



中华人民共和国自然资源部

Ministry of Natural Resources of the People's Republic of China



United Nations Economic Commission for Europe
UNRMS Working Group

UNRMS Toolkit in China: Updates and Prospects

By JU Jianhua, YANG Hua, LI Jian, etc

Second UNRMS Workshop, 26 November 2021, 15:00 – 17:00 CET

Ms Olga Algayerova



The 2030 Agenda for Sustainable Development has inaugurated a new era of global development marked by an imperative to integrate social, environmental and economic objectives. *The multifaceted requirements of sustainable development depend on **optimal and responsible production and use of natural resources**. Today's patterns of supply and use of natural resources are unsustainable as they present challenges in terms of environmental and societal impact and **long-term availability** of the resources needed for sustainable development.*

“After COP26, we need less talk and more action ! ”



I. Updates on UNRMS Toolkit

II. UNRMS: Principles, Roadmap & Case Study

III. Challenges and Prospects



I. 4 New Progresses on UNRMS Toolkit

- 1. A Fundamental Tool for UNFC-based RM**
- 2. Full Information 3D Visualization**
- 3. Chinese BD Case Studies: Expanded to Minerals**
- 4. Multi-language & Web-based Platform with APP**

Updates on UNRMS Toolkit

1. Provided a Fundamental Tool for UNFC-based RM



■ UNFC, aligned systems and associated materials been embedded:

- UNFC Documents: UNFCs, Specifications, Guidelines, reports and papers
- UNRMR Documents: principles
- Aligned Systems: PRMS (English-Chinese version), CRIRSCO, GB/T 19492, GB/T 17766, RF2013
- Database: Terms(Abbr.), Definitions; Codes, etc
- Functions: Unit conversion, analysis, mapping

The screenshot displays two views of the UNFC-based RM tool interface. The top view, titled "current position / Standards / Standard content", shows a table of UNFC-2019 standards and a dropdown menu for "project classification". The bottom view, titled "current position / Standards / Standard content / Standard content maintenance", shows a tree view of UNFC-2019 standards and a "modify" form for a specific standard (E1.2).

UNFC-2019	F	G	project classification
UNFC			请选择
	4	1	Commerical projects
	4	2	Potentially commerical projects
	4	3	Non-ommerical projects
	1	4	Exploration projects
	4	4	Additional quantities in place
			Other combinations

The "modify" form for standard E1.2 includes the following fields:

- * Chinese name: E1.2
- * English name: E1.2
- Code: [empty]
- Upper folder: E1
- common.sort: 2
- definition: Extraction and sale is not economic on the basis of current market conditions and realistic assumptions of future market conditions, but is ma de viable through government subsidies and/or other considerations.
- annotation: [empty]

Updates on UNRMS Toolkit

1. Provided a Fundamental Tool for UNFC-based RM



Supporting mapping and case studies

当前位置 / 对接文件 / 转换规则

转换规则

+ 新增

名称	源标准	目标标准
中国-联合国资源分类-油气	Chinese - UNFC_Petroleum	联合国资源分类框架 (UNFC)
中国-联合国资源标准-固矿	Chinese - UNFC_Mineral	联合国资源分类框架 (UNFC)
UNFC转中国油气矿产分类	UNFC-Chinese_Petroleum	联合国资源储量分类
PRMS转UNFC	PRMS-UNFC	理系统 (PRMS) 联合国资源分类框架 (UNFC)
CRIRSCO转UNFC	CRIRSCO-UNFC	与模版 (CRIRSCO) 联合国资源分类框架 (UNFC)

转换规则

新增

规则维护

标准配置						E轴	F轴	G轴	P轴
中国-联合国资源分类-油气	探明	探明地质储量	探明技术可采储量	探明经济可采储量	探明已开发经济可采储量	E1.1	F1.2	G3	P1
				探明未开发经济可采储量	探明已开发剩余经济可采储量	E1.1	F1.1	G3	
				次经济可采储量		E1.1	F1.1	G3	
UNFC转中国油气分类	已发现			探明不可采量		E1.2	F1.1	G1	
PRMS转UNFC	控制	控制地质储量	控制技术可采储量	控制次经济可采储量	E1.2	F1	G1		
			控制经济可采储量		E1.1	F1.2	G3		
				控制不可采量		F1	F1	G1	

注释:

CRIRSCO转UNFC

确认 取消

共 5 条 < 1 > 前往 1 页

Updates on UNRMS Toolkit

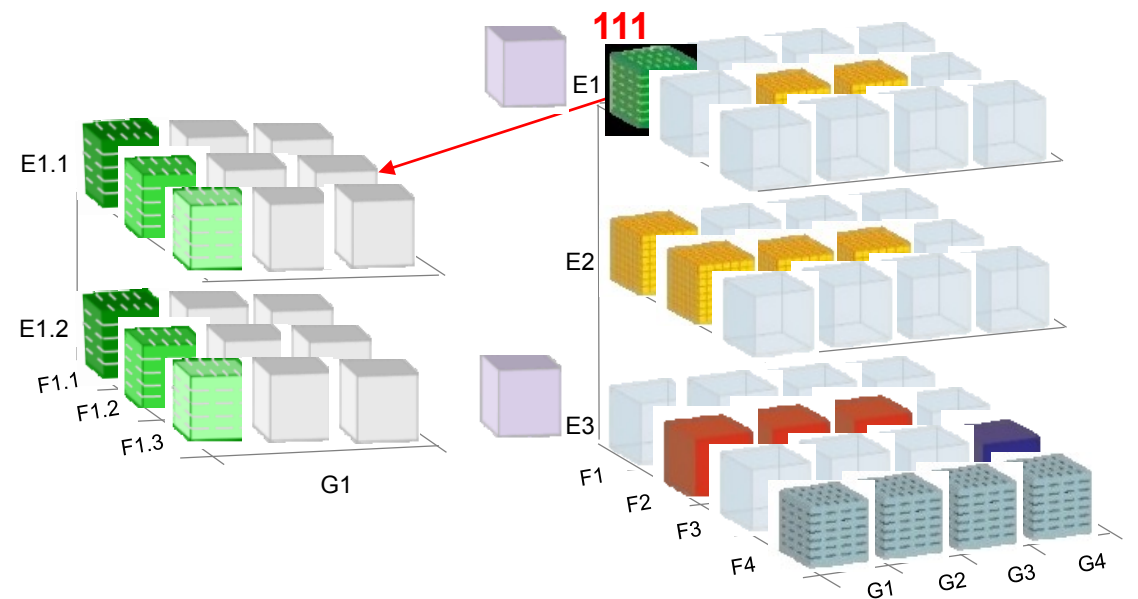
2. Full Information 3D Visualization Tool with Supporting Approaches



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- **Classification:** developed sub-category cubes for every category cube according to UNFC 2019 definitions
- **Aggregation:** (1) arithmetic summation by axes; (2) probabilistic summation (to be developed)

GB/T 19492-2004 Categories						Estimates (10^9m^3)	UNFC Codes
Exploration and Appraisal Stage	Measured PIIP	Proved TUR	Proved Undeveloped EUR			1.28	E1.1F1.3G1
			Proved SER			0.85	E2F1.3G1
		Measured UQ			0.99	E3.3F4G1	
	Indicated PIIP	Probable TUR	Probable EUR			1.15	E1.1F2.1(G1+G2)
			Probable SER			0.33	E2F2.1(G1+G2)
	Indicated UQ			0.69	E3.3F4(G1+G2)		
Inferred PIIP	Possible TUR			4.07	E2F2.1(G1+G2+G3)		
	Inferred UQ			1.89	E3.3F4(G1+G2+G3)		
Initial Development Stage	Measured PIIP	Proved TUR	Proved EUR	Proved Developed EUR	Cum. Production	0.34	
				Proved Developed Reserves		3.22	E1.1F1.1G1
			Proved Undeveloped EUR			1.81	E1.1F1.2G1
			Proved SER			1.09	E2F1.1G1
			Measured UQ			2.70	E3.3F4G1
Late Production Stage	Measured PIIP	Proved TUR	Proved EUR	Proved Developed EUR	Cum. Production	5.39	
				Proved Developed Reserves		0.36	E1.1F1.1G1
			Proved SER			0.89	E3.3F1.3G1
Measured UQ			2.52	E3.3F4G1			

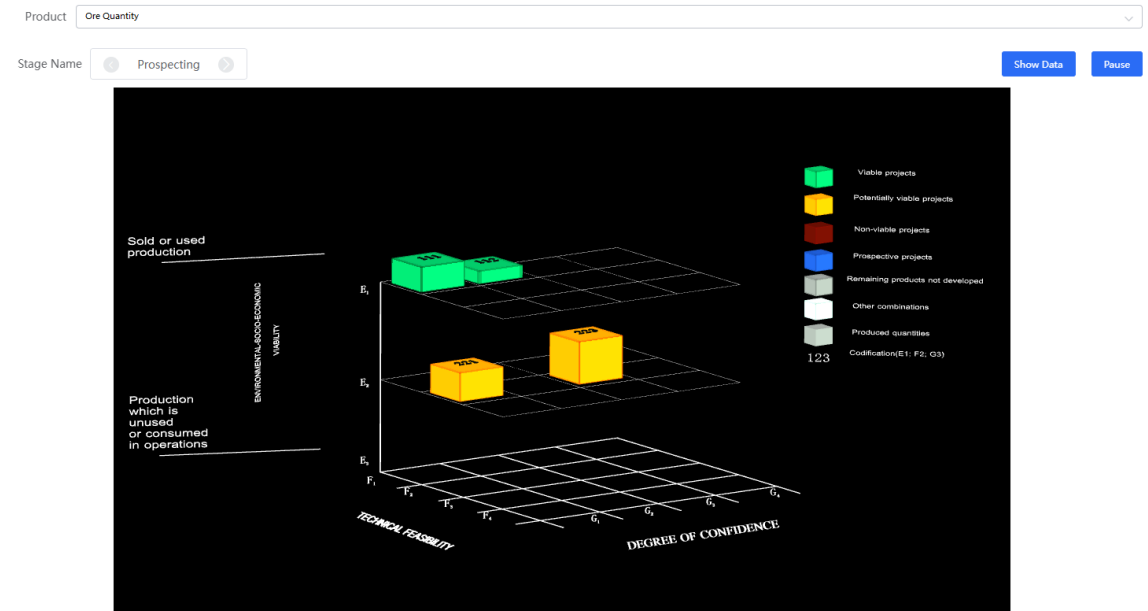
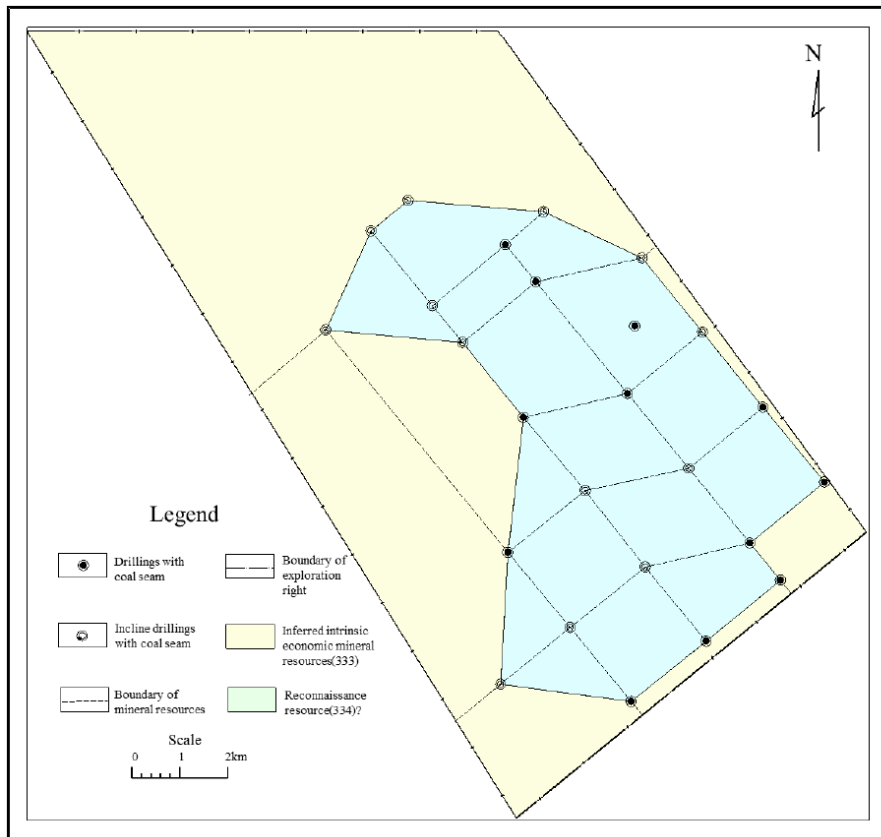


Updates on UNRMS Toolkit

3. Chinese BD Case Studies: Expanded to Minerals



➤ Case studies of Chinese BDs: Expanded from Petroleum to Minerals

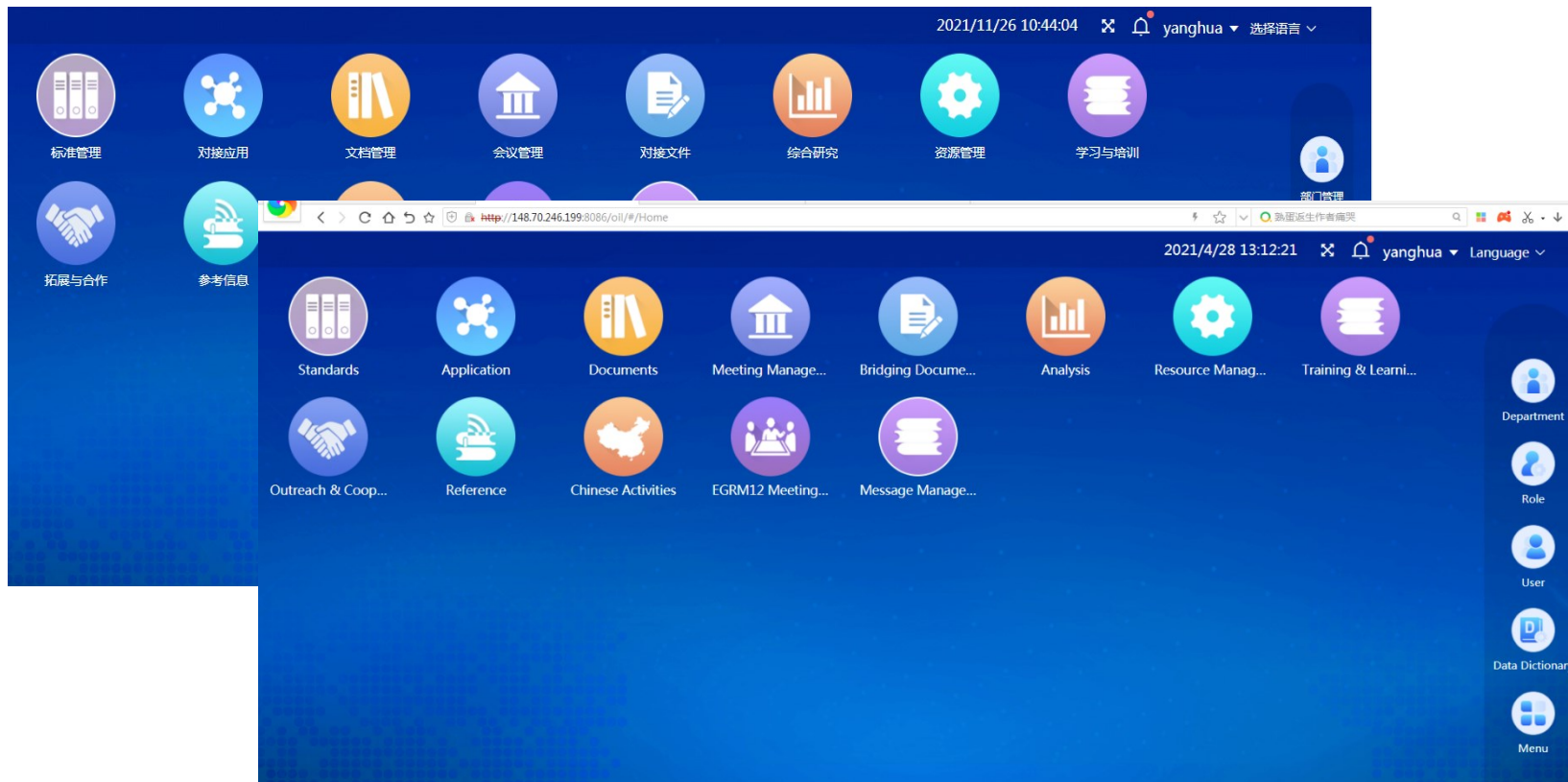


Updates on UNRMS Toolkit

4. Multi-Languages & Web-based working Platform supporting with APP



➤ A Multi-languages & Web-based Platform with APP: supporting for collaboration and cooperation



APP for collaboration

Chinese – English serve as working languages – meeting UN requirements on Languages



I. Updates on UNRMS Toolkit

II. UNRMS: Principles, Roadmap & Case Study

III. Challenges and Prospects

UNRMS: Principles, Roadmap & Case Study

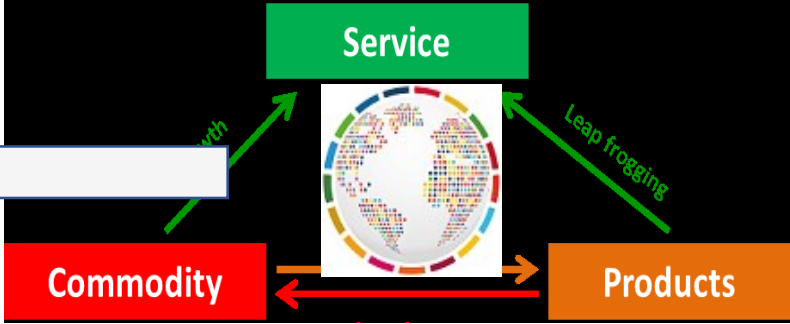


Short to Medium Term Approach

Long Term Approach

Benefit the present and future generations

Value Chain: economics, affordable supply, net-zero emission



The 2030 Agenda calls for “Integrated and indivisible” sustainable development

10 - 20 a; Project-based

20 - 50 a; endowment-based

➤ 50 a; planet-based (multi-systems)

- Comprehensive resource recovery
- Social contract on natural resources

- State rights and responsibilities in the management of resources

Integrated and indivisible management of resources

Circularity

Responsibility to the planet

Service orientation

Transparency

Health and safety

Innovation

Continuous strengthening of core competencies and capabilities



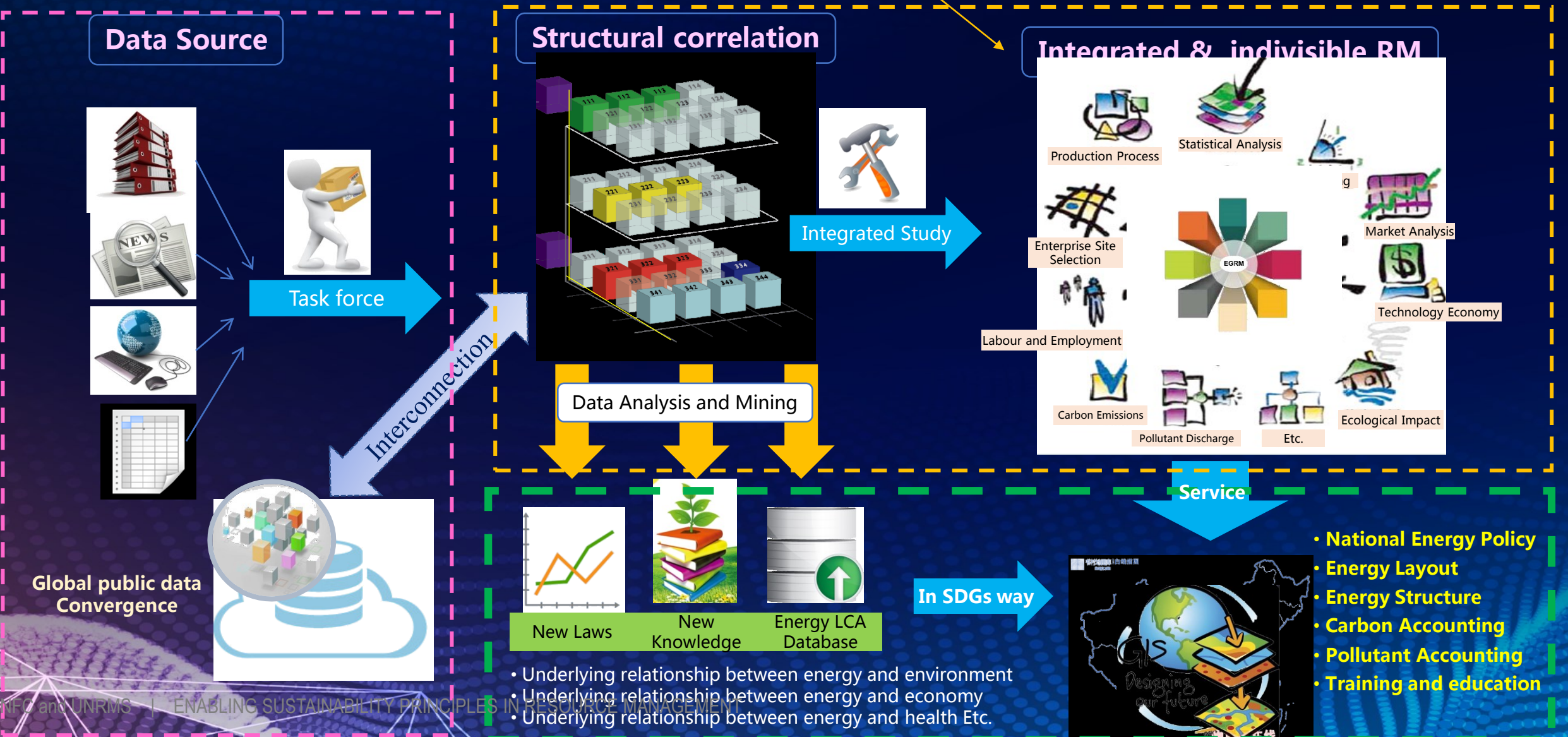
Values may mean different among different stakeholders
 The key: UNFC/UNRMS need to provide a toolkit to harmonize these values for optimal and responsible production and use of natural resources.

UNRMS: Principles, Roadmap & Case Study



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Data Convergence + Principles & Approaches as a Nexus System for Services



- Underlying relationship between energy and environment
- Underlying relationship between energy and economy
- Underlying relationship between energy and health Etc.

- National Energy Policy
- Energy Layout
- Energy Structure
- Carbon Accounting
- Pollutant Accounting
- Training and education

UNRMS: Principles, Roadmap & Case Study



UNECE



◆ Proposal: Value Chain Analysis for ‘Net Zero’ Energy Systems in Sichuan Province

- **Basic information:** Sichuan Province, with 83.7 million population, is rich in petroleum (in particular natural gas), mineral and ground water resources in China and plays a great role on China’s low carbon development and sustainable development goals.
- **Targets:**
 - (1) Develop UNRMS Data Information Framework (DIF) for Integrated Resources Management;
 - UNFC/UNRMS **Data Information Framework** (Standards/Specifications, IT: Visualization, Big Data digging, Block-Chain, etc.) ;
 - ESG Quantitative Indicators for resource assessment & management (SEEA, etc.);
 - (2) Develop UNRMS technologies and approaches supporting the Value Chain Optimization (VCO);
 - IRM Index for Carbon Neutrality (e.g. Clean Energy Index from Russia Delegation, etc.) ;
 - Technologies and approaches: LCA, decision tree; aggregation; dig data analysis & mining; AI; and etc.
 - Value chain analysis: coupling among IRM systems at different levels;
 - (3) Provide case studies and best practice demonstrating UNFC/UNRMS’s application

UNRMS: Principles, Roadmap & Case Study

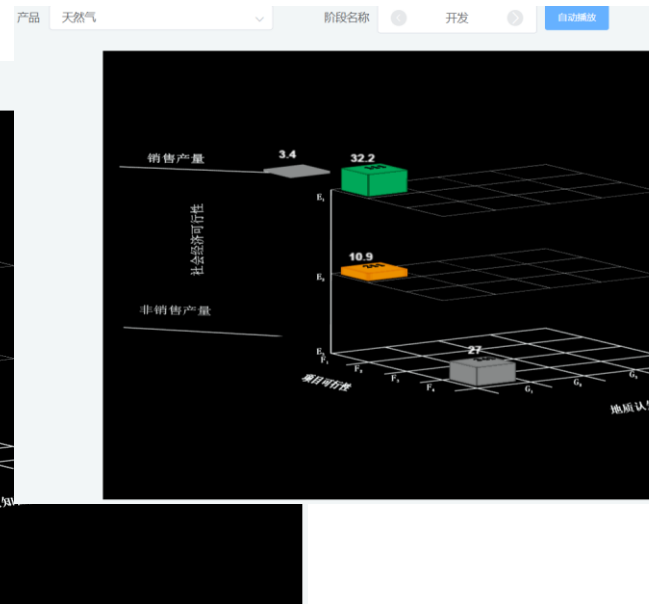
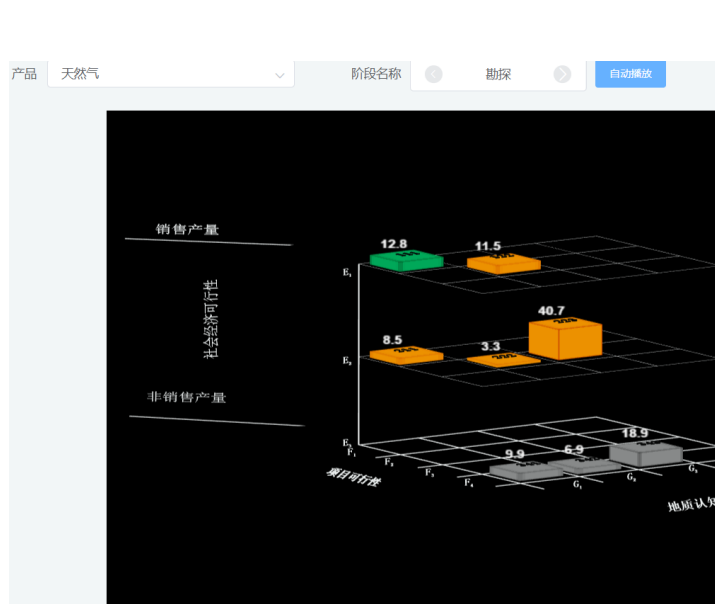
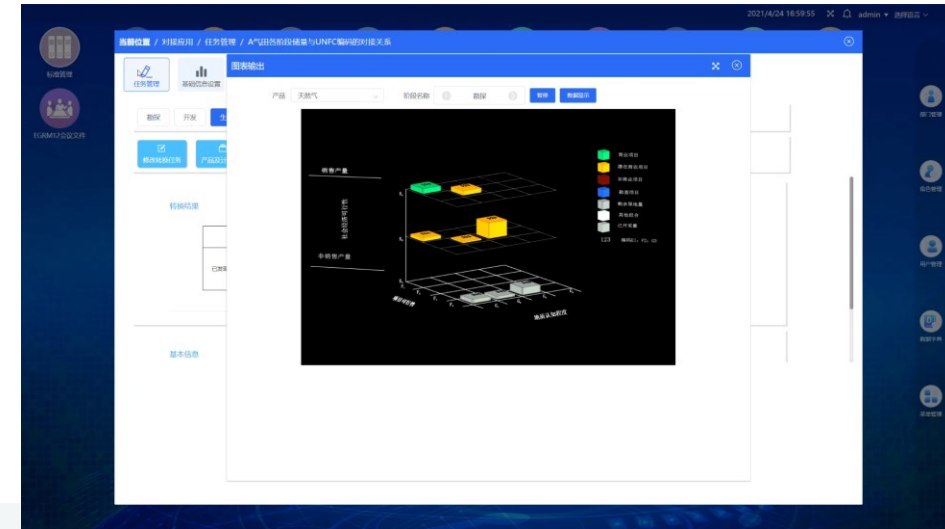


UNECE

Description 1: UNRMS Data Information Framework

Source available:

- UNFC/UNRMS: Classification terms, definitions, codes, values for IRM;
- Whole Lifecycle data sets of case studies
- Long-term experience on resources management at both company and national level
- Supporting technologies are available (block chain, etc.)



UNRMS: Principles, Roadmap & Case Study



UNEP



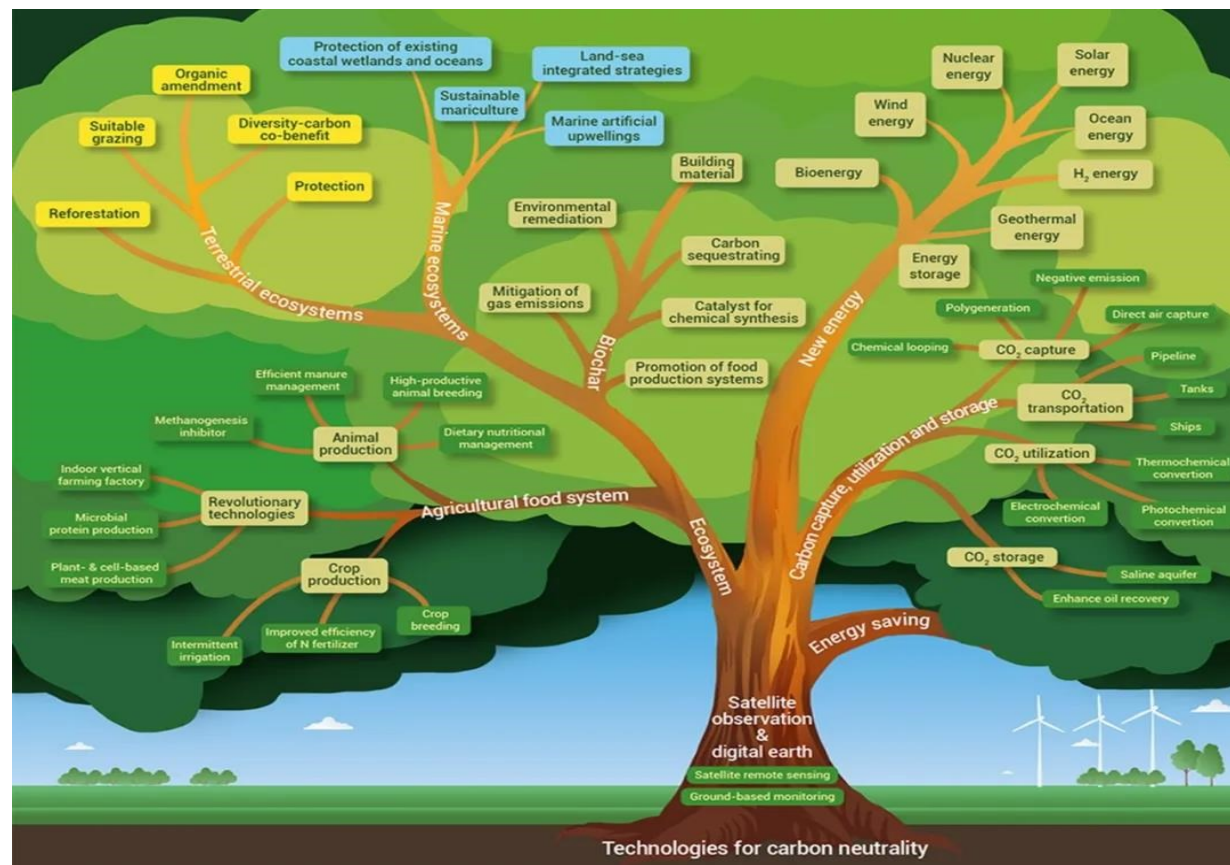
Description 2: Coupling UNRMS Value Chain Optimization & supporting IRM at different level

◆ Value Chain covers

- **Supply:** resource endowment based;
- **Economic:** cash flow analysis;
- **Energy:** Integrated resources management;
- **Net-Zero:** Carbon footprint; GIS-LCA system for low-carbon energy transitions

◆ Stakeholder groups

- **Company:** Cash flow, ESG, Social contacts; etc;
- **Local Government:** GDP, supply responsibility;
- **Country:** Volunteer Commitment Index for 2030 Agenda





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The Committee recommended and requested:

(a) Noting that ECOSOC adopted its decision on the updated UNFC, encouraged member States to consider taking measures to ensure the application of UNFC worldwide and requested the secretariat to work with the other regional commissions and relevant international organizations to do the same.

(b) Noted with appreciation the development of the United Nations Resource Management System (UNRMS) based on principles and requirements included in the document United Nations Resource Management System: Guiding principles and structure (ECE/ENERGY/2021/21) and *recommended accelerated development of UNRMS. Requested the secretariat to raise funds and mobilise the expert communities needed to advance development of UNRMS. Requested the secretariat to publish the UNRMS when ready in the six UN languages.*

(c) Noted with appreciation the growing interest from Member States, including in Kazakhstan, Russian Federation, Slovenia, United Kingdom, China, and Mexico, to establish International Centres of Excellence on Sustainable Resource Management (ICE-SRM) in the ECE region and beyond, and requested the secretariat to work to facilitate their institution.

Challenges and Prospects



■ Future Challenges

- *To make UNRMS Principles and Guidelines tangible*
 - supporting by appropriate approaches
- *Further development of UNRMS*
 - UNFC based resources management: *long-term availability*
 - *Consistent terminology, language (standards, specifications, case studies), technologies (including IT & AI, etc.), and actions, etc.*
- *E&E (effective & efficient) cooperation among EGGM groups*
 - *Supporting each other and making efforts in concert.*

Challenges and Prospects



■ Prospects

- To develop an UNFC/UNRMS Toolkit supporting both integrated resource management and sustainable development;
- A smart platform for international cooperation and collaboration;
- A win-win network for UNFC-UNRMS knowledge sharing and public services

Enabler our activities for 2030 Agenda SDGs.

The clock is ticking. We have no time to lose!

Thank you!

Corresponding Person:

Yang Hua;

RIPED, CNPC

Date 26 I Nov I 2021, Place

Second UNRMS Workshop, 26 November 2021, 15:00 – 17:00 CET