The Partnership for Market Readiness (PMR)

Supporting Action for Climate Change Mitigation

Pierre Guigon, World Bank

Side-event *"Building Corporate/Facility GHG Data Management Systems: Leveraging International Experience"*

Bonn, Germany
UNFCCC SB44 - May 25, 2016

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Partnership for Market Readiness (PMR) at a Glance

PMR provides support to countries to design and implement a range of climate change mitigation policies and cost-effective measures – including carbon pricing instruments – in order to scale up GHG mitigation.

Objectives

- **Provide grant funding to improving technical and institutional "readiness",** including work on GHG registries; Monitoring, Reporting and Verification (MRV) systems, data collection and management tools, and regulatory frameworks
- **Support piloting and testing of innovative market instruments** (e.g., domestic emissions trading schemes (ETS) or scaled-up crediting mechanisms)
- **Provide a platform for technical discussions and knowledge creation,** country-to-country exchanges, and collective innovation on new market instruments
- **Share lessons learned & best practices** among policy makers and practitioners

Participation

- **Participants include +30 countries (>80% global GHG emissions)** incl. 18 developing countries/emerging economies pursuing carbon pricing & 13 countries that donate financially (**US$ 130 million total**)

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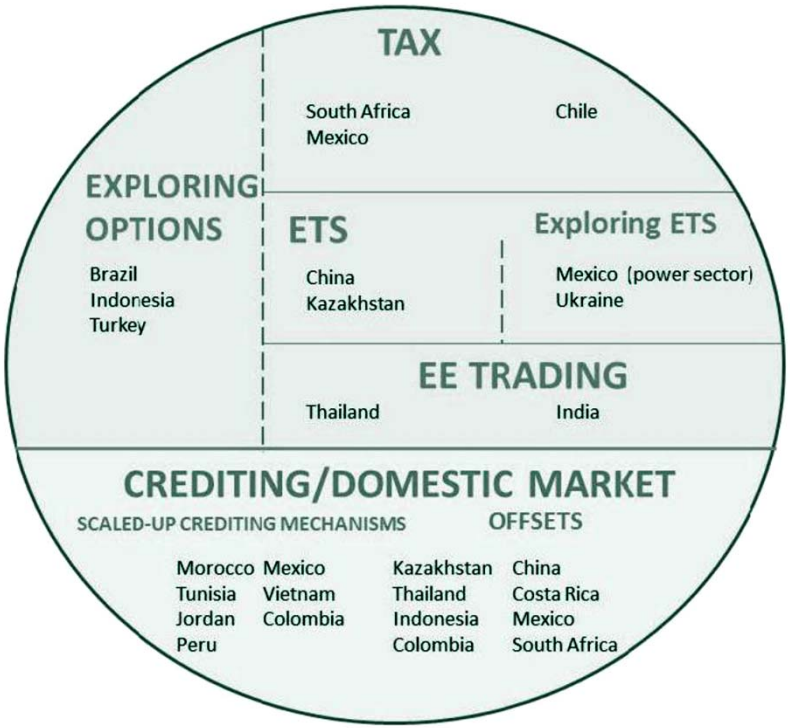
PMR Support to Countries on Carbon Pricing

- The PMR facilitates the choice, design or implementation of a number of policy instruments:

1. ***Emissions Trading Schemes***
2. ***Carbon Taxes***
3. ***Scaled-up/Sectoral Crediting***
4. ***Offsets***

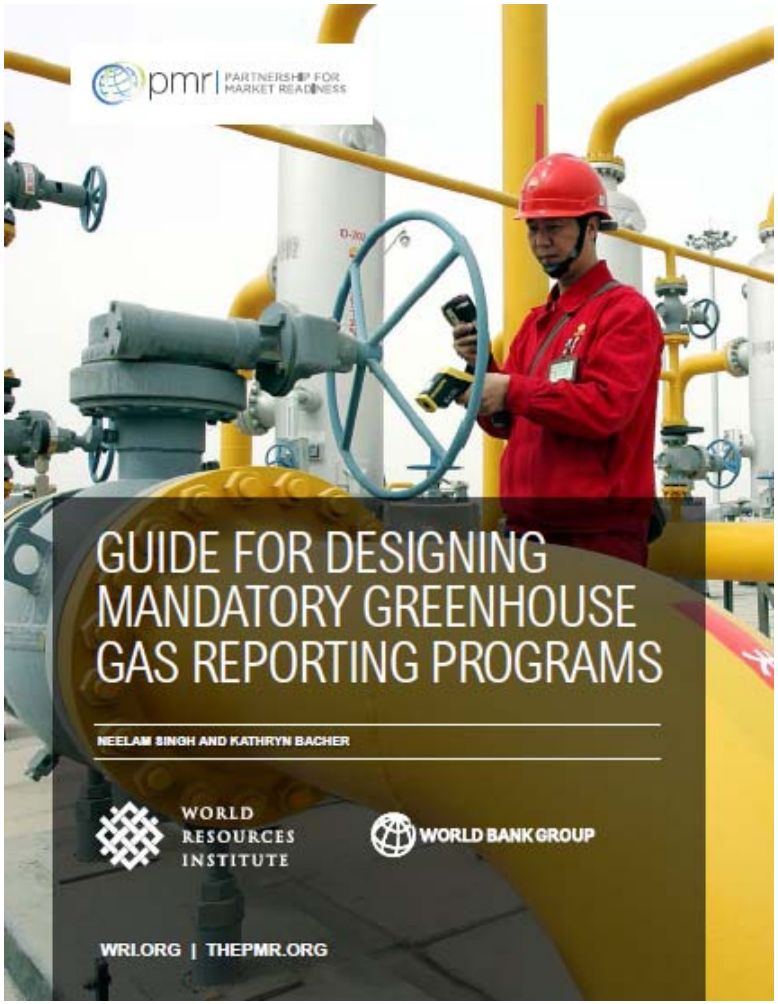


- … to do so, the PMR carries out ground work through:

Institutional strengthening and readiness building to support implementation → **Technical work (MRV, baseline setting, governance & institutions, etc.)** → **Upstream policy analysis, including modeling (iNDC)**

Guide for Designing Mandatory Greenhouse Gas Reporting Programs (1)

- Discusses good practices while recognizing different country contexts/ priorities/ objectives
- Helps develop a sound framework for GHG reporting



Guide for Designing Mandatory Greenhouse Gas Reporting Programs (2)

Steps to Establish GHG Reporting Programs:

PMR Technical Work on MRV

Guide for Designing Mandatory Greenhouse Gas Reporting Programs (2015)

- Discusses good practices while recognizing different country contexts/ priorities/ objectives
- Helps develop a sound framework for GHG reporting

Thank You for Your Attention

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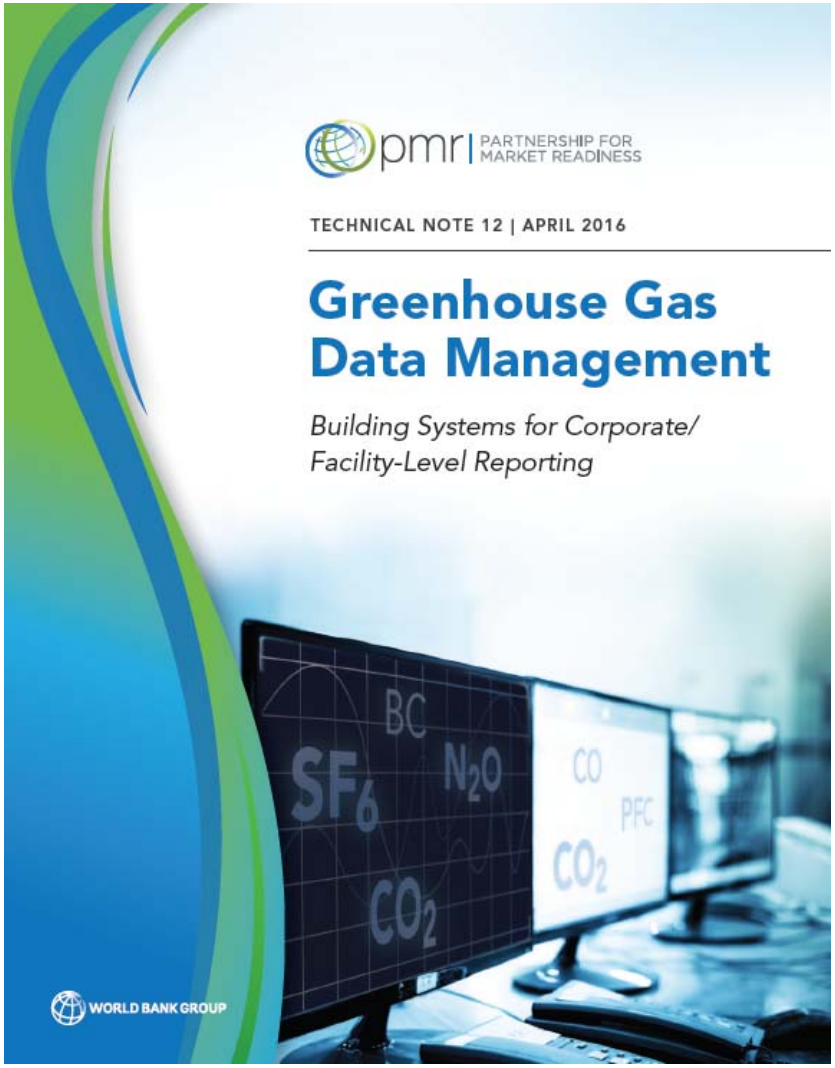
Building Corporate/Facility GHG Data Management Systems: Leveraging International Experience

Mr. David Rosenheim The Climate Registry	Ms. Deborah Harris ICF International

UNFCCC SB44 - May 25, 2016

The report is the result of extensive consultation



1. Resulted from a wide collaboration led by the **World Bank's PMR**, **The Climate Registry (TCR)** and **ICF International**.

2. Key insights were provided by over **10 national and sub-national jurisdictions** with experience designing and implementing GHG data management systems for corporate/facility-level reporting.

3. Experts from the **World Bank Group** and the **PMR MRV Working Group** provided input and reviewed the guide.

Presentation overview

- About **Greenhouse Gas Data Management: Building Systems for Corporate/Facility-Level Reporting**: Context and scope of the guide
- Key findings
- How to use the guide
- Country case studies
- Questions?

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About the guide: Context and scope

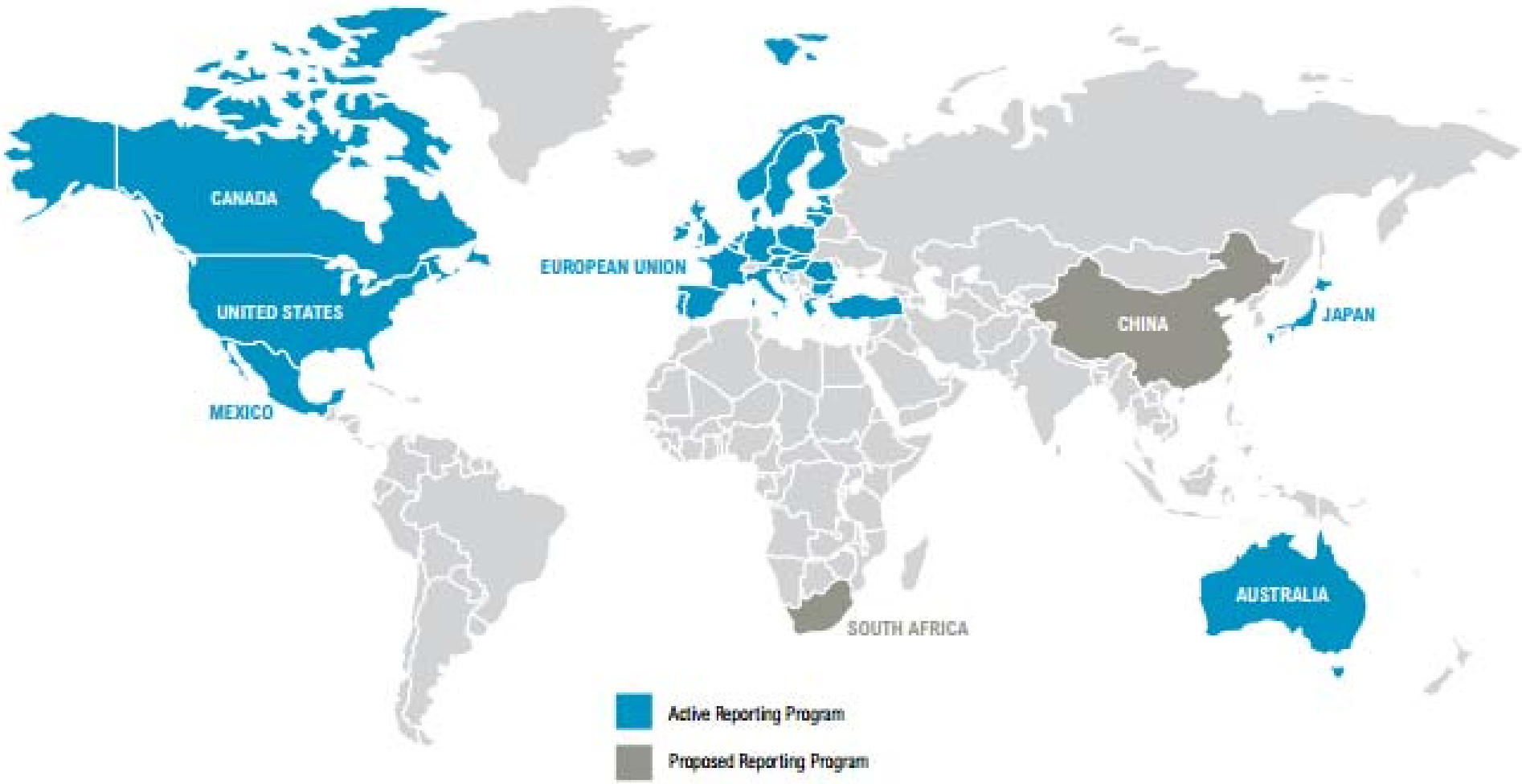
Transparency is a central tenet of the Paris Agreement

United Nations
Framework Convention on
Climate Change

1. “In order to build mutual trust and confidence and to promote effective implementation, **an enhanced transparency framework for action and support**, with built-in flexibility which takes into account Parties’ different capacities and builds upon collective experience is hereby established.” (Article 13)

2. “[The Conference of the Parties] Decides to establish a Capacity-building Initiative for Transparency...[to] support developing countries...in meeting enhanced transparency requirements as defined in Article 13 of the Agreement.”

Mandatory GHG Reporting Programs



What are GHG data management systems?

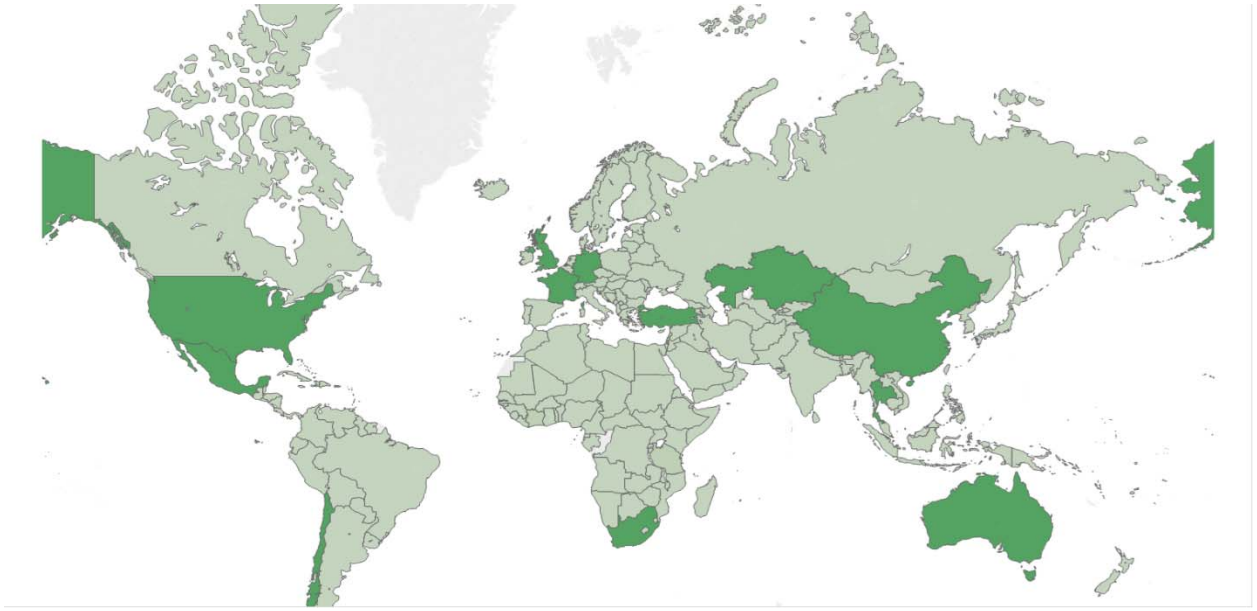
- **Repositories to collect and store GHG data from companies and organizations**
  - Level of the facility or enterprise
- **Benefits of GHG data management systems:**
  - Increased data accuracy, completeness, and consistency
  - Centralized, paperless data collection, facilitating interactions between regulators, regulated entities and verifiers
  - Can help industry demonstrate compliance, leadership, and transparency to shareholders and the public, as well as publicly track reductions
  - Enables stakeholders to access GHG data more easily so they can make informed decisions

Expected results of using the guide

- **The guide has been designed to help PMR decision makers:**
  - Understand **the key considerations and decision points** associated with designing, developing and implementing GHG data management systems
  - Determine whether to design and develop a system using **internal or external resources** (or a combination of both)
  - Understand how to **engage and oversee external consultants** during development and implementation
  - Develop **solutions that are appropriate** for unique jurisdictional needs and requirements, local conditions and policy environment, and capacity (financial, human and technical)
  - Bridge the **information and knowledge gaps between the different stakeholders** who will collaborate on and be users of the system

The guide is flexible and grounded in real-life experience

- There is no “one size fits all” GHG data management system
- The guidance is not intended to be applied identically in all jurisdictions; it is intended to be applicable to countries with varying policy goals and objectives, needs and capacity
- It provides an overview of all significant decision points based on lessons learned in over 10 jurisdictions that have experience designing, developing and deploying GHG data management systems



Scope of the guide

It is:

- A guide for regulators, program and system administrators, and IT/development teams on how to design, develop, and implement the GHG data management systems that support corporate/facility-level reporting programs

It is not:

- A guide for designing and developing transaction/tracking registries
- A guide for designing and implementing mandatory GHG reporting programs. For information on this, see: https://openknowledge.worldbank.org/handle/10986/21981

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Key findings

Key findings

- Different approaches to GHG system development
- Costs and funding
- Data upload and inputs
- Critical enablers of a successful system

Key findings: Development approaches

- **In general, jurisdictions are taking three different approaches to development:**
  - Developing a new system in-house or using external resources: Kazakhstan, US, UK, Australia, Mexico, Turkey
  - Re-purposing an existing system: Chile
  - Customizing a third-party system: South Africa, California, Thailand
- **A modular approach can be useful when there are resource and/or time constraints, e.g., South Africa, US, Chile, Kazakhstan**
- **Leveraging existing systems to collect GHG data is rare, as is integrating GHG data systems with other databases, e.g. national inventories, non-GHG air pollutant databases, transaction registries, energy databases**
- **None of the jurisdictions were linking systems with other jurisdictions**

Key findings: Costs and funding

- **"Generic" costs are difficult to quantify given the number of variables**
  - Majority of the cost is attributable to consultants and contractors being engaged to develop the software
  - System costs are typically less if existing software is customized or licensed
  - Hosting costs are variable and dependent on existing infrastructure, security, and how much back-up space is required
- **Funding options for design, development, and deployment of a GHG data management system include:**
  - Seeking development money from international agencies or funding from national governments

Key findings: Costs and funding cont'd

- **Funding options for the ongoing maintenance of a GHG data management system include:**
  - Using revenues earned through charging regulated entities/system users.
  - Charging a licensing and/or annual fee if the system is licensed to others

Key findings: Data upload and input

- **Decisions about how data is uploaded and inputted significantly impact system design**
  - Option 1: Manual entry of data into a web interface
  - Option 2: Manual entry of data into formatted spreadsheets, uploaded into the system, e.g. U.S. and California (certain source categories)
  - Option 3: Integration of separate data sets via web services (linking systems), e.g. Chile, South Africa, Mexico

Key findings: Critical enablers

- **Defining the legal, institutional and regulatory frameworks for the GHG reporting program in advance of developing a data system**
- **Making program design decisions in advance of GHG system development is critical**
- **Defining the requirements of the system before building it**
- **Engaging and consulting with key stakeholders before, during and after the development of the system**
- **Conducting testing at every stage of the software development process**
- **Providing training and support for users**

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How to use the guide

How the guide is organized

- **Three key sections:**
  - **Section 2** describes the legal, regulatory, and institutional frameworks that enable effective GHG data management system design and development
  - **Section 3** describes a step-by-step process for developing the GHG data management system, from gathering system requirements to deployment
  - **Section 4** contains options for providing support to and building the capacity of GHG data management users
- **The detailed Table of Contents allows regulators and program administrators to select the information and steps that are most relevant to their specific circumstances and objectives**

Section 2: Institutional and legal, regulatory, and institutional frameworks

- **Legal frameworks** give authorization, direction, and verification to determine and implement **regulations** that put into practice the primary legislative intent
- **Institutional frameworks** address GHG system governance and oversight that supports effective communication, ensures accountability, and supports system development, maintenance, and use
- These frameworks:
  - Support the development and implementation of GHG data management systems that are then used to support outlined policy objectives
  - Frame the design and development of GHG system (e.g., QA/QC, data use and disclosure, coverage)
  - Outline GHG MRV protocols
  - Address GHG system roles and responsibilities/authority

Institutional frameworks: Roles and responsibilities

- **Assess capacity of existing institutions and legal frameworks they support**
  - Non-GHG pollutants
  - National GHG inventory
  - Voluntary programs
- **Evaluate alignment potential for legal and institutional frameworks and leverage technical capacity, expertise, and resources**
- **Determine if institutional responsibilities should be consolidated**
  - Australia consolidated agencies and responsibilities into the Clean Energy Regulator
- **Establish institutional roles and responsibilities**
  - Statutory regulator
  - Program Administrator
  - IT developer
  - System administrator

Section 3: Developing the GHG data management system

Step 1: System requirements

Step 2: Functional requirements

Step 3: In-house vs. outsource decision

Step 4: Technical requirements

Step 5: Software development

Step 6: System integration

Step 7: Testing & QA

Step 8: Deployment & launch

Section 4: Providing support to and building the capacity of GHG data management system users

- **Key considerations**
  - Ensuring smooth reporting cycles and accurate data input
  - Available resources, reporting timeliness, and accuracy requirements determine the appropriate type and level of support and training activities
- **User support options**
  - Help Desk
  - Telephone and email
  - Website
- **Training and capacity building options**
  - FAQs documents
  - System user guides/manuals by user type, with step-by-step instructions and associated screenshots (Kazakhstan found this most valuable)
  - Training materials and sessions

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Country Case Studies

Context and Purpose

- Show case studies of **South Africa, Chile, and Mexico**
- Report is a guide for regulators, program and system administrators, and IT/development teams on **how to design, develop, and implement the GHG data management systems that support corporate/facility-level GHG reporting programs**
- GHG data management systems are **repositories to collect and store GHG data from companies and organizations**

South Africa

South Africa: Overview

- **Administrative Agency**: Department of Environmental Affairs
- **Legal frameworks**: National Environment Management Act; Air Quality Act, 2004
- **Regulatory frameworks:** Draft National Greenhouse Gas Emission Reporting Regulations, No. 38857, 2015
- **GHG data management system:** South African Air Quality Information System (SAAQIS); GHG module is the National Atmospheric Inventory System (NAEIS)
- **Timeline:** Regulations expected by 2016, expanded pollutants by 2017
- **Confidentiality:** South Africa legally prohibits sharing information that would compromise a company's competitive advantage
  - Government authorities sign a non-disclosure agreement with affected companies and cannot share GHG information with other agencies

South Africa: Details and Design

- **Planning Process:**
  - Built in three phases
  - Will support reporting of GHGs and non-GHG pollutants (SO_2 and particulate matter) by 2017
  - Designing a framework for data transformation was key
  - Developed the system based off a web-based reporting system built for Michigan (U.S.), working directly with the company InfoTech
- **User Types:** System includes local authorities, provinces, and national authorities
- Direct link found between **air quality-listed activities and IPCC source categories**
  - Led to detailed mapping activity between the two, later used to develop methodology algorithms
- Built a **data mining tool** into the infrastructure
- **Quality Checks & Assurance:** Internal system checks against defined criteria, external audit checks by national authorities

South Africa: Lessons Learned

- Early/continued **engagement with reporters**, particularly during requirements gathering and system design:
  - Led to development of calculation methodologies where no IPCC guidance existed
  - Provided insight into reporting templates, IT design, and system configuration
  - Led to development of Greenhouse Gas Improvement Programme, a public-private partnership aimed at developing country-specific emission factors and methodologies
- Value in **modularity**: South Africa's system incorporates multiple modules and is designed to reflect the reality of a regulatory and reporting framework
- Successfully conducted a **three-month pilot program** before deploying and launching, allowing South Africa to refine the system

Chile

Chile: Overview

- **Administrative Agency**: Ministry of Environment
- **Legal frameworks**: Voluntary, but will be required to report when carbon tax is operational (from 2018 onward)
- **Regulatory frameworks:** Not applicable
- **GHG data management system:** Pollutant Release and Transfer Registry (PRTR)
- **Timeline**: Reporting and implementation of the CO_2 tax to begin in 2018
- **Confidentiality:** Pollutant Release and Transfer Register currently allows public access to all data submitted through its management system

Chile: Details and Design

- **Modularity**: Chile's system incorporates a voluntary GHG reporting module into the PRTR
- **User Types:** System accommodates company managers and sector managers, who have option to upload sector-specific information
- **System Integration**: Integrates GHG and pollutant data collection efforts through web services
- One-window system to support **source-level reporting** and **future CO_2 tax** (via internal revenue service, based on the regulatory statue under development)
- **Emissions threshold** and **source categories**
- Power sector generators **≥ 50 MWth** must report
- **Quality Checks & Assurance:** Third-party verification

Chile: Lessons Learned

- Registering firms within the PRTR system took longer than expected and resulted in thousands of questions
  - Chile's officials implemented **comprehensive help desk system** – integrates call center and online tracking system
  - Chile now works with contractors to provide support on technical and system-specific questions
- Currently considering a law to restrict some information from being publicly available
  - Lack of **confidentiality provisions** caused concerns in the business community and made data collection challenging

Mexico

Mexico: Overview

- **Administrative Agency**: Mexico Ministry of Environment and Natural Resources (SEMARNAT)
- **Legal frameworks**: General Climate Change Law, 2012
- **Regulatory frameworks:** Regulation to the General Law of Climate Change in Matters Relating to the National Registry of Emissions, 2014
- **GHG data management system:** Annual emissions Report (COA) that also integrates the Pollutant Release Transfer Register (PRTR)
- Includes emissions threshold and source categories

Mexico: Details and Design

- Facilities and companies must report if annual emissions ≥ 25,000 $mtCO_2e$
- All facilities must report CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, HCFC, CFC, NF_3, halogenated ether, halocarbon, and black carbon emissions
- Integrated system: **single, centralized data repository** collects both GHG and non-GHG pollutants
- Requires both activity and emission data
- Contracted with the National Institute of Geography and Statistics, who are developing the system
- **Quality Checks & Assurance:** System checks if information is complete, third-party verification every three years

Mexico: Lessons Learned

- Valuable to **specify functional requirements** during development to warranty an "ease of use" software and differentiated reporting obligations from the sectors obliged to report
- Took into account **stakeholder concerns** about potential double counting and reporting burden for multiple reporting processes for GHGs and non-GHG pollutants
  - One integrated web-based reporting system → data feeds directly into national GHG inventory system and national toxic release inventory
- **Stakeholder engagement** also played important role in educating constituents about different between ETS and GHG reporting programs

Questions?

Thank you!

For further information and input, contact:

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