



## Introduction to United Nations Framework Classification for Resources, UNFC and the UN Resource Management System (UNRMS)

10.00 – 11.00 CEST (Geneva time)

**Please standby for the event to start.**



**UNECE**

Curtain raiser to

**UNECE RESOURCE MANAGEMENT WEEK 2021**  
**ENABLING SUSTAINABILITY PRINCIPLES IN RESOURCE MANAGEMENT**  
26-30 April 2021 | PALAIS DES NATIONS | GENEVA & ONLINE





## Introduction to United Nations Framework Classification for Resources, UNFC and the UN Resource Management System (UNRMS)

10.00 – 11.00 CEST (Geneva time)

# Welcome



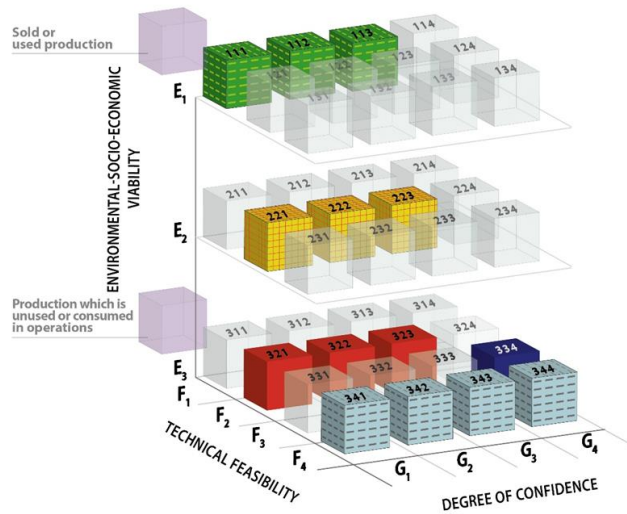
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**UNECE RESOURCE MANAGEMENT WEEK 2021**  
ENABLING SUSTAINABILITY PRINCIPLES IN RESOURCE MANAGEMENT  
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# Introduction to United Nations Framework Classification for Resources, UNFC and the UN Resource Management System (UNRMS)



Sigurd Heiberg,  
Per Blystad,

*Petronavit A.S.*  
*Petronavit A.S.*

On-line course  
22<sup>nd</sup> April 2021

# Agenda



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1. Welcome and introductions by Per Blystad
2. Part 1 – The UNFC explained by Per Blystad
3. Part 2 – Applications by Sigurd Heiberg
4. Discussion
5. Possible future courses and concluding remarks by Sigurd Heiberg

# The Course Presenters



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## **Mr. Sigurd Heiberg, Chairman Petronavit a.s.**

Past Chairman of the Bureau of the Expert Group on Resource Classification, and of the Bureau of the Intergovernmental Committee of Sustainable Energy, Member of Expert Group on Resource Management EGRM. Member of several Task Forces in EGRM



## **Mr. Per Blystad, Resource Management, Petronavit a.s.**

Past Leader of Petroleum Group and several Task Forces in Expert Group on Resource Classification, Member of EGRM and the Communications Group

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1. Welcome and introductions by Per Blystad
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# Sustainable development and climate change mitigation cannot be achieved without energy and raw materials



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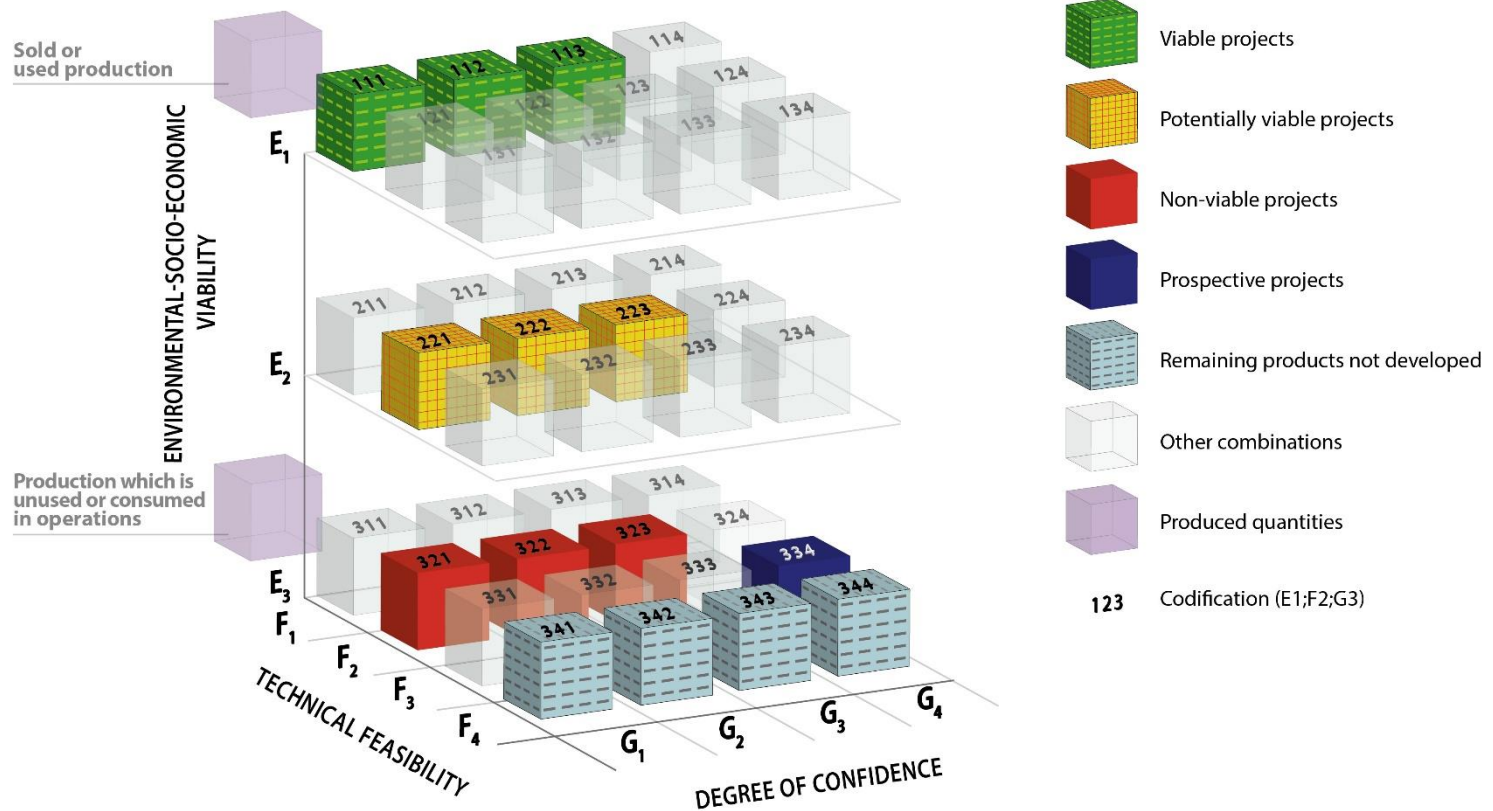


## Resource management for sustainable development

# United Nations Framework Classification for Resources (UNFC)



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# UNFC – Fundamental criteria

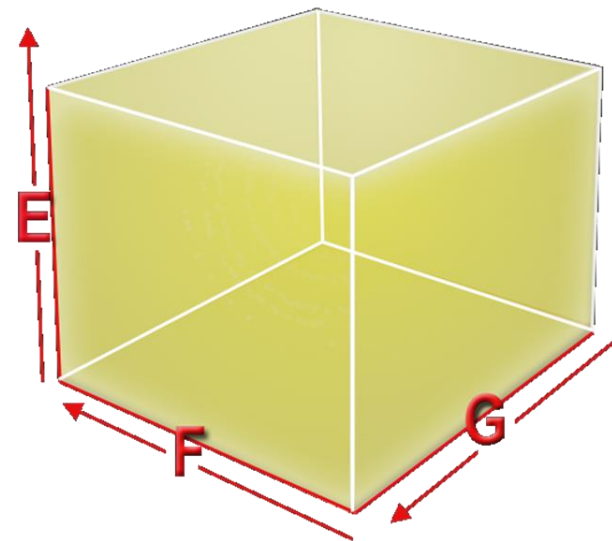


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Environmental-Socio-Economic viability (**E**)

Technical **F**easibility (**F**)

Degree of Confidence (**G**)



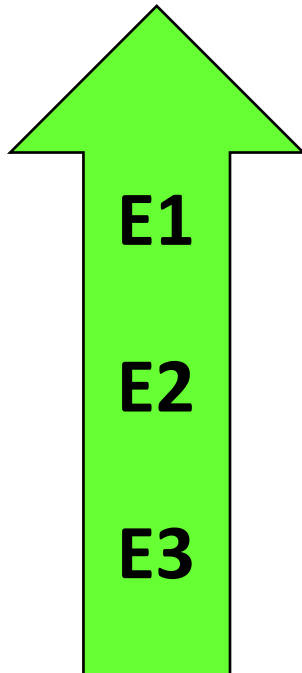
# Criteria and Categories

Numerical coding system based on the three criteria, sub-divided by categories

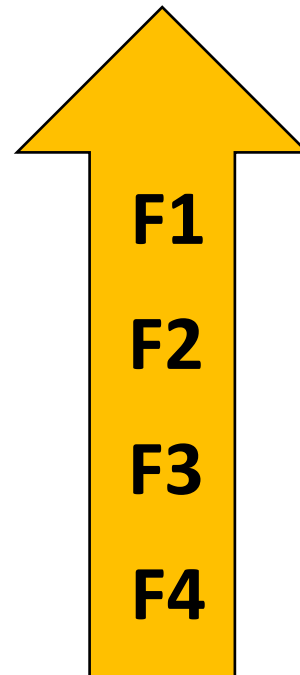


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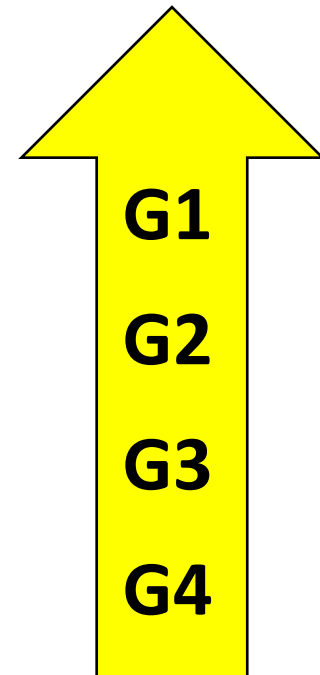
**Environmental-  
Socio-Economic  
viability**



**Technical Feasibility**



**Degree of Confidence**



# Category definitions



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Category	Definition
E1	Development and operation are confirmed to be environmentally-socially-economically viable.
E2	Development and operation are expected to become environmentally-socially-economically viable in the foreseeable future.
E3	Development and operation are expected to become environmentally-socially-economically viable in the foreseeable future.

Category	Definition
F1	Technical feasibility of a development project has been confirmed.

Category	Definition
F2	Technical feasibility requires further evaluation.
F3	Technical feasibility has been evaluated due to environmental concerns.
F4	No development is planned.
Category	Definition
G1	Product quantity associated with a project can be estimated with a high level of confidence.
G2	Product quantity associated with a project that can be estimated with a moderate level of confidence.
G3	Product quantity associated with a project that can be estimated with a low level of confidence.
G4	Product quantity associated with a Prospective Project, estimated primarily on indirect evidence.

# E axis definitions & explanations



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Category	Definition	Supporting Explanation
<b>E1</b>	Development and operation are confirmed to be environmentally-socially-economically viable.	Development and operation are environmentally-socially-economically viable on the basis of current conditions and realistic assumptions of future conditions. All necessary conditions have been met (including relevant permitting and contracts) or there are reasonable expectations that all necessary conditions will be met within a reasonable timeframe and there are no impediments to the delivery of the product to the user or market. Environmental-socio-economic viability is not affected by short-term adverse conditions provided that longer-term forecasts remain positive.

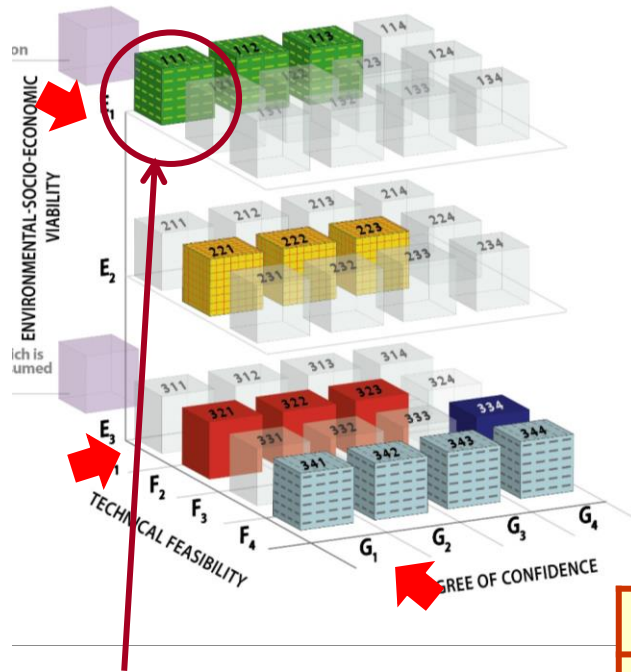
# UNFC – How it works



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- **The category definitions are the building blocks of the system:**
  - **Select the correct category for each of the three criteria**
- **These are combined (E, F, G) in the form of classes**

# Classifying a project



**E1;F1;G1**  
**UNFC Class: 111**

Category	Definition
E1	Development and operation are confirmed to be environmentally-socially-economically viable.

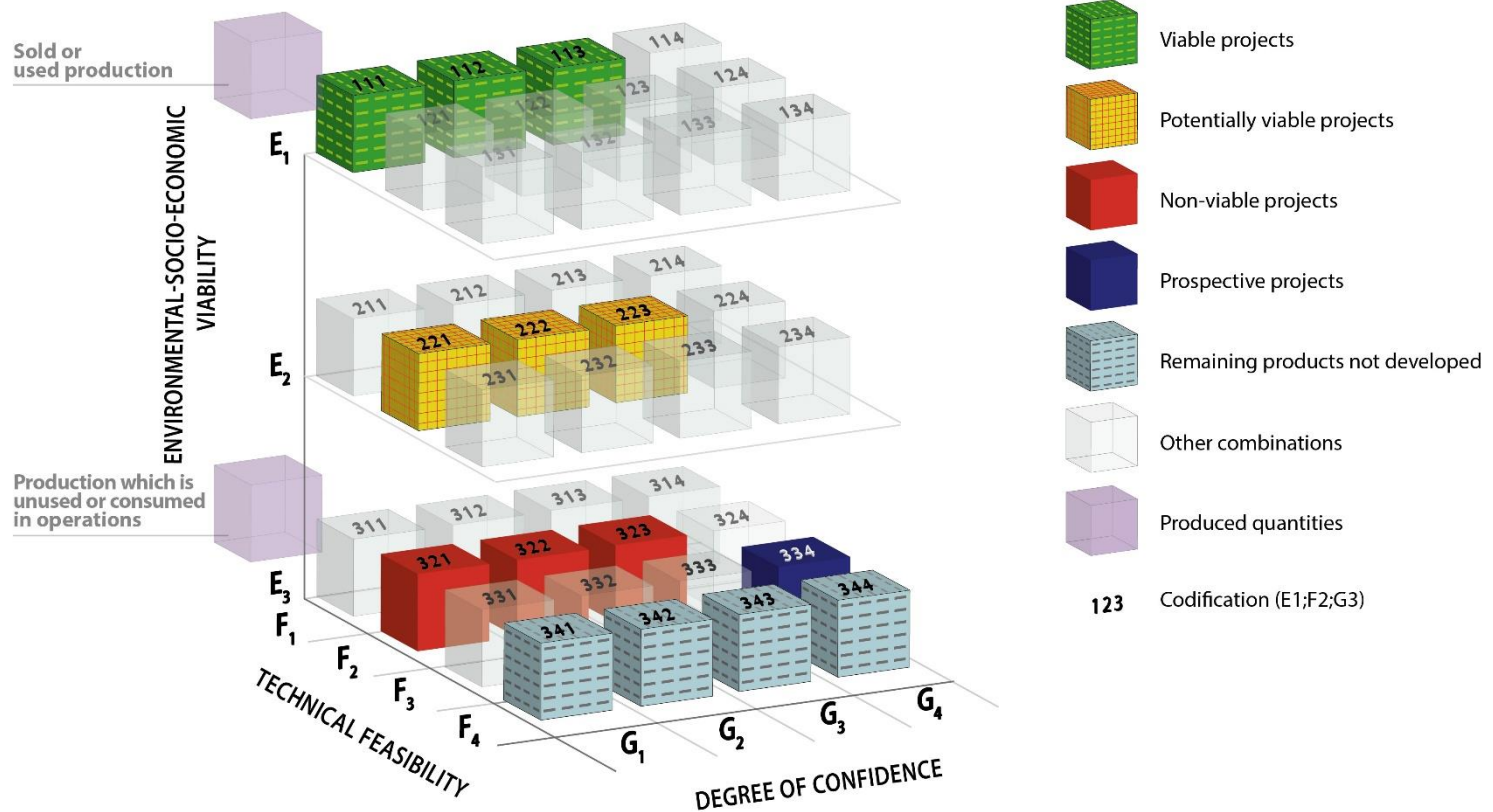
Category	Definition
F1	Technical feasibility of a development project has been confirmed.

Category	Definition
G1	Product quantity associated with a project that can be estimated with a high level of confidence.

# United Nations Framework Classification for Resources (UNFC)



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# UNFC – Abbreviated version, showing Primary Classes



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Total Products	Produced	Sold or used production			
		Production which is unused or consumed in operations			
		Class	Minimum Categories		
			E	F	G <sup>b</sup>
	The project's environmental-socio-economic viability and technical feasibility has been confirmed	Viable Projects	1	1	1, 2, 3
	The project's environmental-socio-economic viability and/or technical feasibility has yet to be confirmed	Potentially Viable Projects	2*	2	1, 2, 3
		Non-Viable Projects	3	2	1, 2, 3
	Remaining products not developed from identified projects <sup>g</sup>		3	4	1, 2, 3
	There is insufficient information on the source to assess the project's environmental-socioeconomic viability and technical feasibility	Prospective Projects	3	3	4
	Remaining products not developed from prospective projects <sup>g</sup>		3	4	4

**\*Potentially Viable Projects may satisfy the requirements for E1**



# UNFC using all sub-categories



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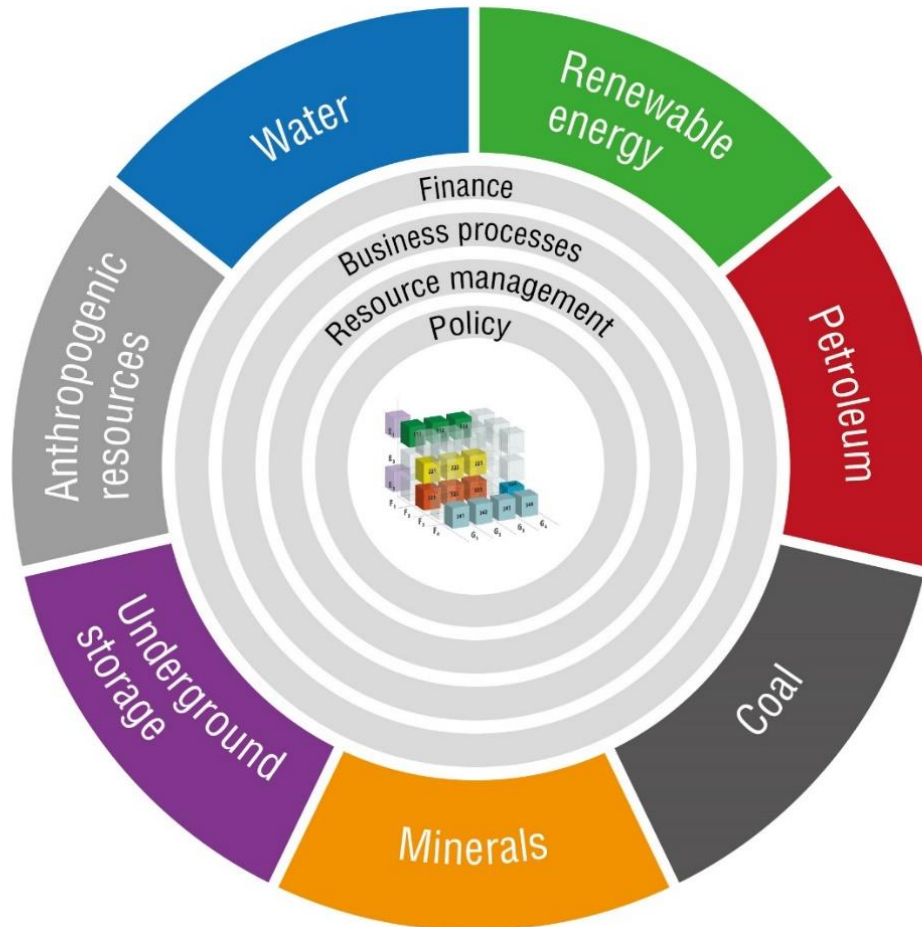
UNFC Classes defined by categories and sub-categories							
	Produced	Sold or used production					
		Production which is unused or consumed in operations					
	Class	Sub-class	Categories				
			E	F	G		
Total products	Known Sources	Viable Projects	On Production	1	1.1	1, 2, 3	
			Approved for Development	1	1.2	1, 2, 3	
			Justified for Development	1	1.3	1, 2, 3	
		Potentially Viable Projects	Development Pending	2*	2.1	1, 2, 3	
			Development On Hold	2*	2.2	1, 2, 3	
		Non-Viable Projects	Development Unclassified	3.2	2.2	1, 2, 3	
			Development Not Viable	3.3	2.3	1, 2, 3	
		Remaining products not developed from identified projects		3.3	4	1, 2, 3	
		Potential Sources	Prospective Projects	[No sub-classes defined]	3.2	3	4
			Remaining products not developed from prospective projects		3.3	4	4

**\*Potentially Viable Projects may satisfy the requirements for E1**

# UNFC for Resources – domains of application



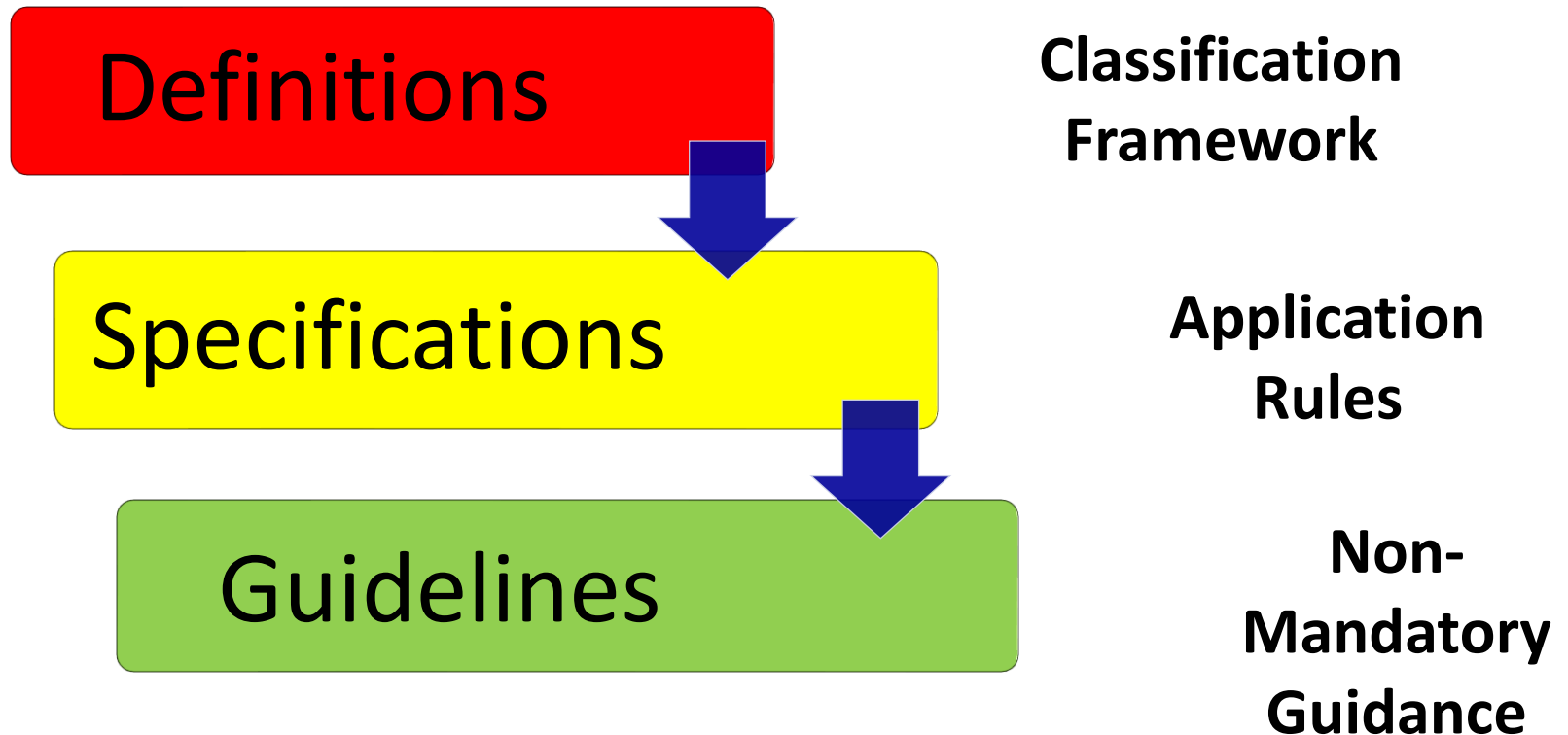
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# Structure of UNFC system



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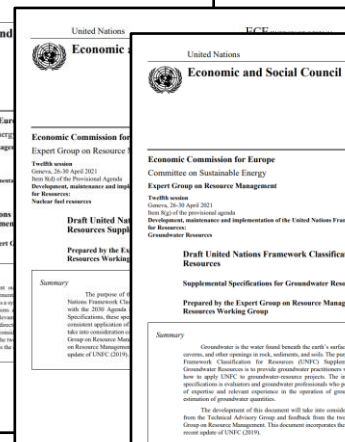
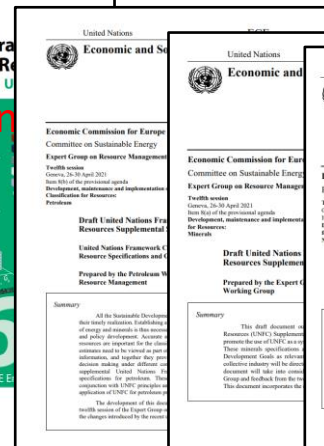
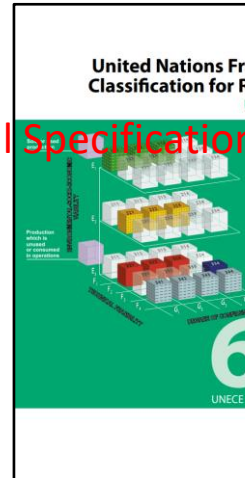
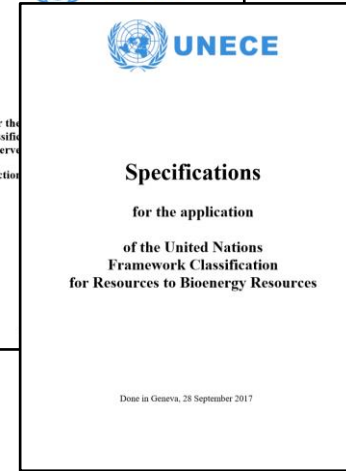
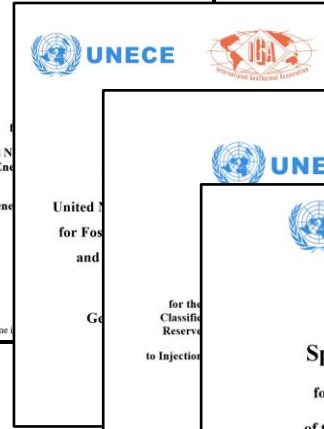
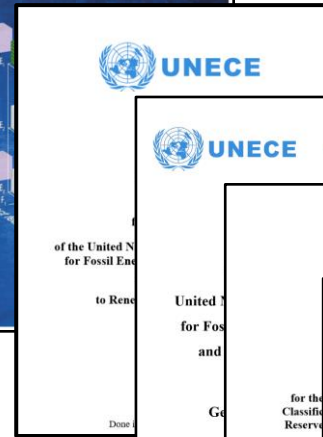
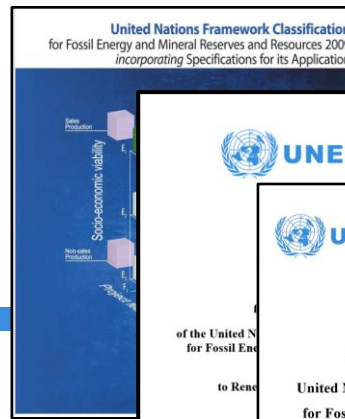


# Specifications



- Generic Specifications
- Renewable energy (generic)
- Geothermal Energy Resources
- Solar Energy Resources
- Wind Energy Resources
- Injection Projects for Geological Storage
- Bioenergy Resources
- Anthropogenic Resources

- EGRM 12: Draft UNFC Supplemental Specification
  - Petroleum
  - Minerals
  - Nuclear Projects
  - Groundwater



# Find more information at: <https://unece.org/sustainable-energy/unfc-and-sustainable-resource-management>



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UNFC AND SUSTAINABLE RESOURCE MANAGEMENT

UNFC and Sustainable Resource Management

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Public consultations

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## UNFC and Sustainable Resource Management

### Introduction

**United Nations Framework Classification for Resources (UNFC)** - a universally acceptable and internationally applicable scheme for the sustainable management of all energy and mineral resources.

**Intro UNFC EGRM Media**

Fundamentals of UNFC explained (animation)

Overview of UNFC and EGRM



### Key areas of work



Applications



UNFC Documents



Case Studies



Governance



Public Consultations



Projects



FAQs

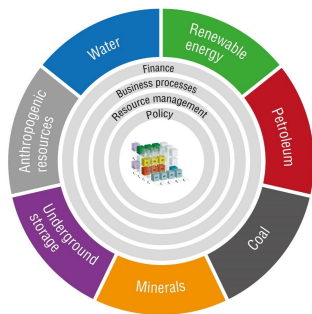
# Agenda



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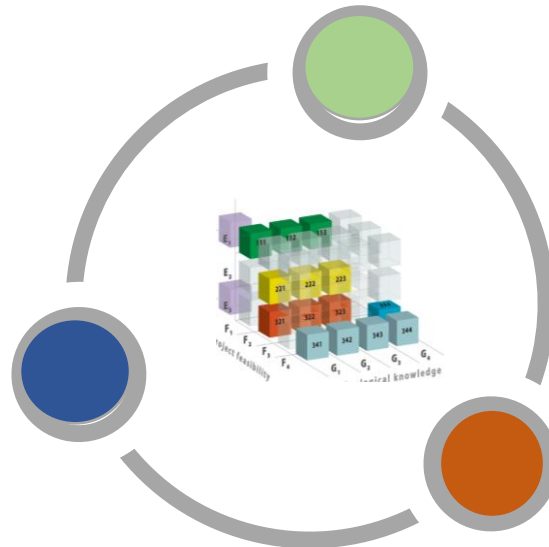
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# Development of UNRMS for Sustainable Resource Management – a Provisional Structure and Guidelines is presented at EGRM 12



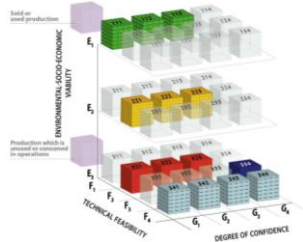
## UN and Government Framework Conditions

Capital market  
Finance Activities



Industry  
Deploy Capabilities

# The E-F Matrix - essential in project management



		Confirmed Feasibility	Feasibility under evaluation	No evaluation due to lack of data	No project identified
		F1	F2	F3	F4
ESE Viability confirmed	E1				
ESE Viability under consideration	E2				
Production of unused material, too poorly defined or ESE considered unfavourable	E3				

Category	Definition
E1	Development and operation are confirmed to be environmentally-socially-economically viable.

Category	Definition
F1	Technical feasibility of a development project has been confirmed.

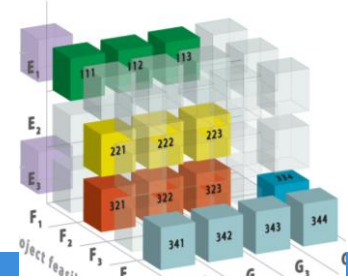
**E1,F1**

**UNFC class 11**



# UNFC Case Studies

## Nordkalk limestone Bunge project, Sweden



UNEP



The Bunge Project

Year	Court verdict	UNFC E Category	
2008	1 <sup>st</sup> instance, application turned down		<b>E3</b>
2009	2 <sup>nd</sup> instance, partial permit granted	<b>E2</b>	
2010	Supreme Court, sent back the case to the 1st instance	<b>E2</b>	
2011	1 <sup>st</sup> instance, turned down the permit		<b>E3</b>
2012	2 <sup>nd</sup> instance, granted the permit	<b>E1</b>	
2013	Supreme Court, granted partial appeal, due to Natura 2000 evaluation. Case sent back to the 1 <sup>st</sup> instance	<b>E2</b>	
2014	1 <sup>st</sup> instance, granted the permit. Case appealed.	<b>E1</b>	
2015	2 <sup>nd</sup> instance trial put on hold due to new Natura 2000 proposal.	<b>E2</b>	
2015	Swedish Government, Decision on a new Natura 2000 area.	<b>E2</b>	
2018	2 <sup>nd</sup> instance, taking on the trial which was on hold since 2015. Did not grant the permit.		<b>E3</b>
2018	Supreme Court turned down an appeal. The 2018 verdict came into legal force.		<b>E3</b>

The UNFC F and G Categories were at an early stage concluded to be F2 and G1

Source: [https://unece.org/fileadmin/DAM/energy/se/pdfs/egrm/egrm11\\_apr2020/ECE\\_ENERGY\\_GE.3\\_2020\\_10.pdf](https://unece.org/fileadmin/DAM/energy/se/pdfs/egrm/egrm11_apr2020/ECE_ENERGY_GE.3_2020_10.pdf)

# Adapting the Design Structure Matrix (DSM) method from Engineering Systems Design



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		Confirmed Feasibility	Feasibility under evaluation	No evaluation due to lack of data	No project identified
		F1	F2	F3	F4
ESE Viability confirmed	E1				
ESE Viability under consideration	E2				
Production of unused material, too poorly defined or ESE considered unfavourable	E3				

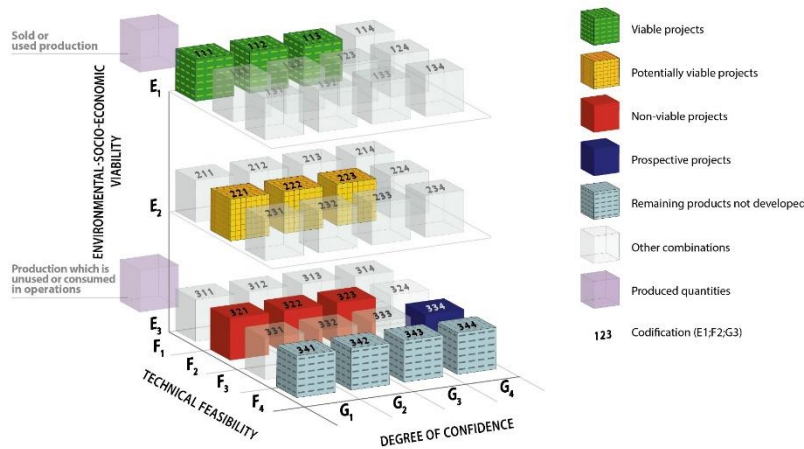
		Closing balance										Revision		
		Sold or used	Produced and not used	E1F1	E1F2	E2F1	E2F2	E3F1	E3F2	E3F3	E3F4			
Opening balance	Sales production			Not applicable										
	Non-sales production													
	E1F1													
	E1F2													
	E2F1													
	E2F2													
	E3F1													
	E3F2													
	E3F3													
E3F4														

Impairment  
Improvement

Output Columns  
Input Rows

Not often used

# UN Resource Management System (UNRMS) extends the UNFC



UNRMS extends the UNFC for securing affordable and sustainable energy and raw material services.

- Stocks and flows in physical and monetary terms.
- Metrics for projects, asset holders, local entities, jurisdictions, and transnational entities
- Effects of alternative policies.
- Helps international sustainability reporting standards.

# The UN Resource Management System (UNRMS) helping resource management for sustainable development, including the circular economy



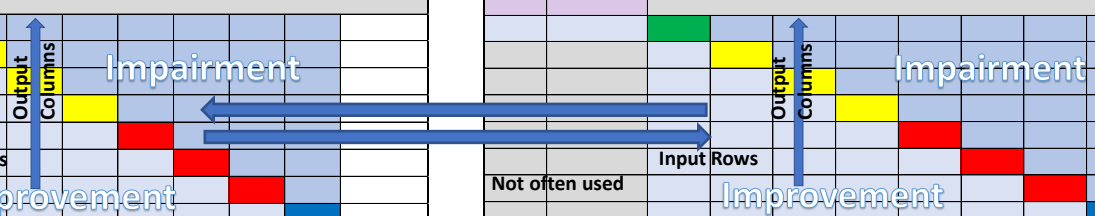
1. Resource management for sustainable development
2. Circular economy

Project A

		Closing balance									Revision		
		Sold or used	Produced and not used	E1F1	E1F2	E2F1	E2F2	E3F1	E3F2	E3F3	E3F4		
Opening balance	Sales production			Not applicable									
	Non-sales production			Not applicable									
	E1F1												
	E1F2												
	E2F1												
	E2F2												
	E3F1												
	E3F2												
E3F3													
E3F4													
	Not often used												

Project B

		Closing balance									Revision		
		Sold or used	Produced and not used	E1F1	E1F2	E2F1	E2F2	E3F1	E3F2	E3F3	E3F4		
Opening balance	Sales production			Not applicable									
	Non-sales production			Not applicable									
	E1F1												
	E1F2												
	E2F1												
	E2F2												
	E3F1												
	E3F2												
E3F3													
E3F4													
	Not often used												



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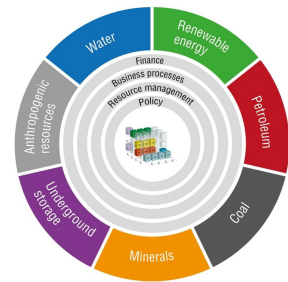


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# Effective public-private partnerships

Possible curriculum for several 2-hour online courses on the application of the UNFC



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**Policy frameworks for SDGs allowing industry to deploy their best capabilities in ways that the capital markets can finance**

## Core subjects

- 1. UN and Government framework conditions**
- 2. Industry's dynamic capabilities**
- 3. Capital markets**

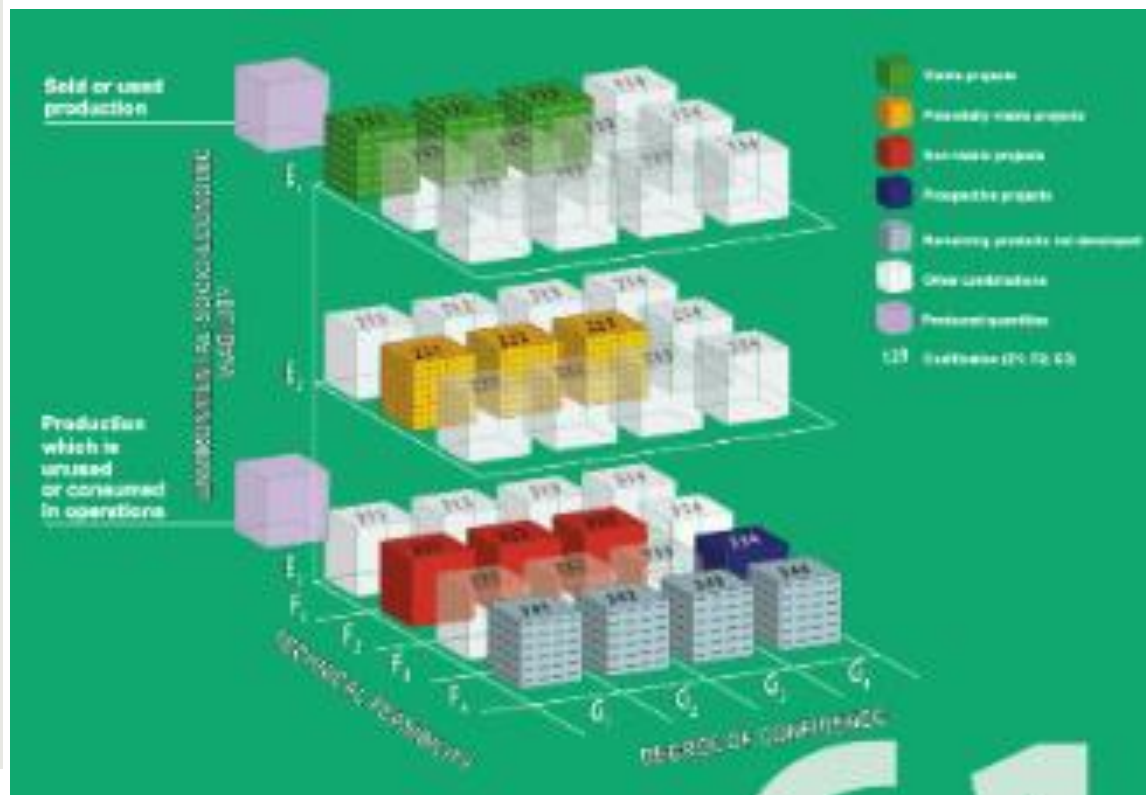
**Subject to identifying sponsors and interests in participating and contributing.**



For more information on UNFC and UNRMS

<https://unece.org/sustainable-energy/unfc-and-sustainable-resource-management>

email: [reserves.energy@un.org](mailto:reserves.energy@un.org)





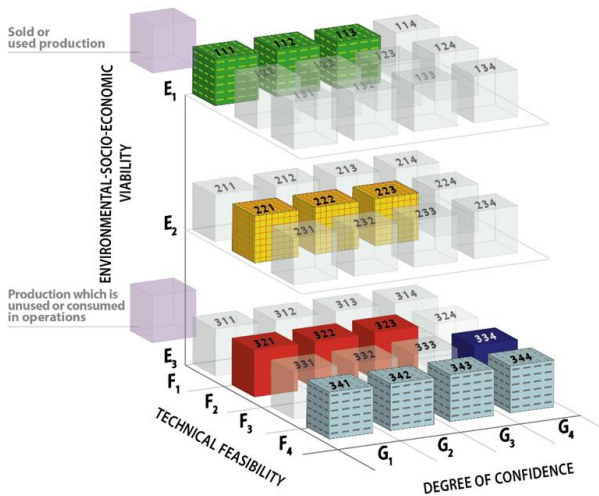
# Thank you!

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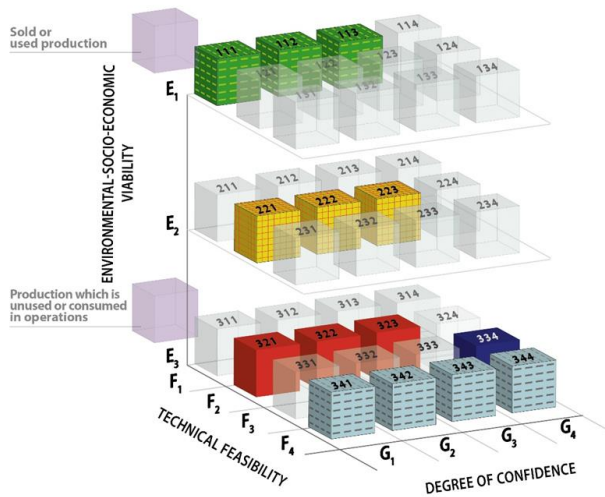
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# UNFC Adoption

## Global Deployment of UNFC



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- **UNFC for Africa - African Union Commission** adopted UNFC for all its member states. Strengthening UNFC and UNRMS use will be one of the new tasks of the reconstituted African Minerals Development Centre (AMDC)
- **UNFC for Europe – European Commission EU** adopting UNFC, asking member states to report in UNFC. The European Minerals Yearbook will be reporting in UNFC.
- **Mintell4EU** project – UNFC pilot study
- **Finland (GTK)** developed guideline for use of UNFC
- **China** has bridged its minerals and petroleum classifications to UNFC. Initiative to develop International Centre of Excellence for Sustainable Resource Management (ICE-SRM)
- **Russian Federation** bridged oil & gas classifications to UNFC. Strong initiative to develop ICE-SRM in Russia.



# ...UNFC Adoption

## Global Deployment of UNFC



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- **SPE, CRIRSCO, NEA/IAEA 'Red Book'** bridged to UNFC
- **India, Romania, Ukraine ...** applying UNFC
- **Norway** and **Mexico** petroleum pilot studies
- **Kuwait, Azerbaijan** piloting the use of UNFC
- **Coordinating Committee for Geoscience Programmes in East and South-east Asia (CCOP)** initiating a UNFC project, aiming to become International Centre of Excellence for Sustainable Resource Management (ICE-SRM)
- **UNFC** is part of United Nations **System of Environmental-Economic Accounting (SEEA)**, a system for national information on economy and environment.



# Generic specifications



UNEP

- Use of numerical code
- Bridging document
- Effective date
- Product
- Basis for estimate
- Reference point
- Classification of projects based upon level of maturity
- Distinction between E1, E2 and E3
- Distinction between potentially produced quantities and undeveloped quantities
- Aggregation of quantities
- Environmental-socio-economic assumptions
- Evaluator qualifications
- Units and conversion factors
- Documentation