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***Status:  
ISO Standardization of  
Land Cover Classification System  
( LCCS ) &  
ISO Metadata Standard Profiles***

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***Henry Tom  
Co-Chair, ISO / TC 211 Advisory Group on Outreach***

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Santiago, Chile**

# Agenda

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**FAO**

**ISO / TC 211**

**FAO and ISO / TC 211**

**Land Cover Classification System ( LCCS )**

**Status : ISO Standardization of LCCS  
ISO Metadata Profiles**



# *Food and Agriculture Organization*



***Food and Agriculture Organization ( FAO ) is the lead United Nations agency for agriculture, forestry, fisheries, and rural development.***

***FAO has 184 member countries plus one member organization, the European Union.***

***FAO's extensive involvement in food and agriculture includes considerable activities in geographic information.***



## **Standardization / Coordination Activities:**

***Co-Task Manager , Interoperability Services WG, UN Geographic Information Working Group ( UNGIWG )***

***FAO GeoNetwork system for FAO & UN system***

***ISO / TC 211 Geographic information / Geomatics***

***Open Geospatial Consortium ( OGC )***

***Co-Chair, UNGIWG***

***FAO – UNEP long term development of the Land Cover Classification System ( LCCS )***

# *Mission*

***ISO / TC 211 – creating a structured set of integrated geographic information data standards through an international consensus process of development and approval.***

***Almost 30 ISO standards and technical reports have been published.***

# *ISO/TC 211 Standards*

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## *1<sup>st</sup> Generation:*

**A set of 20 integrated standards**

## *2<sup>nd</sup> Generation:*

**Location based services standards**

**Imagery standards**

# ISO / TC 211 Website

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You will find updated information on ISO/TC 211 on the following World Wide Web-server :

***<http://www.isotc211.org>***

containing :



- Secretariat
- Organization
- Calendar
- About...
- Resolutions
- Document list
- Scope and work programme
- Mail to secretariat
- Newsletter and information
- Presentations (slides)



# *FAO and ISO / TC 211*



## **FAO activities:**

***Approval of FAO - Class A Liaison – May 2003***

***FAO active participation / support of Advisory Group on Outreach***

***Approval of Cooperative Agreement between FAO and ISO / TC 211 – October 2004***

***LCCS New Work Item Proposal ( NWIP )***

# *Land Cover Classification System*

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**Land Cover Classification System ( LCCS )**  
is in response to the international need for:

**harmonized / standardized collection of  
land cover data;  
availability of land cover data for a wide  
range of applications and users;  
comparison and correlation of land cover  
classes.**

# *Land Cover Classification System*

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**LCCS is a comprehensive methodology for the description, characterization, classification and comparison of most of land cover features identified anywhere in the world, at any scale or level of detail.**

**LCCS is a new language to describe, in a standardized way, the different land cover features.**

# *Land Cover Classification System*

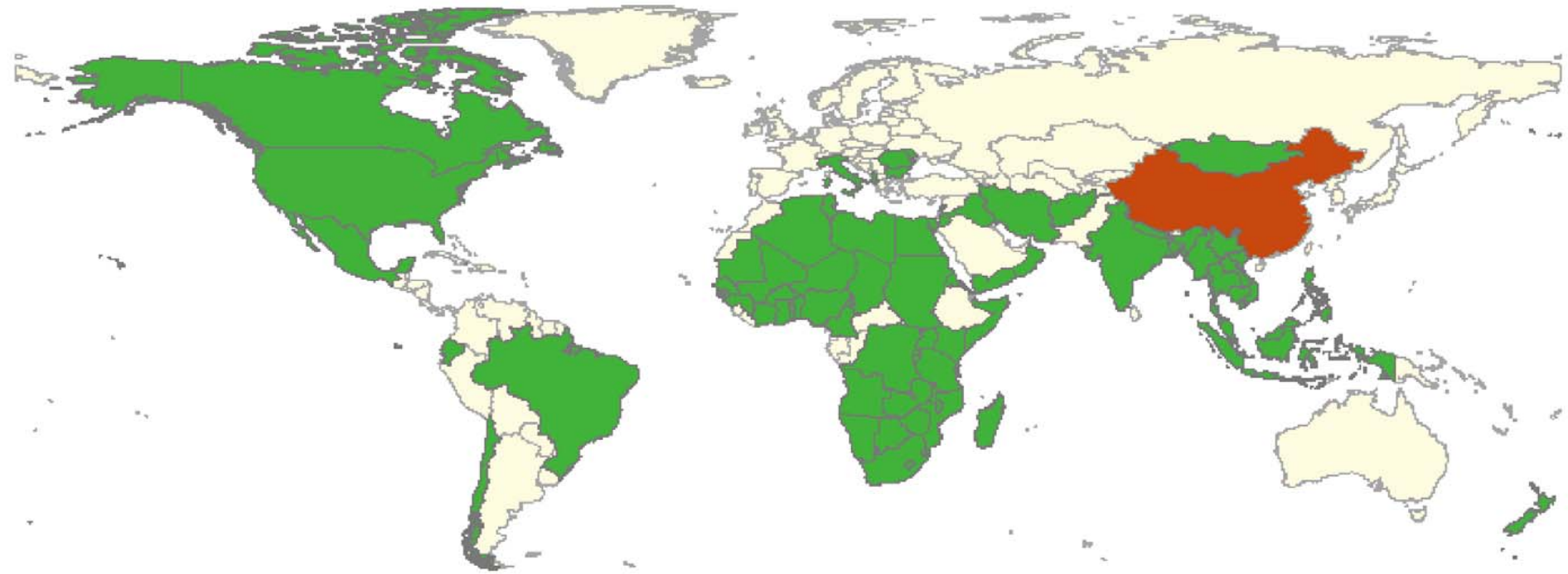
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## *Land Cover Classification System ( LCCS )*

*As a de facto , existing UN standard, LCCS provides a comprehensive methodology for the description, characterization, classification, and comparison of land cover features at any scale or level of detail;*

*As a de jure, formal ISO Standard, LCCS can serve as a common internationally recognized & accepted translation mechanism to compare and harmonize national land classification systems internally and worldwide.*

# Countries Involved with LCCS



Afghanistan  
Albania  
Algeria  
Angola  
Bangladesh  
Benin  
Botswana  
Brazil  
Bulgaria  
Burkina Faso  
Burundi  
Côte d'Ivoire

Cambodia  
Cameroon  
Canada  
Chad  
Chile  
China  
Congo, Dem Rep  
Ecuador  
Egypt  
Eritrea  
Gambia  
Ghana  
Guinea

Guinea-Bissau  
India  
Indonesia  
Iran, Islamic Rep  
Iraq  
Italy  
Jordan  
Kenya  
Lao People's Dem  
Rep  
Lebanon  
Lesotho  
Libyan Arab

Jamahiriya  
Madagascar  
Malawi  
Malaysia  
Mali  
Mauritania  
Mexico  
Moldova, Rep  
Mongolia  
Mozambique  
Myanmar (Burma)  
Namibia

Nepal  
New Zealand  
Niger  
Nigeria  
Oman  
Philippines  
Romania  
Rwanda  
Senegal  
Somalia  
South Africa  
Sudan

Swaziland  
Tanzania, United  
Republic of  
Thailand  
Togo  
Tunisia  
Uganda  
United States of  
America  
Viet Nam  
Yemen  
Zambia  
Zimbabwe

# ***ISO Standardization of LCCS***

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***Enables LCCS with ISO compatibility:***

***Integration of LCCS with supporting ISO / TC 211 standards and through its UML model, the entire family of ISO / TC 211 standards.***

***Additional deployment of LCCS via standards and systems implementing ISO / TC 211 standards.***

***Additional deployment of ISO / TC 211 standards into existing LCCS implementations.***

# *ISO Standardization of LCCS*

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*The LCCS NWIP is **not** an effort to develop a new classification scheme, but is rather an alignment of the LCCS with the ISO standardization of geographic information standards.*

*The LCCS is an existing, internationally accepted and widely implemented de facto UN standard, and while it accepts considerable re-organization of its structure as an ISO standard - its existing specifications and LCCS classifiers must be retained within the ISO technical enhancements.*

# *ISO Standardization of LCCS*

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*The LCCS NWIP does not deter the definition or standardization of other classification schemes.*

*The ISO standardization will organize LCCS into parts, where it is proposed that classification schemes must align with other ISO 19100 series standards, and provides a part which allows for other classification schemes to address different applications.*

# *ISO LCCS Structure*

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**Multi - part standard**

***Part 1 - General standard on classification***

***Part 2 - Structure of LCCS classification scheme & Register to maintain definitions of classifiers***

***Part n ... other classification schemes***

# ***Status: ISO Standardization of LCCS***

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***ISO NWIP Letter Ballot – 2006***

***LCCS NWIP [ ISO 19144 ] approved  
as a Committee Draft***

***Early 2007 Letter Ballot for approval  
as a Draft International Standard***

***Letter Ballot as International Standard***

# *FGDP 2005 Survey Results*

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**95 %** of the organizations recognize the importance of standards for geographic information

Almost **80 %** of the organizations were involved in a spatial data infrastructure ( SDI ) development

The most widely recognized and implemented standard is the **ISO Metadata Standard**

# **Metadata Standard**

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## **ISO 19115 – Metadata Standard**

***“information about data”***

***“provides information about the identification, the extent, the quality, the spatial and temporal schema, spatial reference, and distribution of digital geographic data”***

***information about the data and its:***

***“ fitness for use ”***

***– metadata ensures the appropriate data for an application***

# *Related Metadata Standards*

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***ISO 19115-2 - Metadata Standard  
Part 2, Extensions for Imagery and  
Gridded Data***

***ISO 19139 – Metadata Standard,  
XML Schema Specification***

Defines **spatial metadata XML**  
(**smXML**) encoding

# *Metadata Profile*

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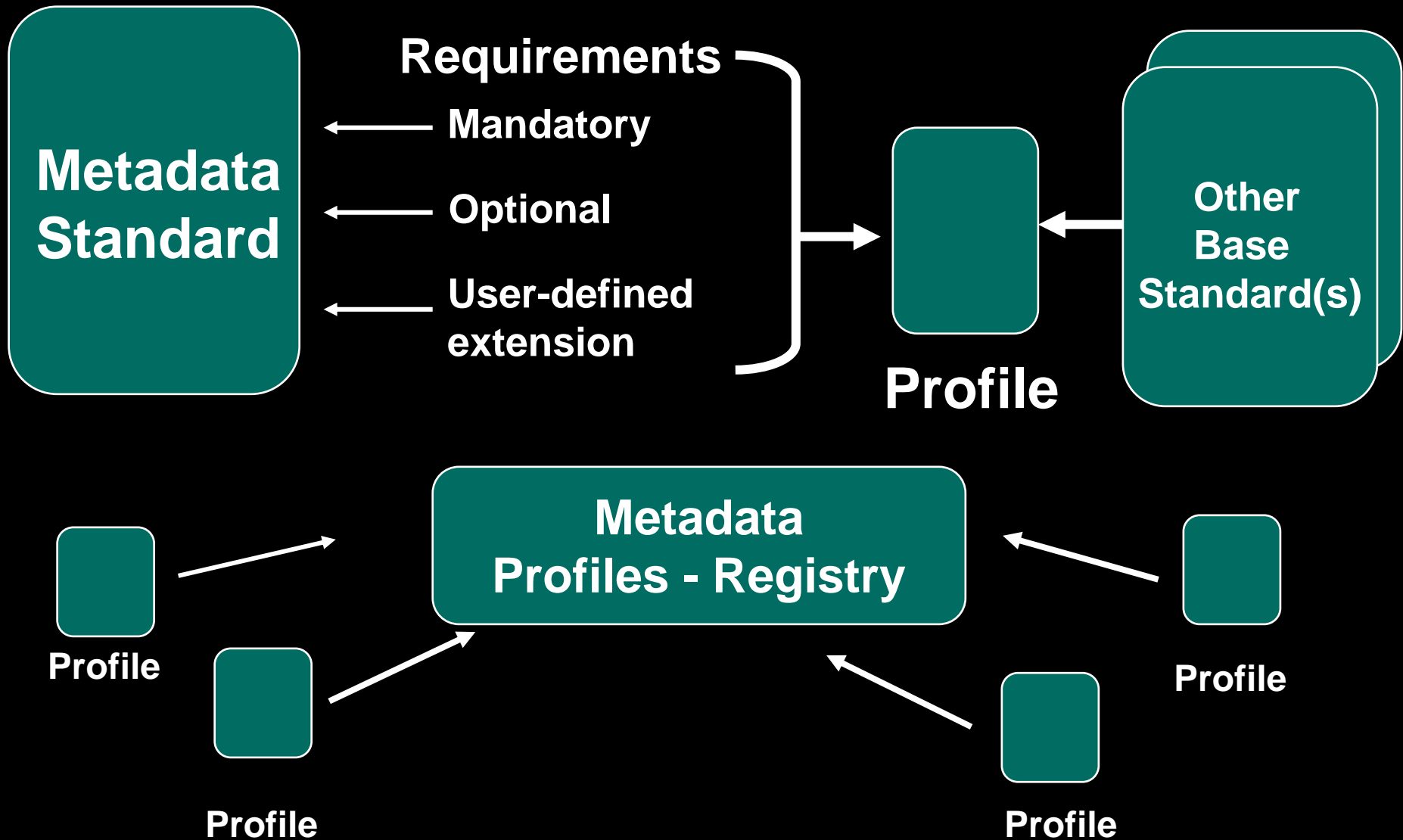
**Profile** – subset of a base standard or a set of standards comprised of subset (s) and one or more base standards - ISO 19106 - Profiles

Profile of a base standard is **customized** for a particular:

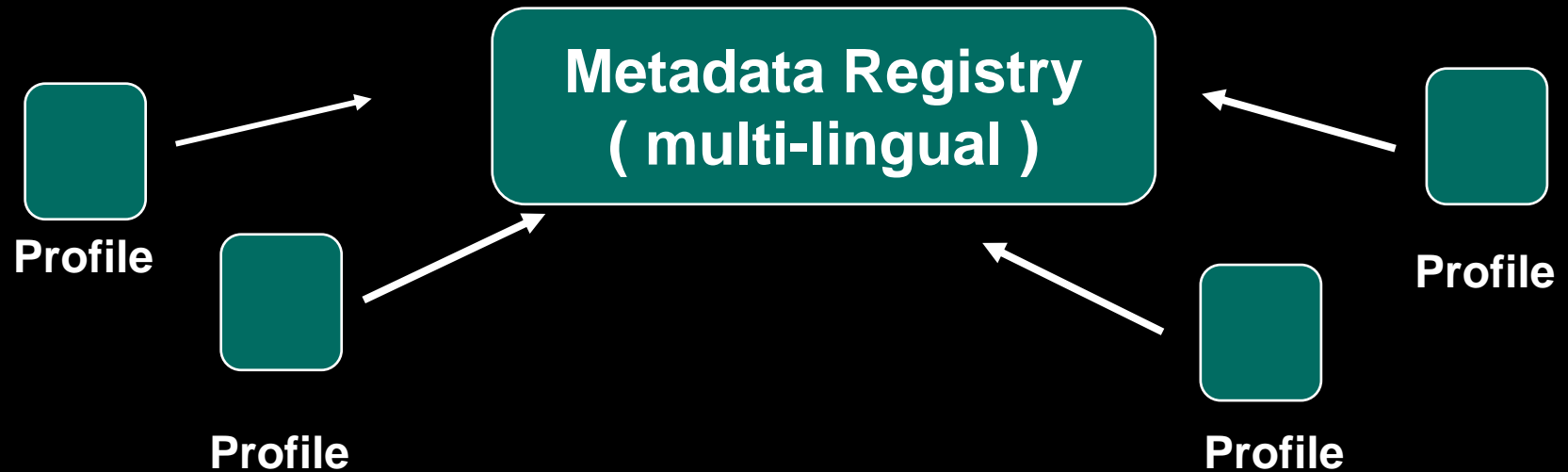
information “**application**” communities,  
e.g., military & hydrographic organizations

**geographic region or language**

# ISO Metadata Profiles & Registry



# Metadata Registry - Multi-Lingual



*Parallel lists data elements, linked by ID numbers, provide names and definitions in various languages*

*– allowing for multi-lingual cross-references & equivalences*

# *Related Metadata Profile Standards*

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*ISO 19104 - Terminology*

*ISO 19106 - Profiles*

*ISO 19135 – Procedures for Item  
Registration*

*Ad-hoc Group on Registry  
Establishment and Management*

# ***Status: ISO Metadata Profiles***

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**European Spatial Data Infrastructure**

**INSPIRE:**

***IN*frastructure for *SP*atial *InfoR*mation in Europe**



**North American Metadata Profile**

***Canada and the United States of America***

**Asia and the Pacific**

***Permanent Committee on GIS Infrastructure for Asia and the Pacific ( PCGIAP )***

# ***Status: ISO Metadata Profiles***

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**Digital Geographic Information Working Group  
( DGIWG )**

***Member countries of the North Atlantic  
Treaty Organization ( NATO )***

***UN Geographic Information Working  
Group***

**Other possible ISO Metadata Profiles:**

***Latin American Metadata Profile ( LAMP )  
GSDI – 9 ISO Standards Workshop***

# ***Advisory Group on Outreach***

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***Promoting the awareness of ISO / TC 211 standards and the institutionalization of these standards in major NGOs***

***Training and Education***

***Workshops & Seminars***

***Outreach initiative for: the coordination of ISO Metadata Profiles - INSPIRE, DGIWG, North America, Asia and the Pacific, Latin America.... and UNGIWG ?***

*Thank you !*



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