Gas Flaring Reduction – A Global Perspective

Natural Gas Star Program
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Background of Global Flaring

- Global venting and flaring level over 100 bcm/year, equal to:
  - current African flare volumes (37 Bcm) could produce about 50 percent of the current power consumption in Africa and more than twice the level of power consumption in Sub-Saharan Africa (excluding South Africa).
  - >10 percent of committed emission reductions by developed countries under the Kyoto Protocol for the period 2008-2012.
- This level has stayed constant for the last 20 years
- 80% of global venting and flaring occurs in fewer than 15 countries
- Reliability of available data varies widely

Global Gas Flaring Reduction Partnership

- GGFR was formed at the World Summit on Sustainable Development in Johannesburg in August 2002
- Objective is to support the efforts of national governments and the petroleum industry to reduce flaring and venting of associated gas
- Leading to sustainable resource development
  - Promoting efficient use
  - Reducing environmental effects
  - Reducing poverty

Current GGFR Public and Private Partners

Countries/NOCs

- Algeria (Sonatrach)
- Angola
- Cameroon (SNH)
- Chad
- Ecuador
- Equatorial Guinea
- Indonesia
- Nigeria
- Khanty Mansiisk (Russia)
- Kazakhstan

IOCs

- BP
- ChevronTexaco
- ENI
- ExxonMobil
- Marathon Oil
- Norsk Hydro
- Shell
- Statoil
- Total

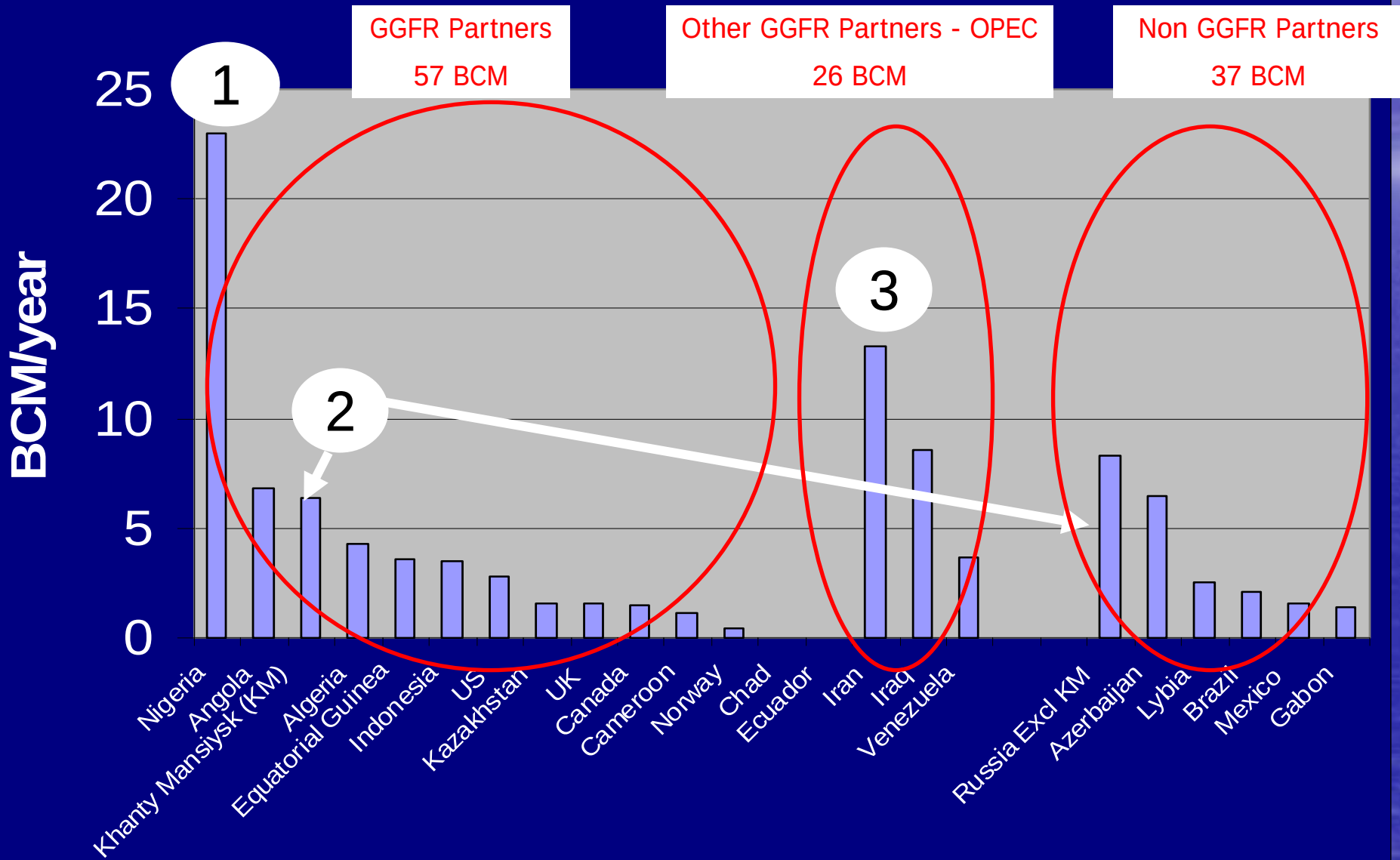
Donors

- Canada
- Norway
- UK (Foreign Commonwealth Office)
- USA

Multilateral Organizations

- The World Bank
- OPEC Secretariat

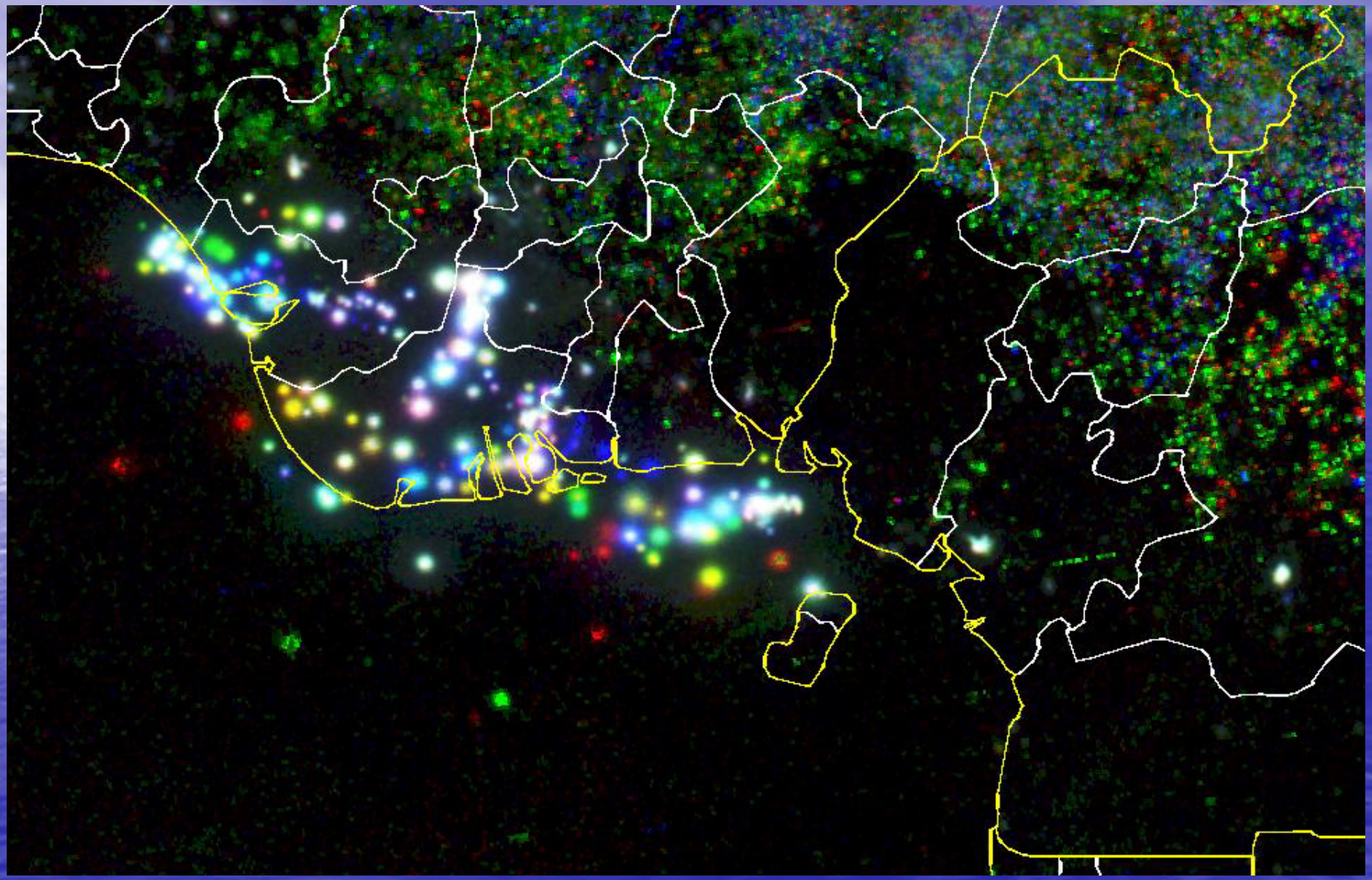
Global Gas Flaring - Provisional Data



Russia excludes Khanty Mansiysk

Non GGFR Partners figure includes other flaring countries not shown

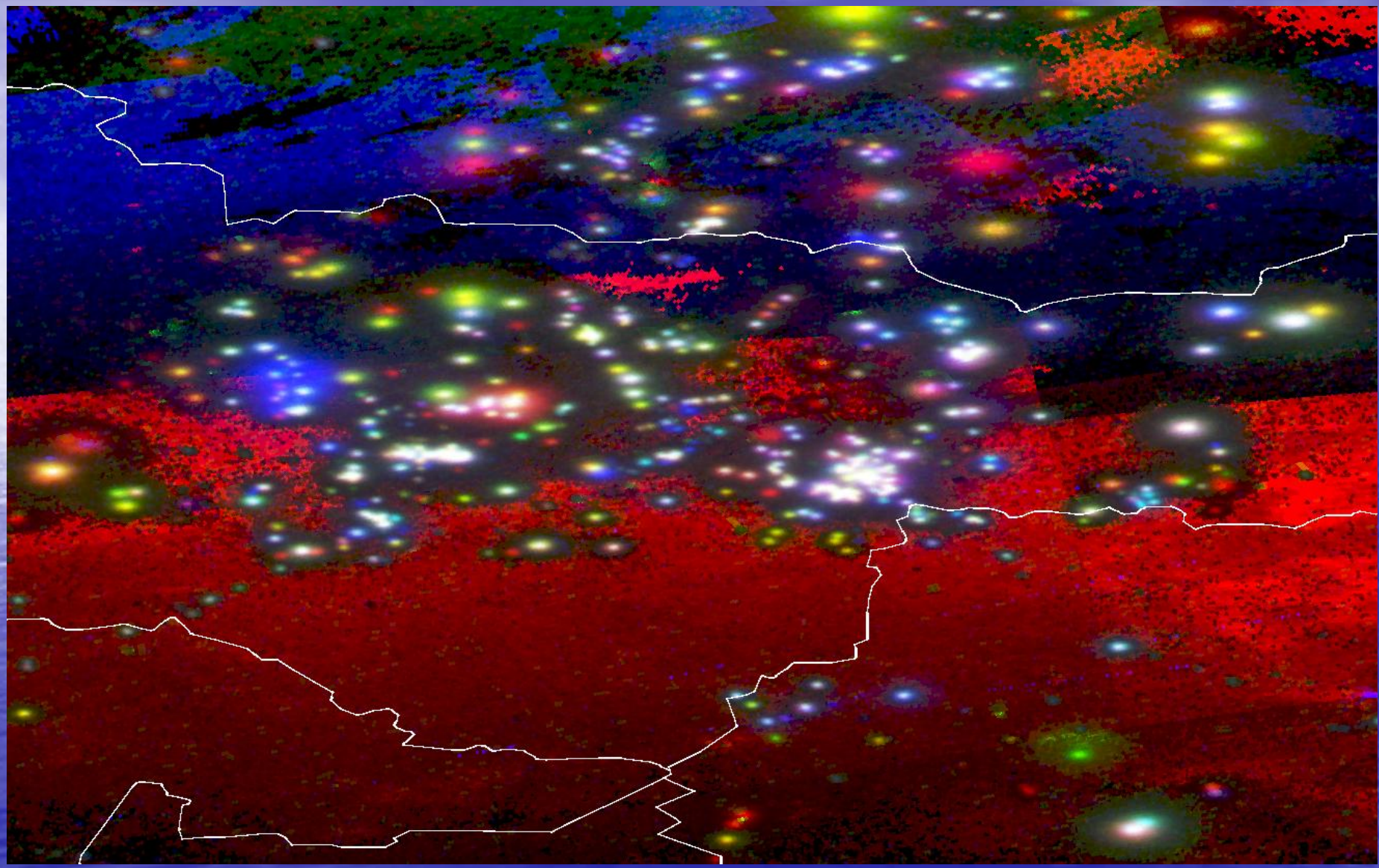
Gulf Of Guinea 1992-2003



Source NOAA: DMSP-OLS Annual Composites of Nigeria and Cameroon

Red = 2003 only. Yellow = 2003 and 2000. Green = 2000 only. Cyan = 2000 and 1992. Blue = 1992 only. White = 2003, 2000 & 1992

Western Siberia 1992-2003



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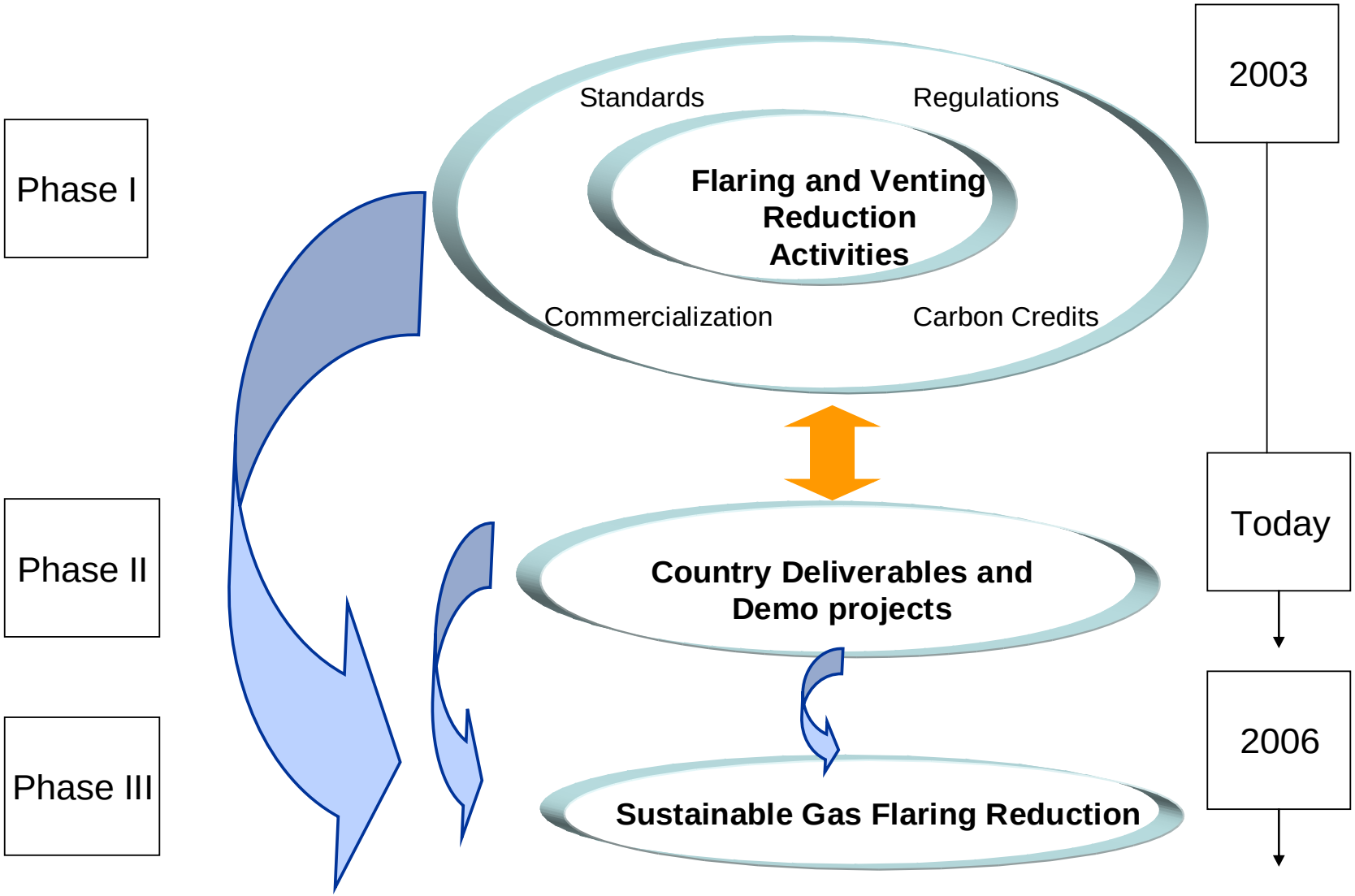
Key GGFR Accomplishments

- Global deliverables
  - Regulatory Best practices
  - A global standard for flaring and venting
    - Agreed among Partners May 2004
  - Carbon credit financing
- Demonstration projects with all Partners

Work Program First 2 ½ years :
From Global deliverables to Country and Local PPPs



Regulation in 44 countries

- WB carried out **study** of 44 oil producing countries
- **Objective**: regulations and other factors that effected the flare and venting volume
- **Findings:** countries that managed to reduce flaring and venting volumes adopted a **combination** of
  - Efficient regulation
  - Other incentives (fiscal policies & reform of energy markets)

Flaring and Venting Regulation

- Many countries that flare gas have inadequate institutional capabilities
  - often overlapping responsibilities
  - clear and transparent *operational* processes and efficient *regulatory* procedures are lacking
- Issues
  - contractual rights to assoc. gas (preemptive rights)
  - lack of effective regulatory procedures for monitoring, measuring, and enforcing
  - lack of financial resources and technical expertise to introduce comprehensive monitoring programs

The Standard

- Provides framework for governments, companies, and other key stakeholders
  - **to consult each other and take collaborative/complementary actions**
  - Reduce barriers to associated gas utilization
- Encourages **integrated approach**
  - market and infrastructure development, commercialization, legal and fiscal regulations, carbon credits
- Allows for **flexibility to local conditions**,
  - balancing ambitious timescale with realistic constraints

Adoption of the Standard

Adoption of the Global Gas Venting and Flaring Reduction Voluntary Standard means that the stakeholders:

- **Endorse the principles** set forth in the Standard
- **Support collaboration with other stakeholders** toward the utilization of associated gas and the reduction of flaring and venting
- **Agree to publish flaring data** through the government for transparency

Carbon Credits

- Assisting with demonstration projects
  - facilitating linkages to carbon finance
- Capacity building for stakeholders
  - improving methodology issues
- Creating a forum for best practice
  - on flare reduction and CDM/JI
- Providing technical assistance
  - to help host countries in national approval processes and sustainable development
- Encouraging donors and providing study funding to support reduction projects (PINs - PDDs)

Partner Countries	Projects	Carbon credit options
Algeria	3 fields: Ohanet, TFT and In Amenas	Exploring carbon credits for the same three fields
Nigeria	2 projects: Gas Pipeline and Gas to power	2 power projects AFAM, Kwale
Angola	Angola LNG	Angola LNG
Cameroon	Rio del Rey pipeline to Limbe	
Equatorial Guinea	Zafiro pipeline to ELNG	
Gulf of Guinea	Regional Gas Transport system	
Chad	Sedigui	
Russia	Gas projects in Khanty Mansiysk	Gas to Power Surgut, TNK-BP
Indonesia	tbd	tbd

Lessons Learned

- The GGFR development of best practices for **regulation, Carbon credits, the standard and commercialization** were very effective
- As for the Partner organizations
  - **country buy-in** and high level government support for active participation in the GGFR Partnership is essential.
  - **Ownership and leadership** within the key stakeholder organizations
- **An effective local partnership** is a key
  - stakeholders involved in all aspects of associated gas utilization

Even with all of the above factors present, it takes **time, effort and persistence** to effect change.

Thank you

http://www.worldbank.org/ggfr

2004 Rank*	Country	Flaring & Venting 2002 (BCM)	Flaring & Venting 2002(BCM)	Flaring & Venting 2004(BCM)- *provisional data**
		Source: Cedigaz	Source: GGFR	Source: GGFR
1	Nigeria	18.9	18.9	24.1
2	Russia (total)	0.0	13.5	14.7
3	Iran	8.2	10.0	13.3
4	Iraq	1.0	15.0	8.6
5	Angola	4.3	4.3	6.8
6	Azerbaijan	6.8	1.0	6.5
7	Algeria	4.2	4.8	4.3
8	Qatar*	0.3		4.5
9	Indonesia	4.6	4.6	3.5
10	Venezuela	3.1	3.1	3.7
11	Equatorial Guinea	1.0	3.9	3.6
12	USA	2.4	2.4	2.8
13	Libya	1.4	1.4	2.5
14	Canada	2.3	2.3	1.5
15	Mexico	2.8	2.8	1.6
16	UK	1.6	1.6	1.6
17	Kazakhstan	1.4	1.4	1.6
18	Brazil	2.1	2.1	1.5
19	Gabon	1.6	1.6	1.4
20	Cameroon	1.6	1.6	1.1
Total top 20		69.5	96.2	109.2
Rest of the World		11.5		11.1
World Total		81.0	110.3	120.3

Process to Determine Feasibility of Flaring Alternatives