registered	12 Sep 11
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CERs	60,801 metric tonnes CO2 equivalent per annum
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Request(s) for Issuance	N/A
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62.5 MW Photovoltaic Power Generation Project at Saraburi

Description	5 MW PV facility
Project Participant(s)	Thailand: Infinite Green Co., Ltd. Other Parties: N/A
Date Registered	15 Sep 11
CERs	3,835 metric tonnes CO ₂ equivalent per annum
Request(s) for Issuance	N/A



63 VG Energy's Waste to Power at Vichitbhan Plantation

Description	Palm oil wastewater treatment + electricity generation (2 x 1.415 MW)
Project Participant(s)	Thailand: VG Energy Co., Ltd. UK: Barclays Bank PLC
Date Registered	25 Oct 11
CERs	47,531 metric tonnes CO2 equivalent per annum
Request(s) for Issuance	N/A



64 Grid-connected Electricity Generation from Biomass at Advance Biopower

Description

9.5 MW Biomass (wood chips) power facility

Project Participant(s)

Thailand: Advance Biopower Co., Ltd.
Denmark: Danish Ministry of Climate and Energy

Date Registered

23 Dec 11

CERs

32,849 metric tonnes CO2 equivalent per annum

Request(s) for Issuance

N/A



ISO 14064-1

- **Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals**



ISO 14064-2

- **Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements**



ISO 14064-3

- **Specification with guidance for the validation and verification of greenhouse gas assertions**



The Greenhouse Gas Protocol

- The Greenhouse Gas Protocol Initiative is a multi-stakeholder partnership of businesses, non-governmental organizations (NGOs), governments, and others convened by the World Resources Institute (WRI), a U.S.-based environmental NGO, and the World Business Council for Sustainable Development (WBCSD), a Geneva-based coalition of 170 international companies. Launched in 1998, the Initiative's mission is to develop internationally accepted greenhouse gas (GHG) accounting and reporting standards for business and to promote their broad adoption.



The GHG Protocol Initiative comprises two separate but linked standards:

- GHG Protocol Corporate Accounting and Reporting Standard (this document, which provides a step-by-step guide for companies to use in quantifying and reporting their GHG emissions)
- GHG Protocol Project Quantification Standard (forthcoming; a guide for quantifying reductions from GHG mitigation projects)

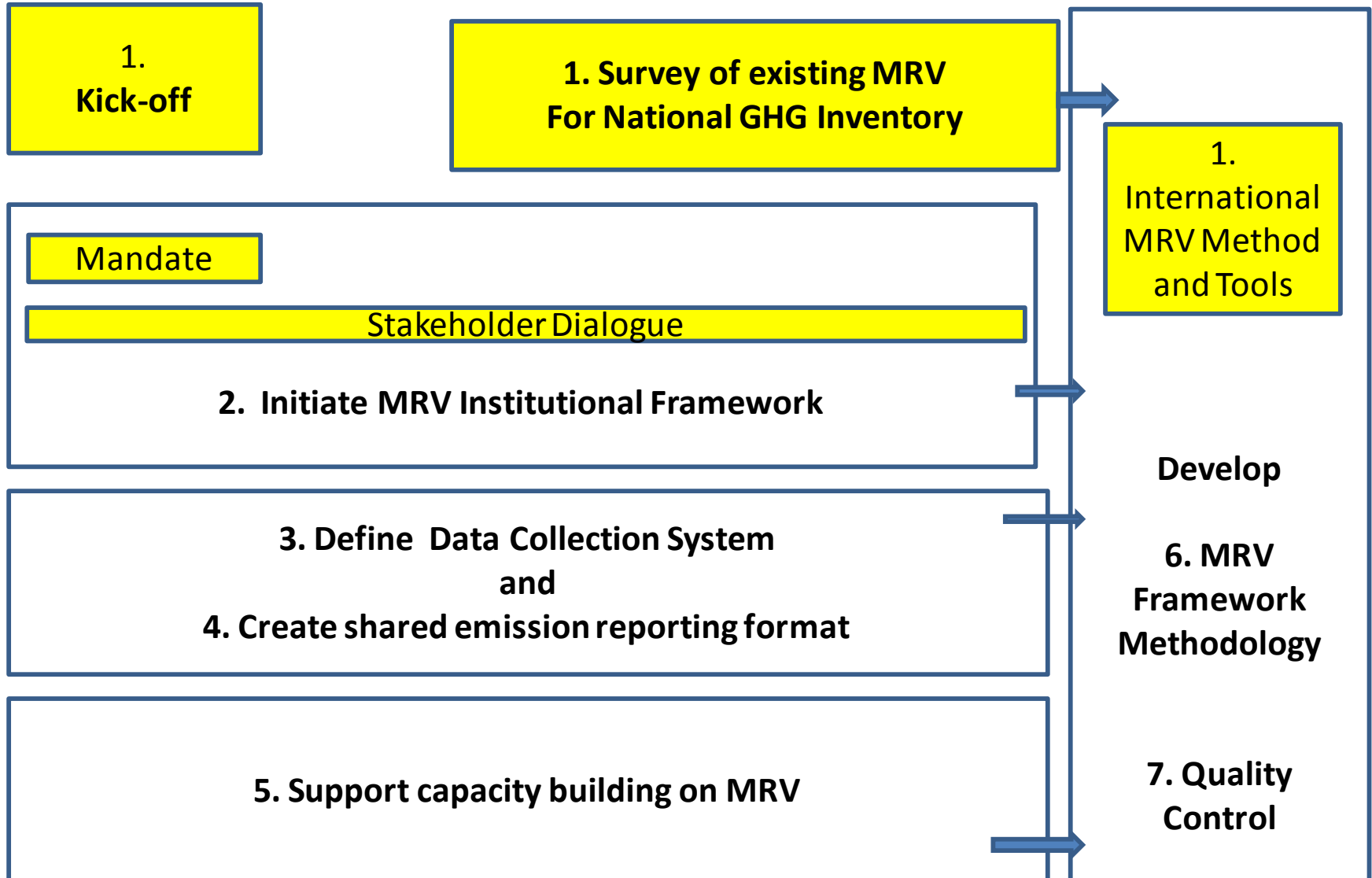


Project Proposed Activities

- Work closely with Thai Government agencies that implemented the identified MRV Projects to identify:
 - Training needs on GHG MRV
 - Data needed and level of disaggregation
 - Specific agency as source of data
 - Methodology used in measuring data



Greenhouse Gas (GHG) Measurement, Reporting and Verification (MRV) Study





Next steps

1. Kick-off
2. MRV Institutional Framework
3. Define data collection system
4. Create shared emission reporting format
5. Support capacity building on MRV
6. MRV Framework methodology
7. Quality control



Kick-off

- Kick-off event
- Review of current situation (AS-IS)
 - Data used for NI 1994 and 2000 and methodology
 - Identified barriers
 - New routines implemented
- International Data requirements for next NI (TO-BE)
- GAP assessment
- Outline of MRV methodology (first draft)
- Report 1:
 - Status of NI
 - End-february 2012 – concludes phase 1



MRV Institutional Framework

- Stakeholder workshop (tentatively 10 April 2012)
 - Outline of MRV methodology
 - Current processes for data management and data quality (sector groups)
 - TO-BE processes to ensure data consistency and timeliness
- Report
 - Institutional Framework (AS-IS and TO-BE)
 - Outlined draft MRV-methodology (second draft)
 - End-March – concludes phase 2



Establishing MRV

- Data collection system (phase 3)
- Shared emission reporting format (phase 4)
- MRV methodology finalized (phase 6)
- Outline of MRV methodology (third draft)
- Workpapers for review
 - End May
 - Concludes phases 3, 4 and 6



Capacity Building

- Capacity building (phase 5)
 - Combined with planned training
 - Train-the-trainer approach
 - Content include:
 - MRV methodology
 - GHG and ISO 14064-1, -2, -3 (three days training at TGO)
- Quality control (phase 7)
- Deliverables:
 - MRV methodology (final)
 - Training material
 - Quality control