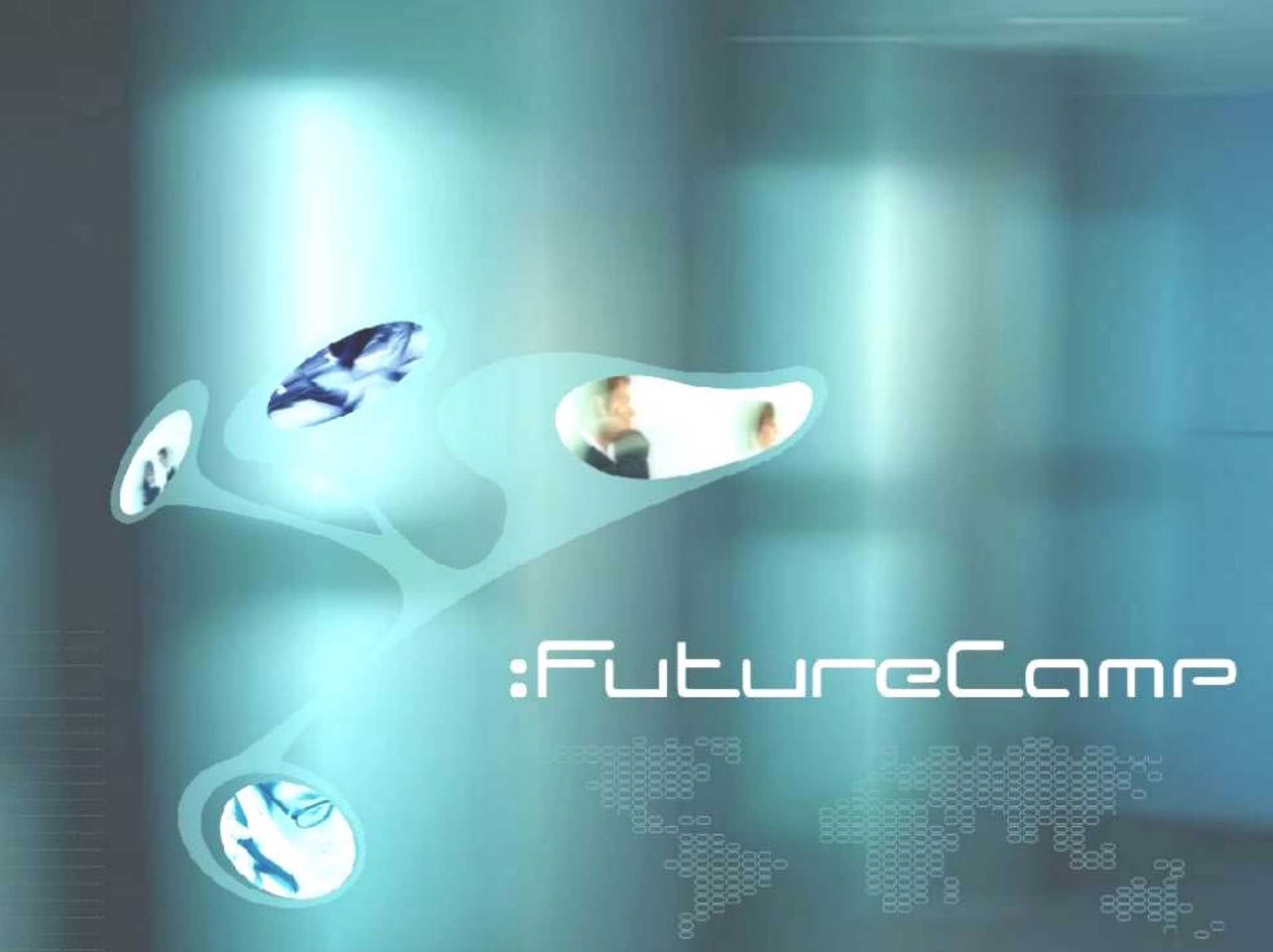

:FutureCamp

Workshop

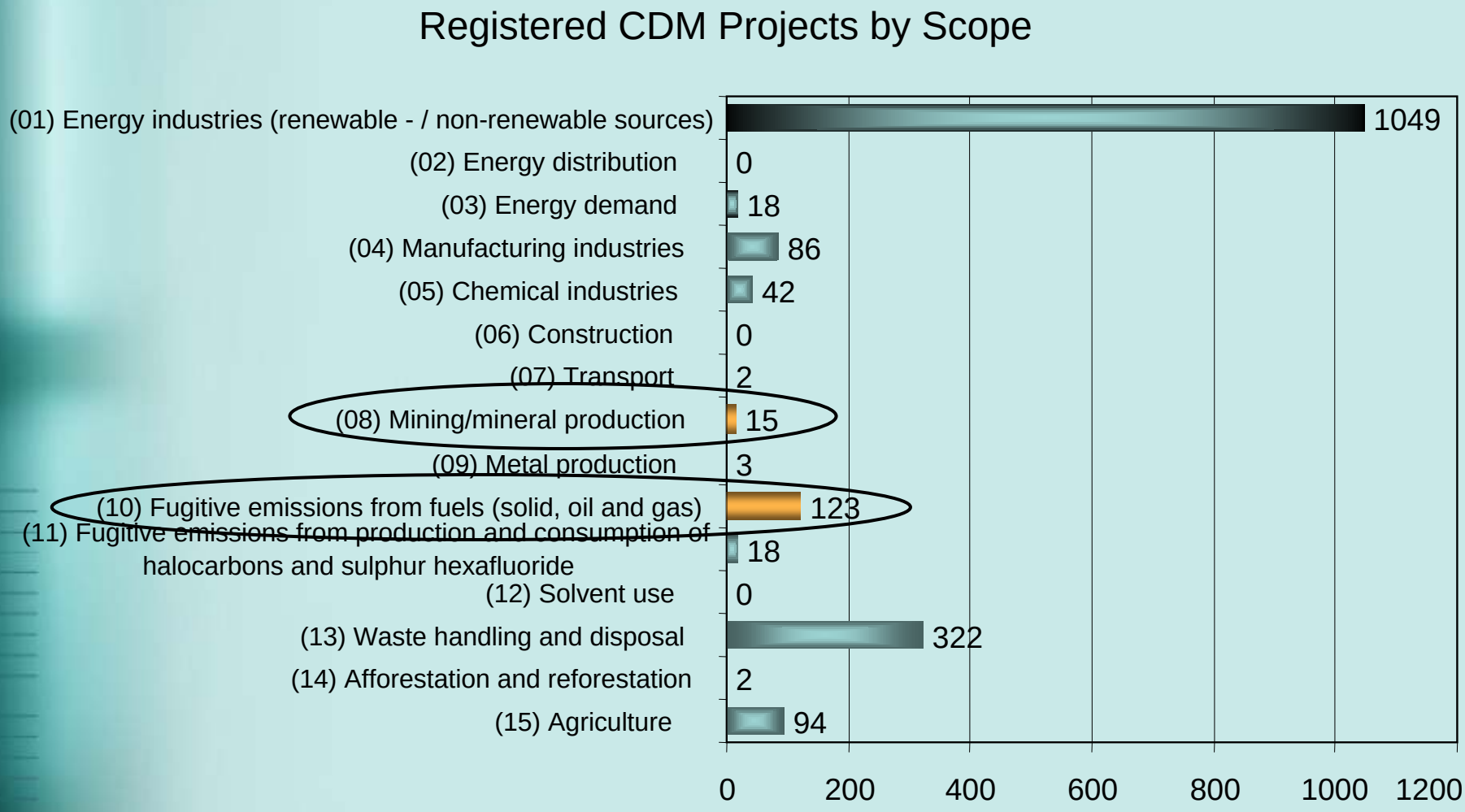
Development and Implementation of CDM Projects in Uzbekistan and possibilities for Usbek-German cooperation

CDM project potential in the oil & gas sector and best-practice examples

17th March 2009, Poytaht Hotel Tashkent, Uzbekistan

Markus Götz, FutureCamp

CDM scope for Oil & Gas sector



Interlinked Methodologies as of March 2009

- Large-scale methodologies: 62
- Small-scale methodologies: 40

Scope 1	Energy industries (re-/non-renewable)	43
Scope 2	Energy distribution	2
Scope 3	Energy demand	12
Scope 4	Manufacturing industries	24
Scope 5	Chemical industries	15
Scope 6	Construction	0
Scope 7	Transport	5
Scope 8	**Mining/mineral production**	**1**
Scope 9	Metal production	6
Scope 10	**Fugitive emissions, fuels**	**8**
Scope 11	Fugitive emissions, HFCs & SF_6	6
Scope 12	Solvent use	0
Scope 13	Waste handling & disposal	14
Scope 14	Afforestation / Reforestation	16
Scope 15	Agriculture	5

UNFCCC March 2009

CDM in the oil and gas sector - methodologies

- UN-Scope 10: Fugitive emissions from fuels (solid, oil and gas)

- The following methodology is relevant with respect to **coal mining:**

  - **ACM0008** Consolidated methodology for coal bed methane, coal mine methane and ventilation air methane capture and use for power (electrical or motive) and heat and/or destruction through flaring or flameless oxidation

CDM in the oil and gas sector - methodologies

Applicability Criteria

This methodology applies to project activities that involve the use of any of the following extraction activities:

- Surface drainage wells to capture CBM associated with mining activities;
- Underground boreholes in the mine to capture pre mining CMM;
- Surface goaf wells, underground boreholes, gas drainage galleries or other goaf gas capture techniques, including gas from sealed areas, to capture post mining CMM;
- Ventilation air methane-that would normally be vented.

This methodology applies to CMM and VAM capture, utilisation and destruction project activities at a working coal mine, where the baseline is the partial or total atmospheric release of the methane and the project activities include the following method to treat the gas captured:

- The methane is captured and destroyed through flaring; and/or
- The methane is captured and destroyed through flameless oxidation and/or
- The methane is captured and destroyed through utilisation to produce electricity, motive power and/or thermal energy; emission reductions may or may not be claimed for displacing or avoiding energy from other sources;
- The remaining share of the methane, to be diluted for safety reason, may still be vented;
- All the CBM or CMM captured by the project should either be used or destroyed, and cannot be vented.

CDM in the oil and gas sector - methodologies

- UN-Scope 10: Fugitive emissions from fuels (solid, oil and gas)
- The following methodologies are relevant with respect to **oil extraction:**

  - **AM0009** Recovery and utilization of gas from oil wells that would otherwise be flared or vented
  - **AM0023** Leak reduction from natural gas pipeline compressor or gate stations
  - **AM0037** Flare (or vent) reduction and utilization of gas from oil wells as a feedstock
  - **AM0043** Leak reduction from natural gas distribution by replacing old cast iron pipes or steel pipes without cathodic protection with polyethylene pipes
  - **AM0077** Recovery of gas from oil wells that would otherwise be vented or flared and its delivery to specific end-users

→ Always connected to reduction of methane emissions

CDM in the oil and gas sector – project status

Under ACM0008 Consolidated methodology for coal bed methane, coal mine methane and ventilation air methane capture and use for power (electrical or motive) and heat and/or destruction through flaring or flameless oxidation

- Registered projects: 15, Under review: 3, Corrections 5

Total Projects found: 23

Registered	Title	Host Parties	Other Parties	Methodology *	Reductions **	Ref
18 Feb 07	Huaibei Haizi and Luling Coal Mine Methane Utilization Project	China	Netherlands United Kingdom of Great Britain and Northern Ireland	ACM0008 ver. 2	296278	0770
31 Mar 07	Pansan Coal Mine Methane Utilisation and Destruction Project	China	Switzerland	ACM0002 ver. 6 ACM0008 ver. 2	126223	0840

CDM in the oil and gas sector – project status

Under AM0009 Recovery and utilization of gas from oil wells that would otherwise be flared or vented

- Registered projects: 6

Total Projects found: 6

Registered	Title	Host Parties	Other Parties	Methodology *	Reductions **	Ref
04 Feb 06	Rang Dong Oil Field Associated Gas Recovery and Utilization Project	Viet Nam	Japan United Kingdom of Great Britain and Northern Ireland	AM0009 ver. 2	677000	0152
09 Nov 06	Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant, Nigeria	Nigeria	Italy	AM0009 ver. 2	1496934	0553
29 May 07	Al-Shaheen Oil Field Gas Recovery and Utilization Project	Qatar		AM0009 ver. 2	2499649	0763
01 Feb 08	Tambun LPG Associated Gas Recovery and Utilization Project	Indonesia	Switzerland United Kingdom of Great Britain and Northern Ireland	AM0009 ver. 2	390893	1144
26 Jan 09	Oil India Limited (OIL) – Greenhouse Gas Emission Reduction through Recovery and Utilization of Flare Gas	India		AM0009 ver. 2	53082	2126
01 Feb 09	Pan Ocean Gas Utilization Project	Nigeria	Norway	AM0009 ver. 2	2626735	2029

* AM - Large scale, ACM - Consolidated Methodologies, AMS - Small scale
** Estimated emission reductions in metric tonnes of CO_2 equivalent per annum (as stated by the project participants)

CDM in the oil and gas sector – project status

- Under AM0023 Leak reduction from natural gas pipeline compressor or gate stations
  - none

- Under AM0037 Flare (or vent) reduction and utilization of gas from oil wells as a feedstock
  - Registered: 2, Rejected: 1

Total Projects found: 3

Registered	Title	Host Parties	Other Parties	Methodology *	Reductions **	Ref
Rejected	Reduction of Flaring and Use of Recovered Gas for Methanol Production	Equatorial Guinea	United Kingdom of Great Britain and Northern Ireland	AM0037 ver. 1	2263165	0972
14 Dec 07	Flare gas recovery project at Uran plant, Oil and Natural Gas Corporation (ONGC) Limited	India		AM0037 ver. 1	97740	1220
16 May 08	Flare gas recovery project at Hazira Gas Processing Complex (HGPC), Hazira plant, Oil and Natural Gas Corporation (ONGC) Limited	India		AM0037 ver. 1	8793	1354

CDM in the oil and gas sector – project status

- Under AM0043 Leak reduction from natural gas distribution by replacing old cast iron pipes or steel pipes without cathodic protection with polyethylene pipes
  - none
- Under AM0077 Recovery of gas from oil wells that would otherwise be vented or flared and its delivery to specific end-users
  - none

Applicability: comparison AM0009 and AM0037

- **AM0009** (Recovery and utilization of gas from oil wells that would otherwise be flared or vented) covers project activities
  - where gas at running oil wells is recovered and transported to
    - A) **processing plant for dry gas & condensate production**
    - B) **existing natural gas pipeline without processing**.

- **AM0037** (Flare or vent reduction and utilization of gas from oil wells as a feedstock) covers project activities
  - recovering associated gas from oil wells
  - previously flared/vented for at least 3 years before project start &
  - utilizing associated gas in existing or new end-use facility
  - **at production facility of useful chemical product (methanol, ethylene, or ammonia).**

Best practice project examples – **oil recovery**

- **Project 0553 : Recovery of associated gas that would otherwise be flared at Kwale oil-gas processing plant**
  - Host: Nigeria
  - ERs: 2.5 $MtCO_2e/a$
  - AM0009
  - Technology: capture of gas and utilization in green-field plant

- Sustainability:
  - *Social:* creates employment
  - *Environmental:* replacing decentralized heavy polluting energy generation without creating further GHG emissions
  - *Technological:* knowledge transfers with respect to energy generation technology /power transmission systems

Best practice project examples – **coal mining**

Project 1135 : Jiangxi Fengcheng Mining Administration CMM Utilization Project

- Host: China
- ERs: ~ 1.9 $MtCO_2e/a$
- ACM0008
- ACM0002 : Consolidated methodology for grid-connected electricity generation from renewable sources
- Technology: construction of power station
  - with 15 * 500 kW burners
  - with storage and compressor components

Best practice project examples – **coal mining**

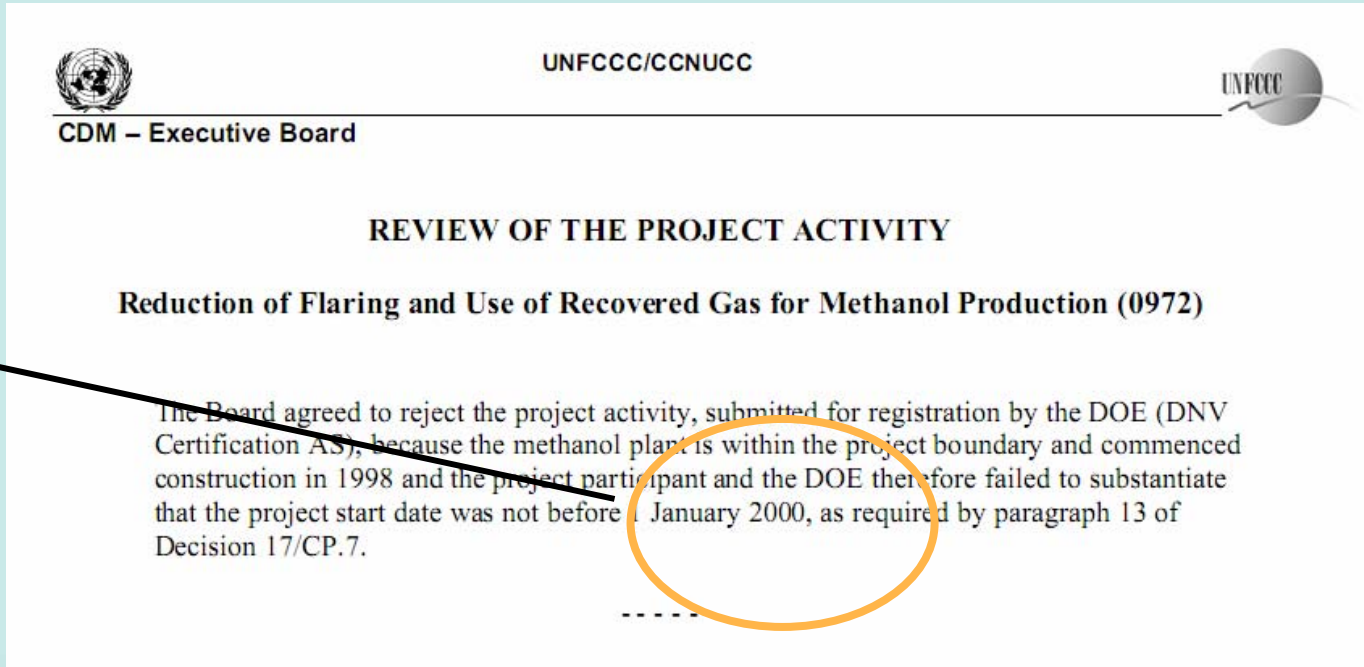
_ Project 1135 : Jiangxi Fengcheng Mining Administration CMM Utilization Project

- Sustainability effects:
  - _ Pollutant can be reduced by substitution of power generation from more polluting sources (esp. coal)
  - _ Guarantee of coal mine production safety
  - _ Providing additional employment at the mine

Worst case – rejected!!

- **Project 0972 : Reduction of Flaring and Use of Recovered Gas for Methanol Production**
  - Host: Equatorial Guinea
  - ERs: ~2,2 $MtCO_2e/a$
  - AM0037
  - Technology: utilization of gas for production of methanol

Special regulation applies -> additionality is challenged



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CDM – Executive Board

REVIEW OF THE PROJECT ACTIVITY

Reduction of Flaring and Use of Recovered Gas for Methanol Production (0972)

The Board agreed to reject the project activity, submitted for registration by the DOE (DNV Certification AS), because the methanol plant is within the project boundary and commenced construction in 1998 and the project participant and the DOE therefore failed to substantiate that the project start date was not before 1 January 2000, as required by paragraph 13 of Decision 17/CP.7.

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