Joint ISPRS Project with the United Nations
Committee of Experts on Geospatial Information Management
UN-GGIM Secretariat, New York

The International Society for Photogrammetry and Remote Sensing
Study on the Status of Mapping on the World

Paper and presentation prepared by
Gottfried Konecny, Emeritus Prof., Leibniz University Hannover, Germany

1. History of ISPRS-UNGGIM Project 2012

1.1. Studies by the UN Secretariat in 1968, 1974, 1980, 1987 on the Status of Mapping in the World

1.2. Report on the Studies by A. Brandenberger, Laval University, Quebec, Canada at UNRCC-AP 1987 in Bangkok, published in World Cartography XX, 1990 (status of data 1986)

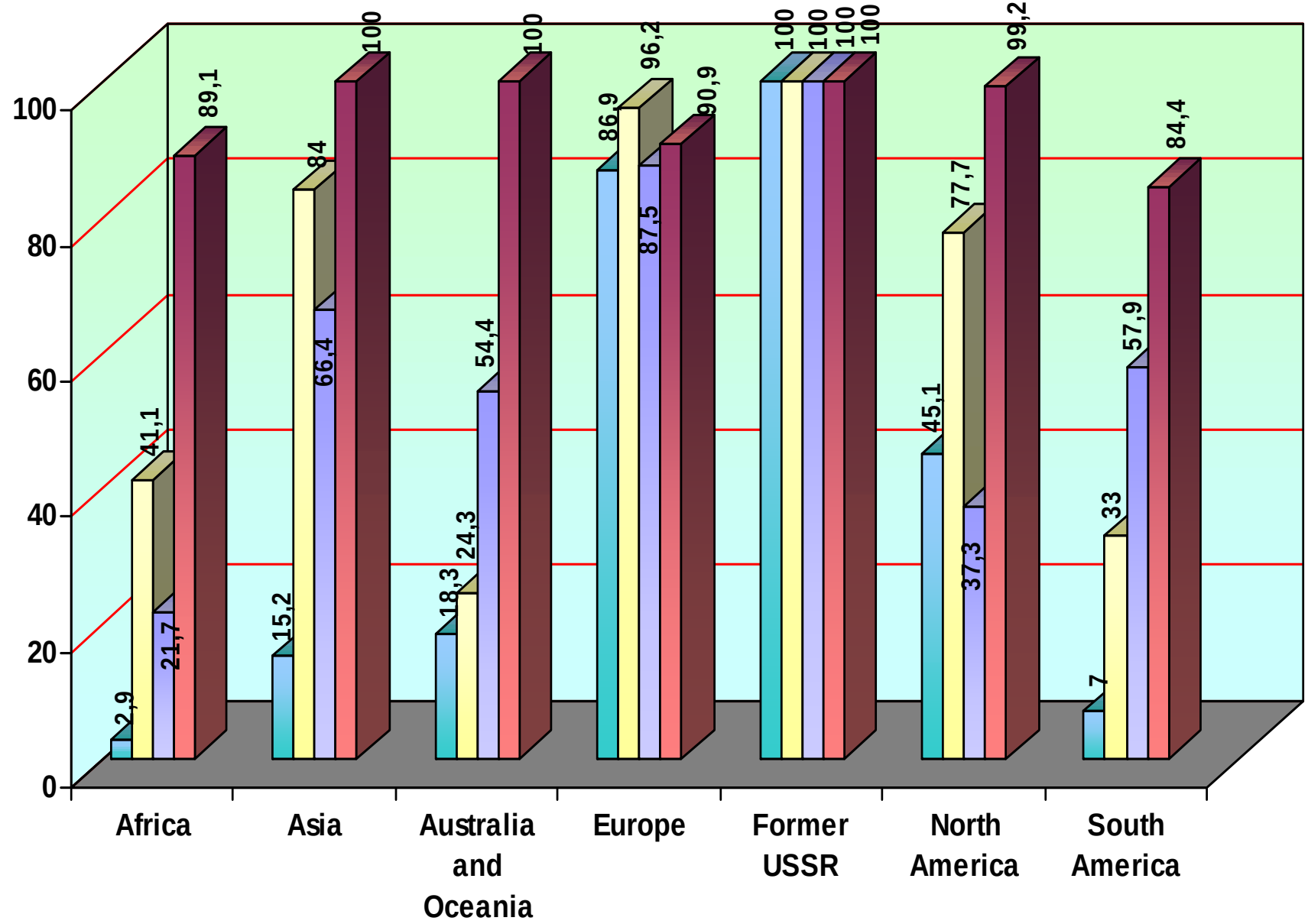
1.3. Resolutions at UNRRCC-AP and recently at UNRRCC-AM 2009 with mandate to the Secretariat for a new study

1.4. Decision of ISPRS Council in November 2011 to offer cooperation to UNGGIM, approved by Dr. Cheung in Dec 2011

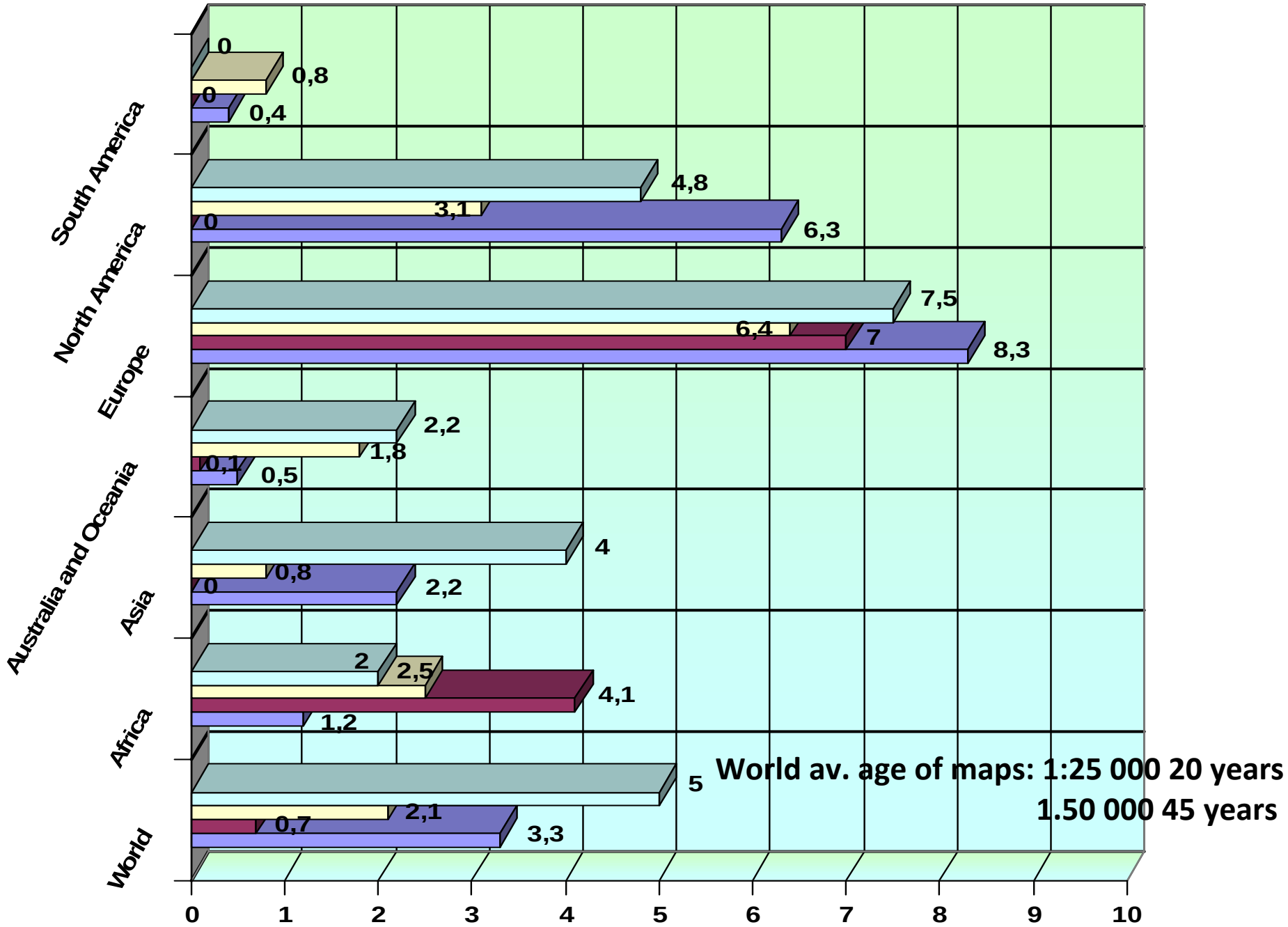
1:25 000 green , 1:50 000 yellow

2. Status of Topographic Mapping 1986

1:100 000 violet , 1:200 000 red



1:25 000 1/3; 1:50 000 1/2; 1:250 000 nearly complete



2. Map Updating 1986

3. Intermediate Results of the Study 2012

3.1. after the mailing of the questionnaire on April 27, 2012 by the GGIM Secretariat to UN Member Countries, 90 anwers were received by January 17, 2013

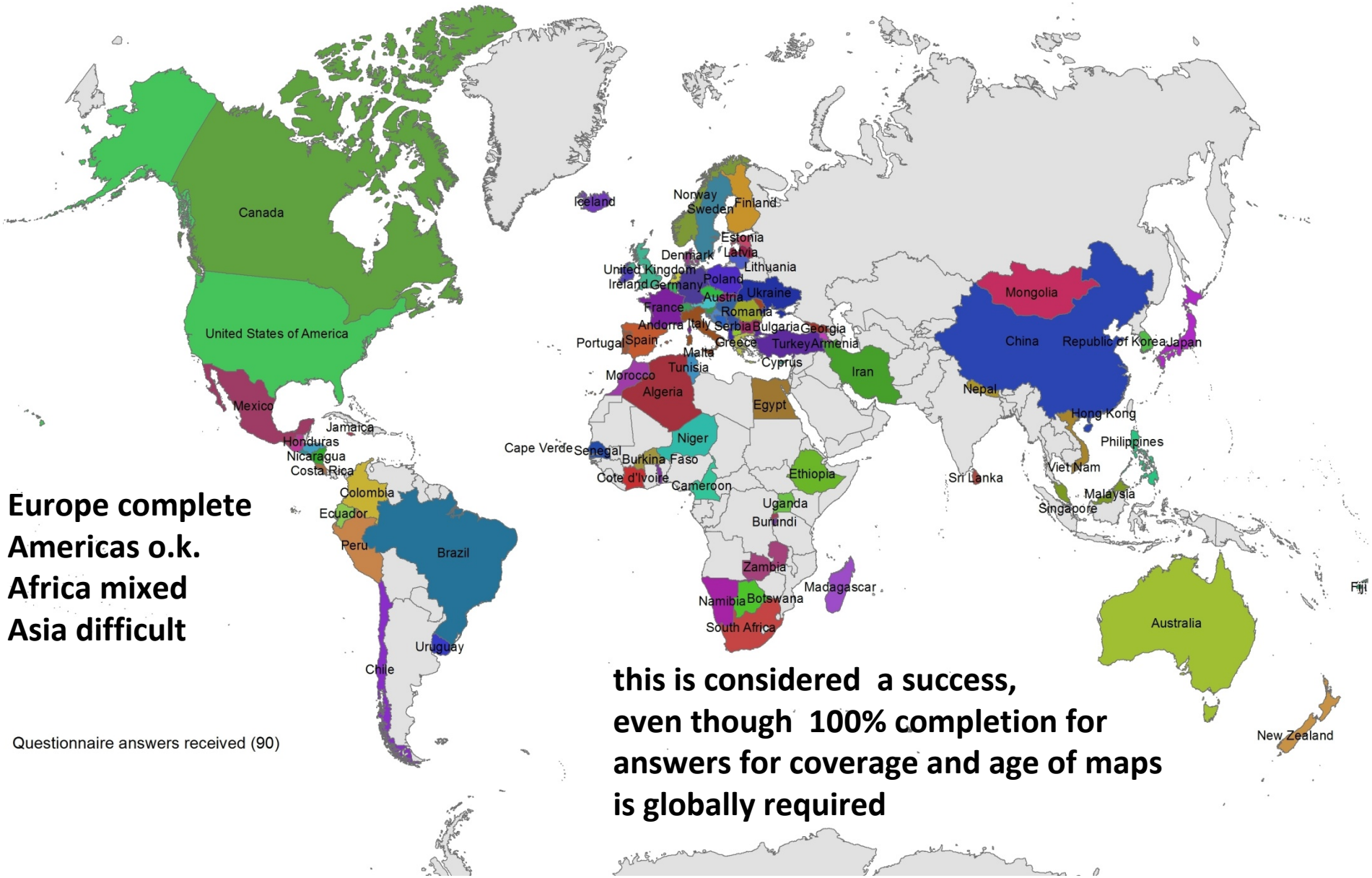
3.2. an analysis was made, after the design of a MS Access data base for the 27 questions

3.3. this analysis is presented to the UNGGIM Forum in Qatar, Feb 4 to 6, 2013

3.4. the analysis needs to be verified, this process will be assisted by the ISPRS Working Group IV-2. A meeting has been held April 22-26 in Novosibirsk

3.5. a final UNGGIM publication and presentation is planned after the Meeting of Experts in Cambridge in July 2013

Returned Questionnaires from 90 Countries plus Northern Ireland out of 193 UN Member Countries

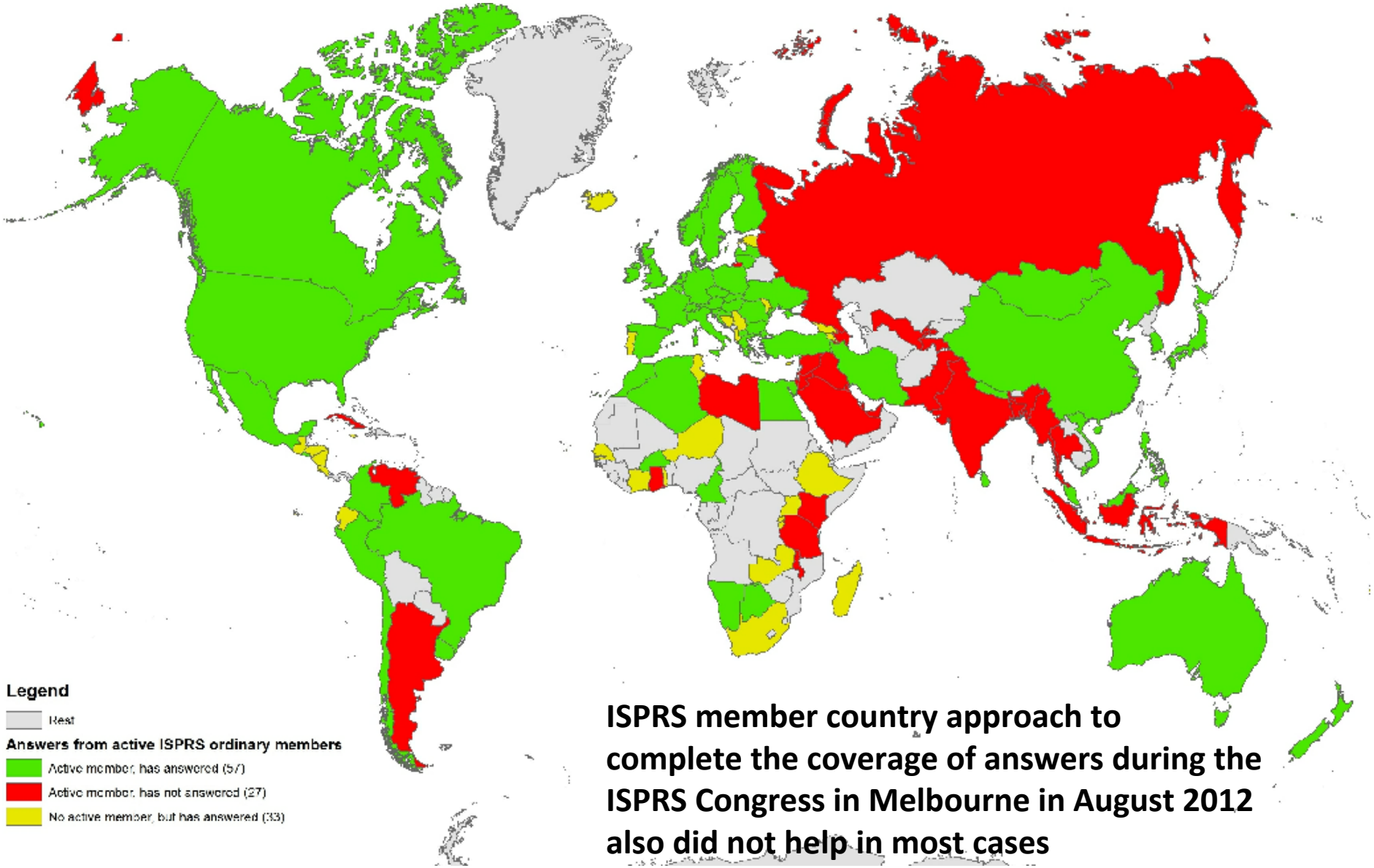


Europe complete
Americas o.k.
Africa mixed
Asia difficult

Questionnaire answers received (90)

this is considered a success, even though 100% completion for answers for coverage and age of maps is globally required

ISPRS Members not having answered in red



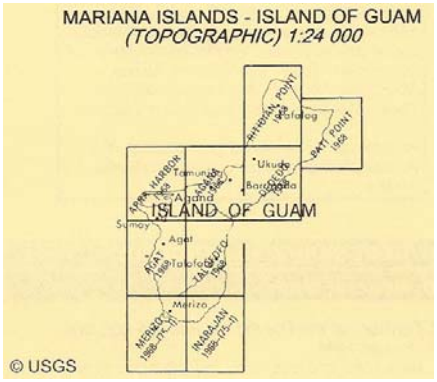
ISPRS member country approach to complete the coverage of answers during the ISPRS Congress in Melbourne in August 2012 also did not help in most cases

International Map or Geodata Vendors can help to fill in the Missing answers for questions 1 and 2

East View Geospatial
Minneapolis, MN, USA

Example:
Supply of North Korean Maps

Internationales Landkartenhaus
Stuttgart, Germany



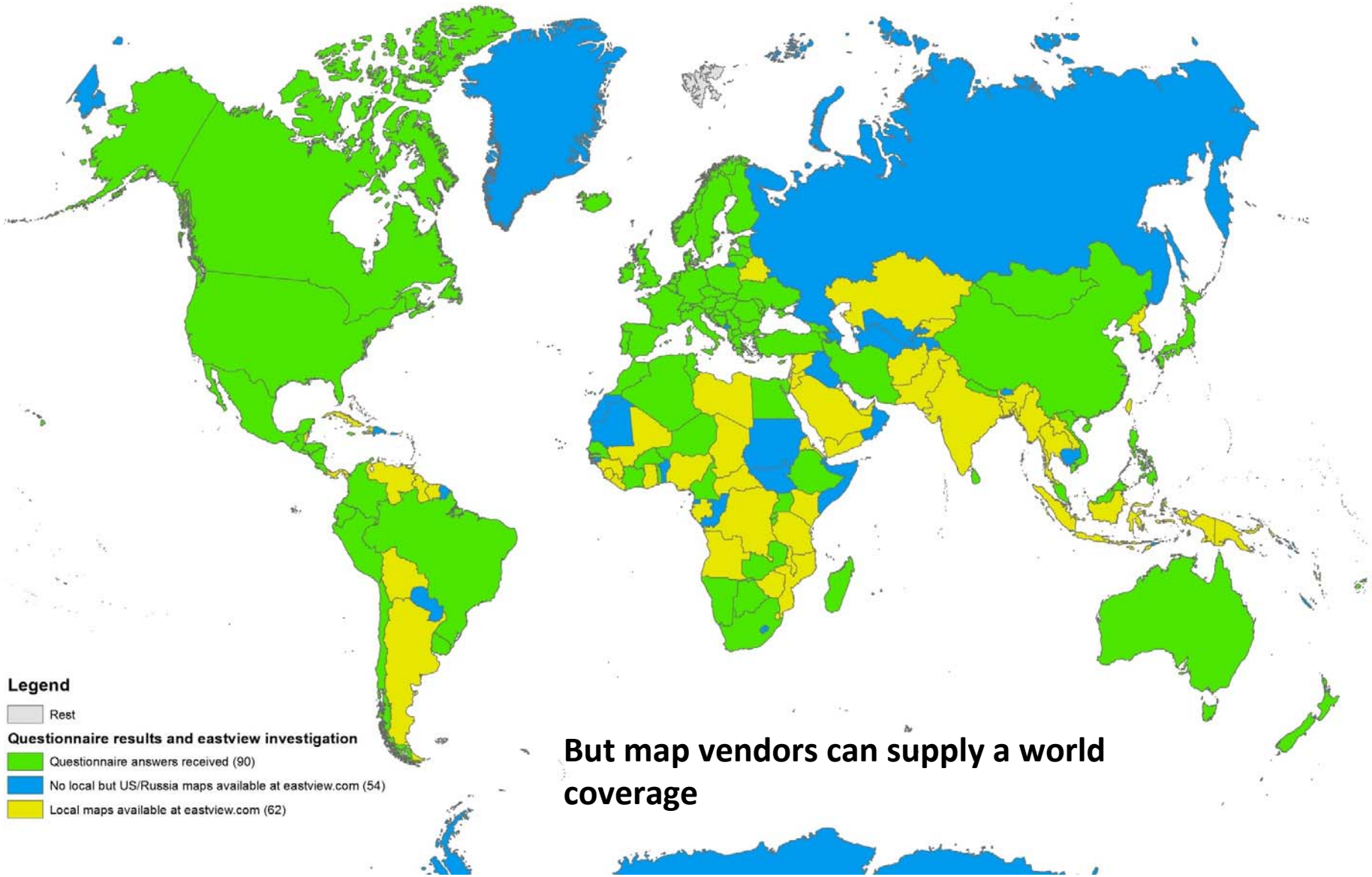
Example:
Catalogue with map coverages of Guam

Question 1: Map Coverage from Questionnaire

in green

civilian maps from vendors in yellow

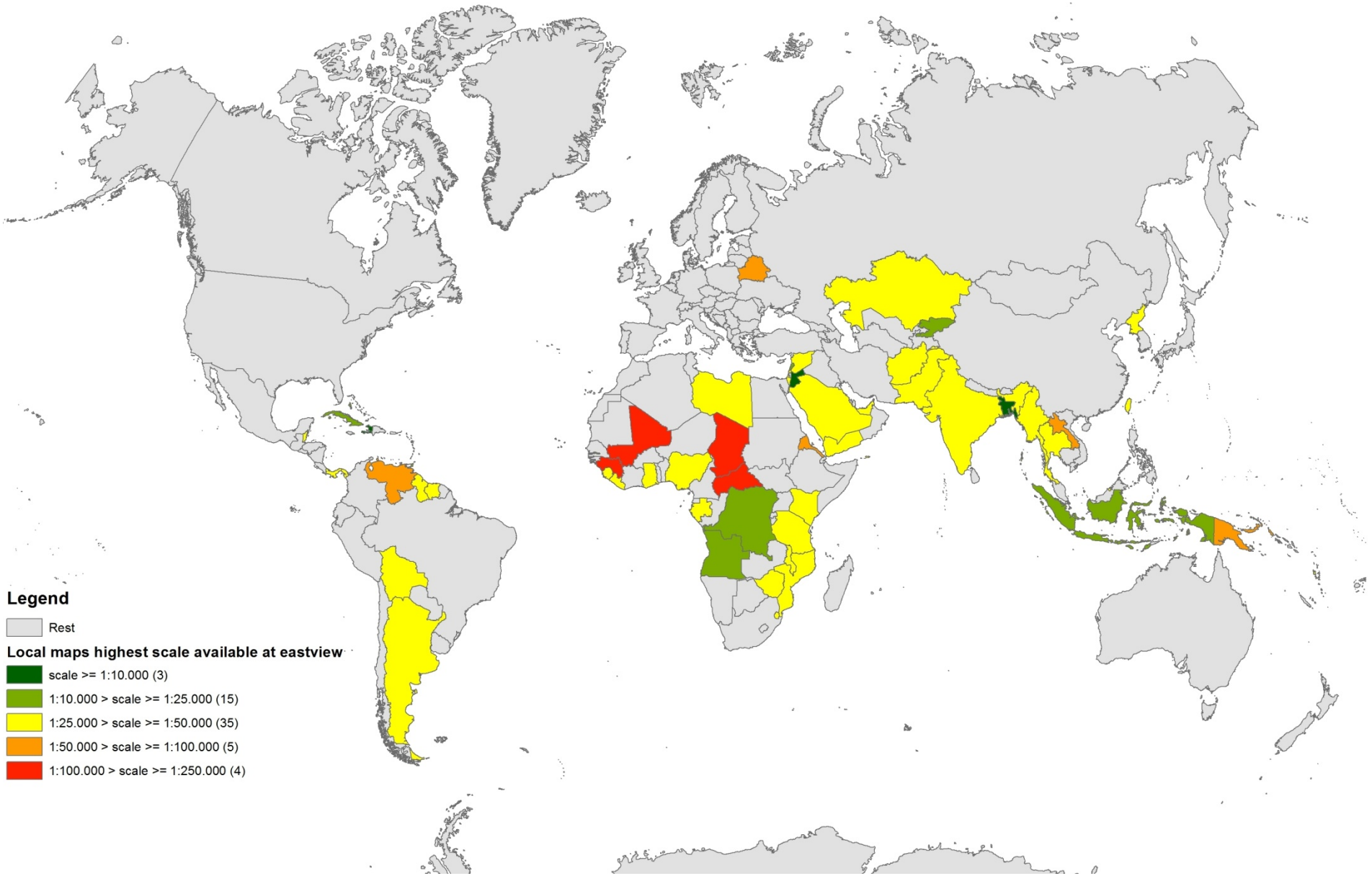
military maps from vendors in blue



But map vendors can supply a world coverage

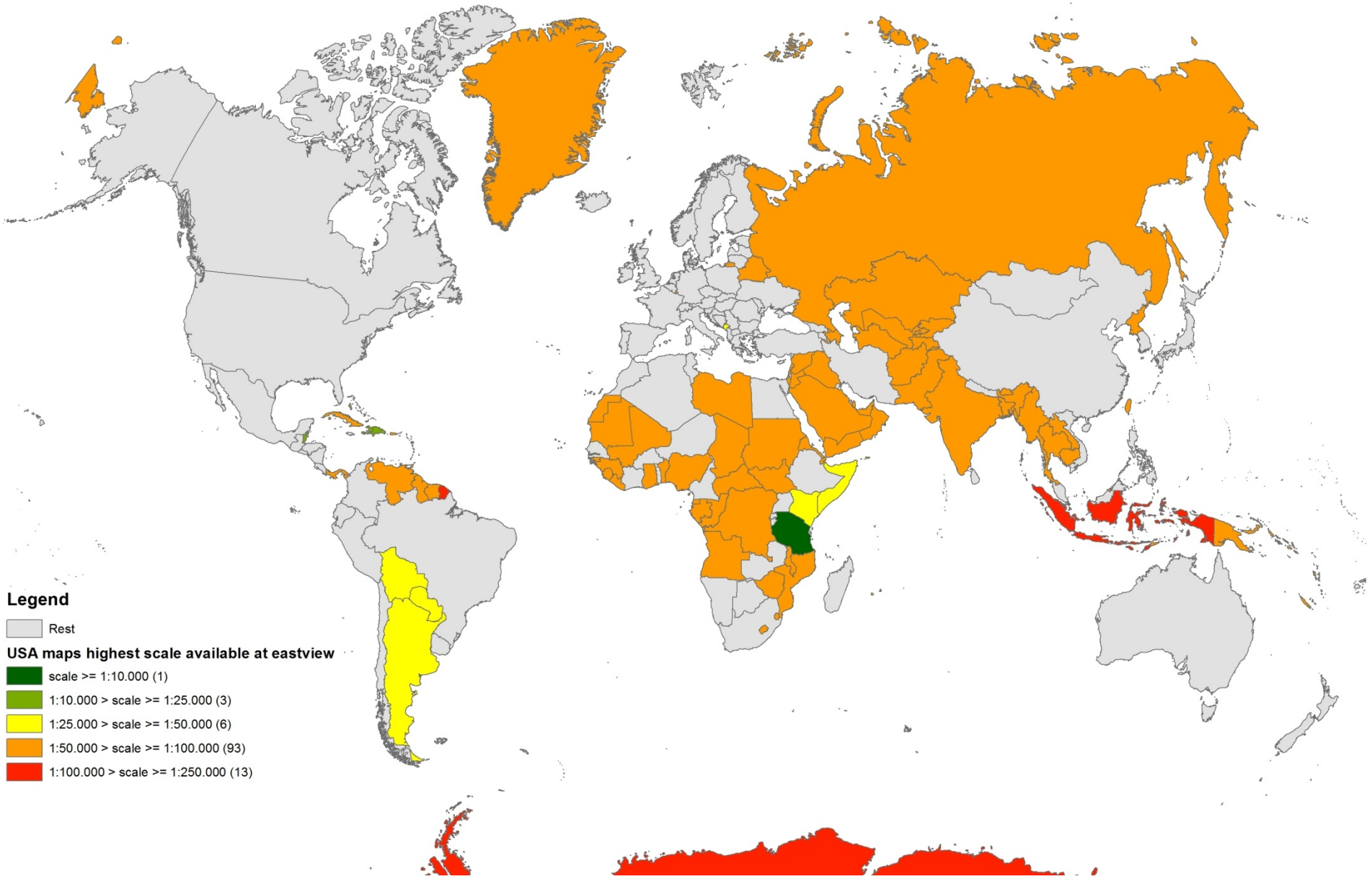
Scales of Nationally Produced Maps from Vendors

dark green 1:10 000, light green 1:25 000, yellow 1:50 000, brown 1:100 000, red 1:250 000



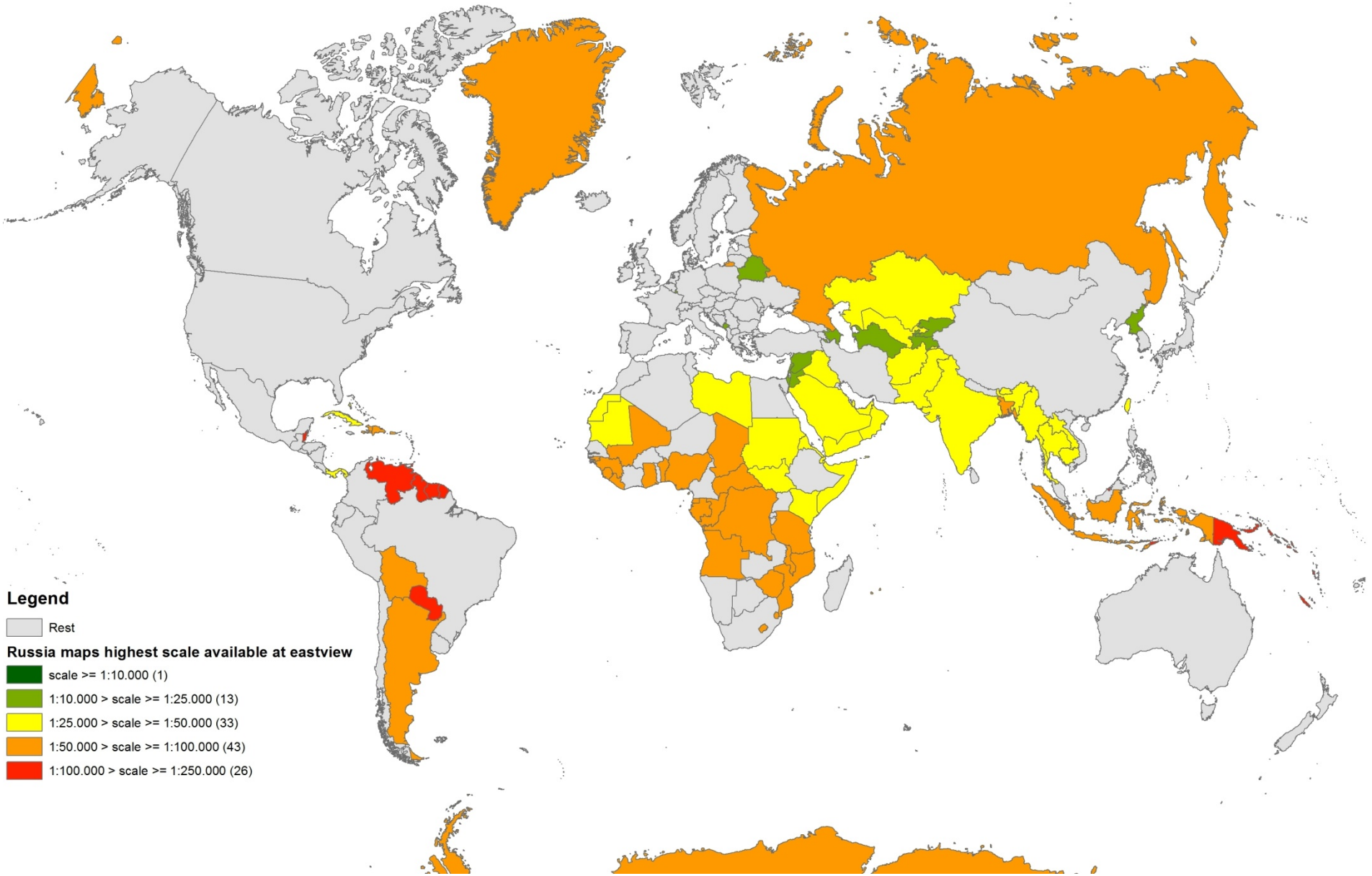
Scales of US produced Military Maps from Vendors

green 1:10 000, yellow 1:50 000, brown 1:100 000, red 1:250 000



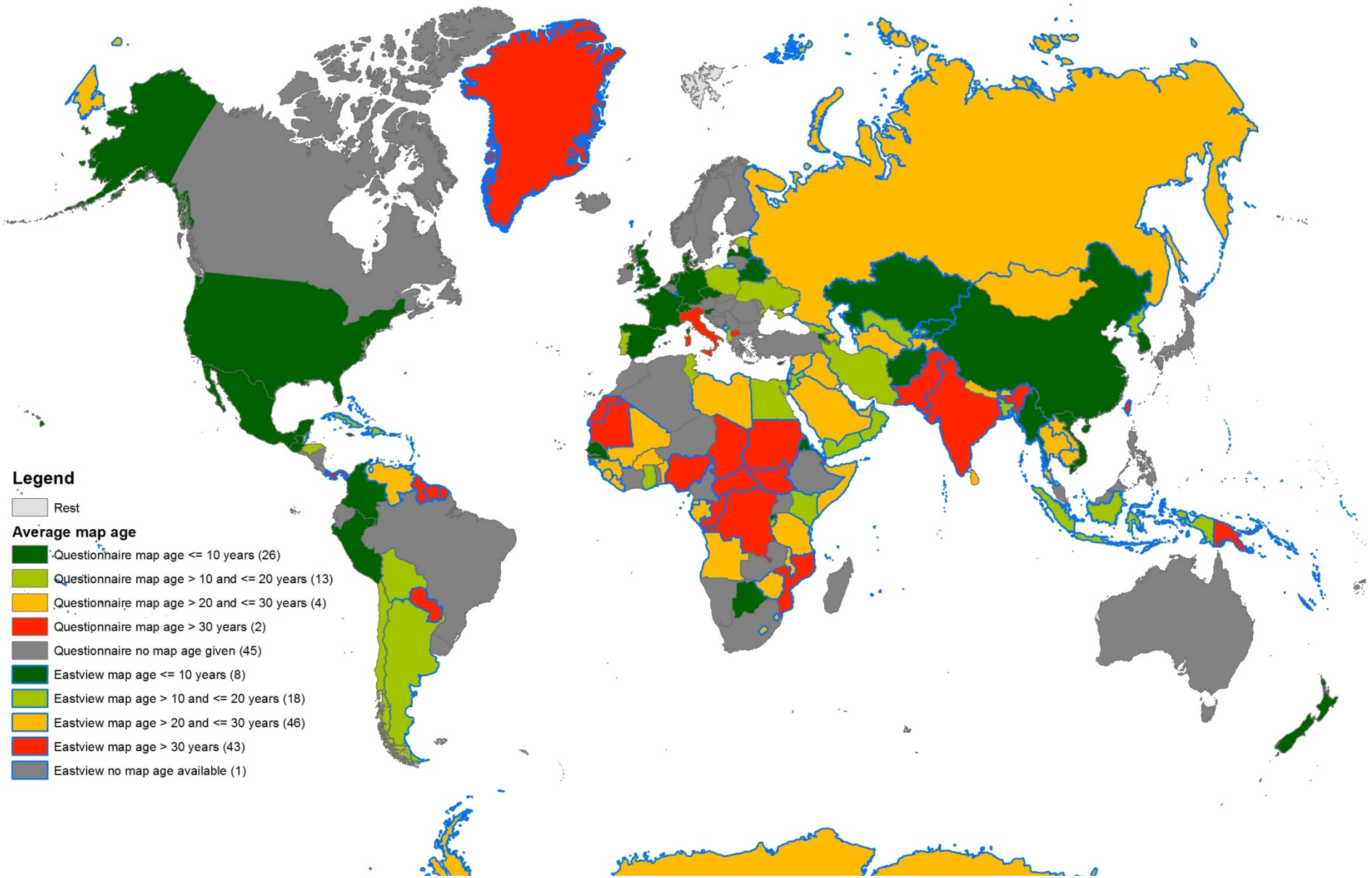
Scales of Russian Produced Military Maps from Vendors

green 1:25 000, yellow 1:50 000, brown 1:100 000, red 1:250 000



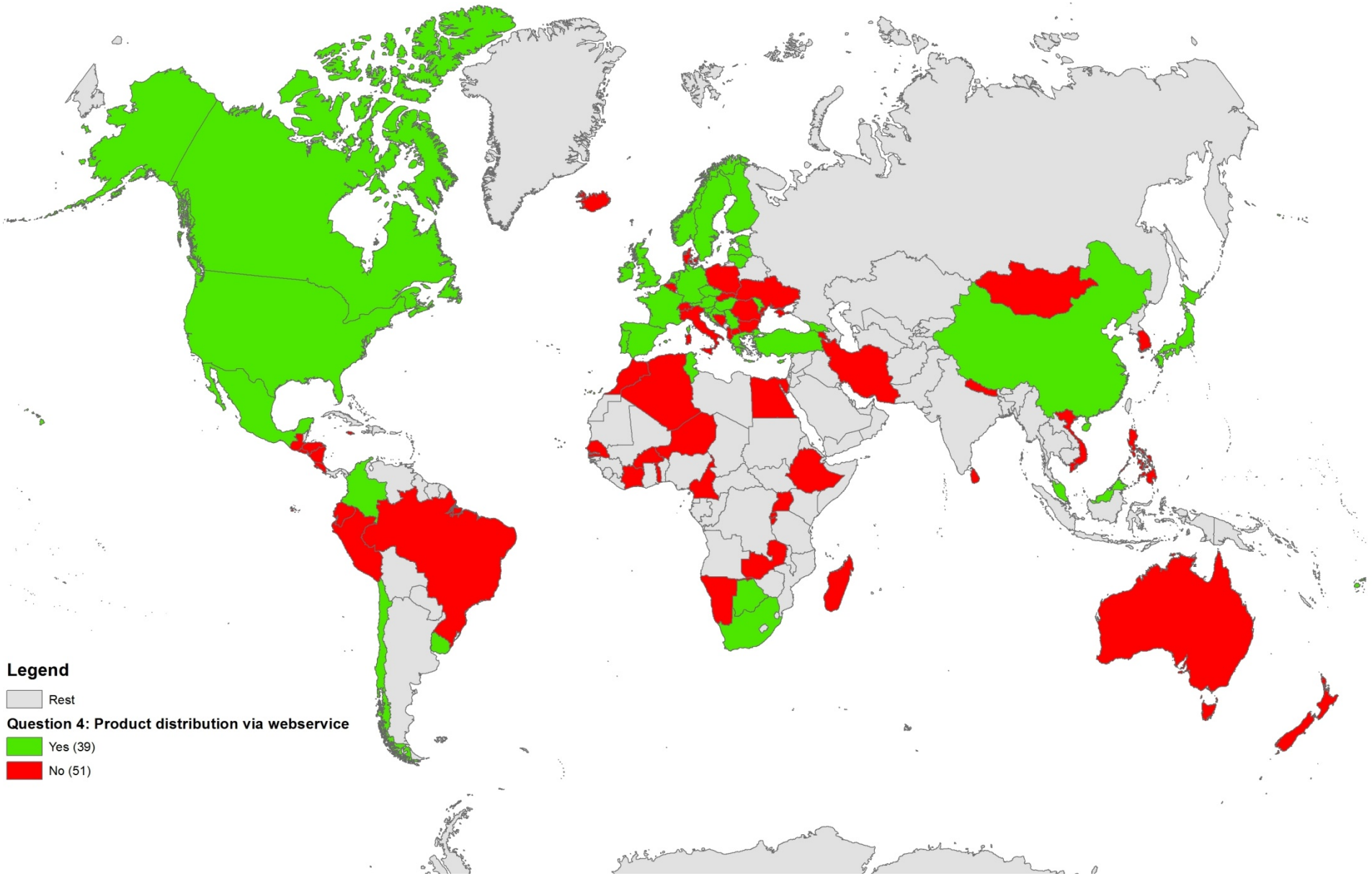
Question 2: Map age combined from Questionnaires and fromVendors

dark green <10 yrs, light green < 20yrs, orange < 30yrs, red > 30yrs, grey age not given



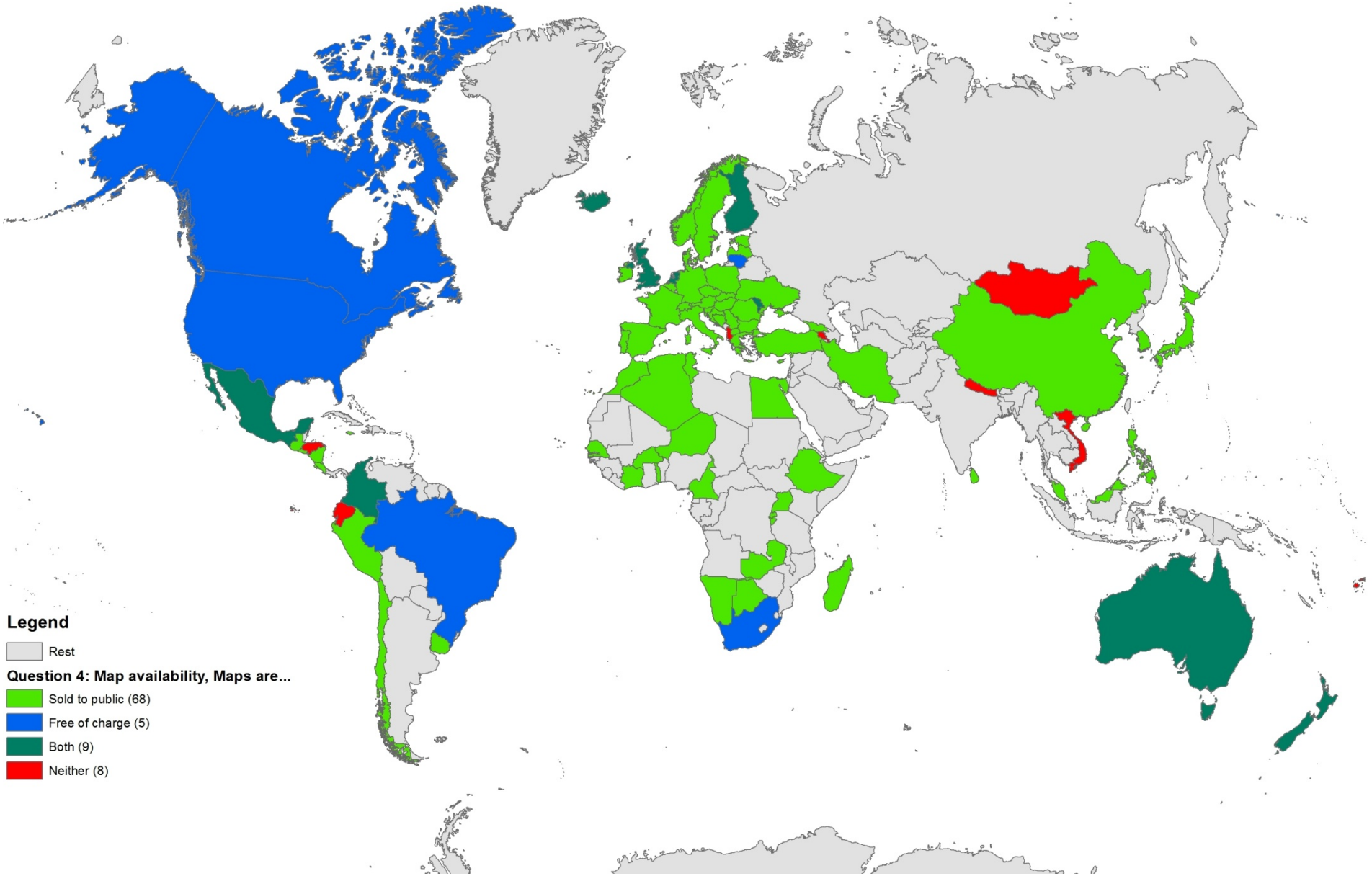
Question 4 : Web distribution of maps

green = yes ; red = no

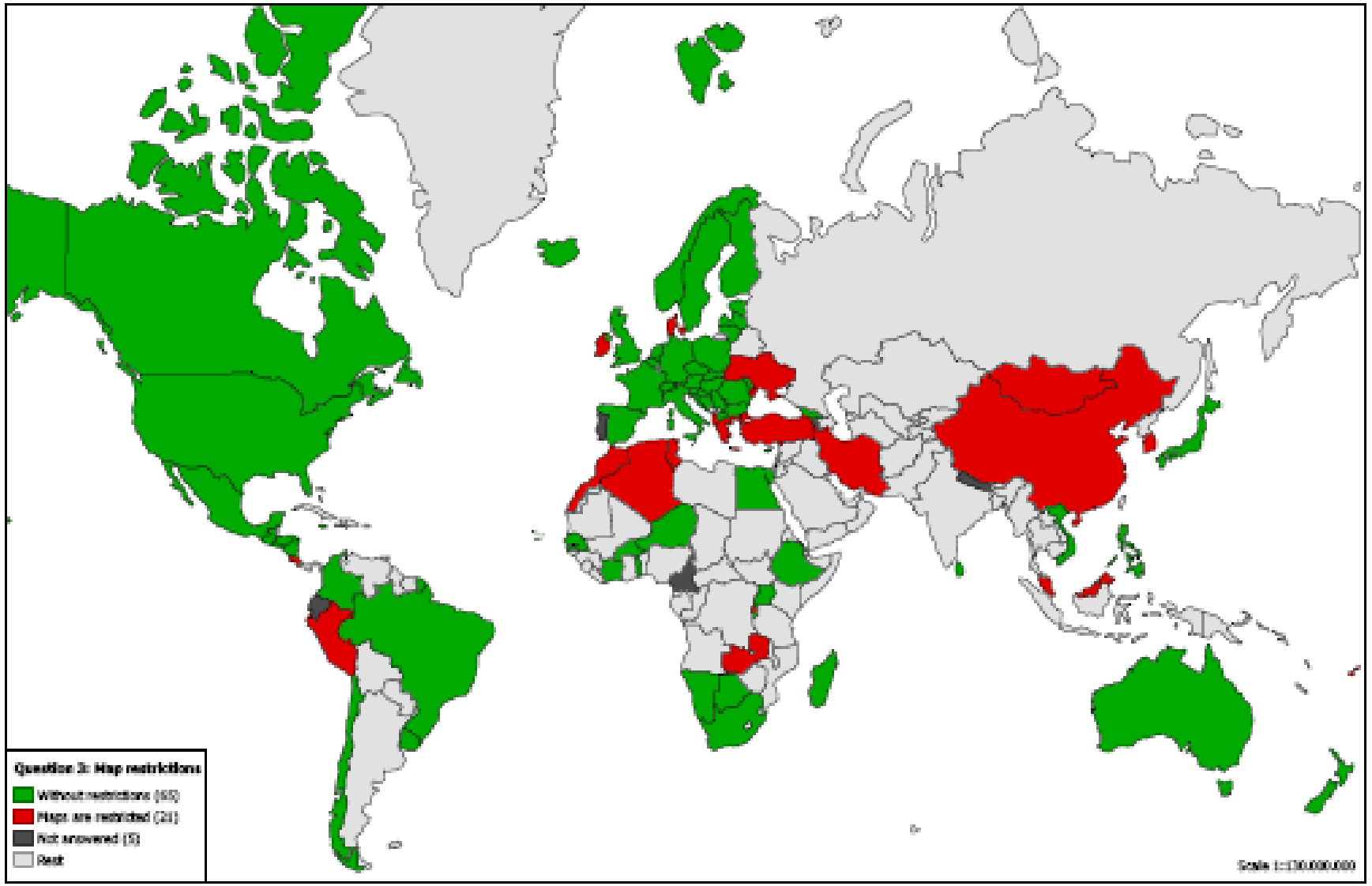


Question 4: Map Availability

blue = free of charge ; green = for sale

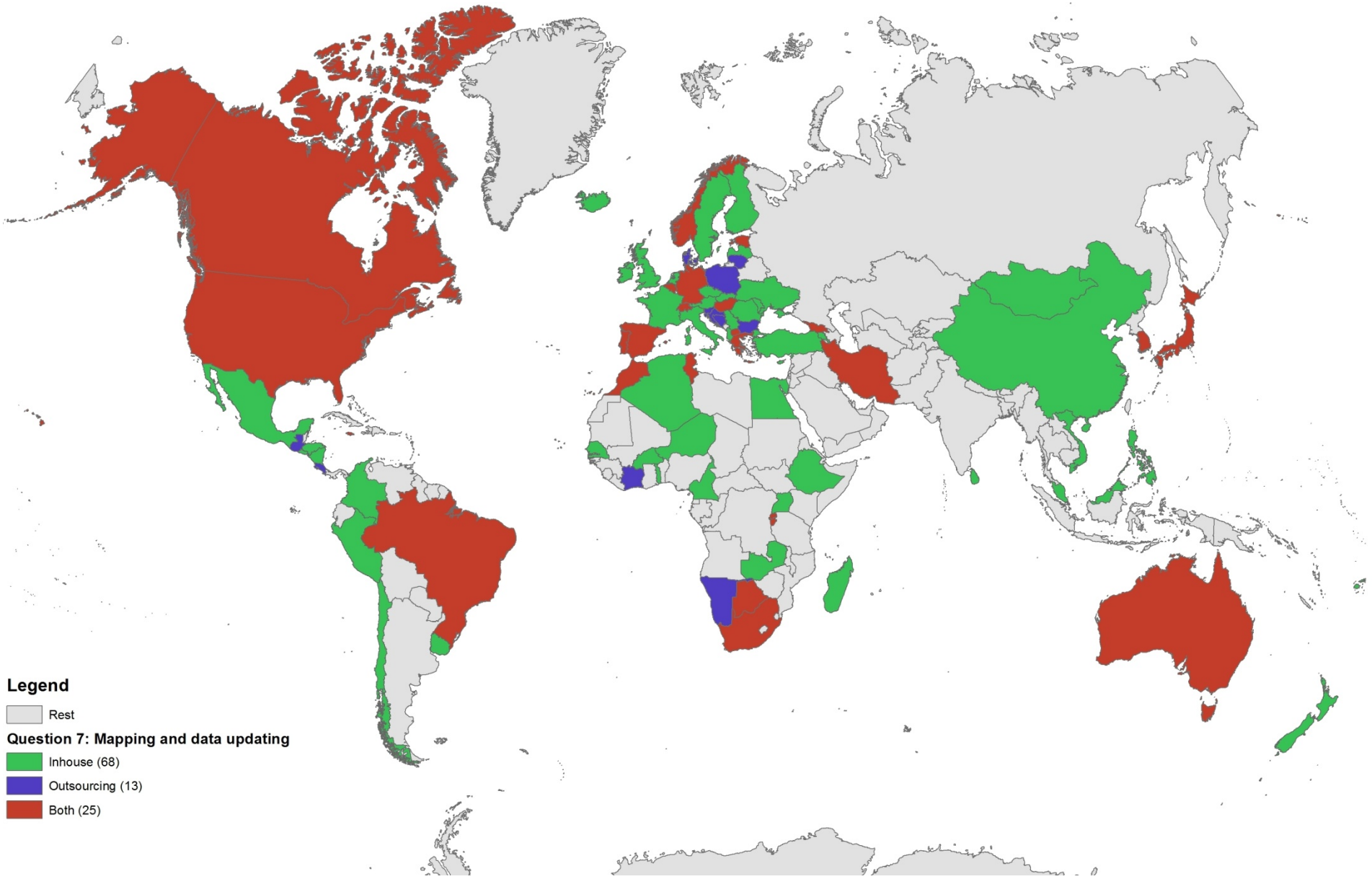


Map restrictions



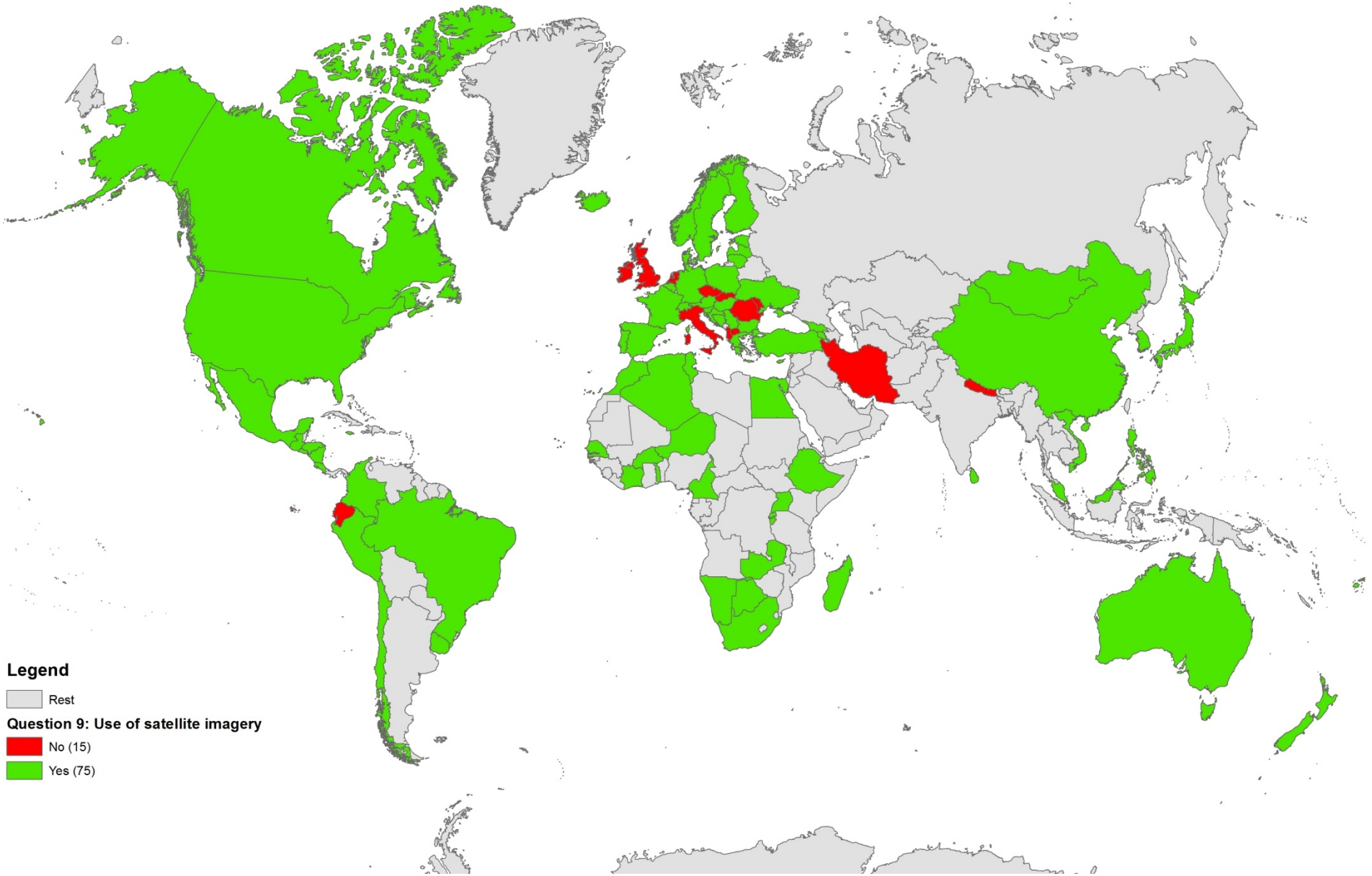
Question 7 : Inhouse or Outsourcing

green = inhouse, blue = outsourcing, brown = both

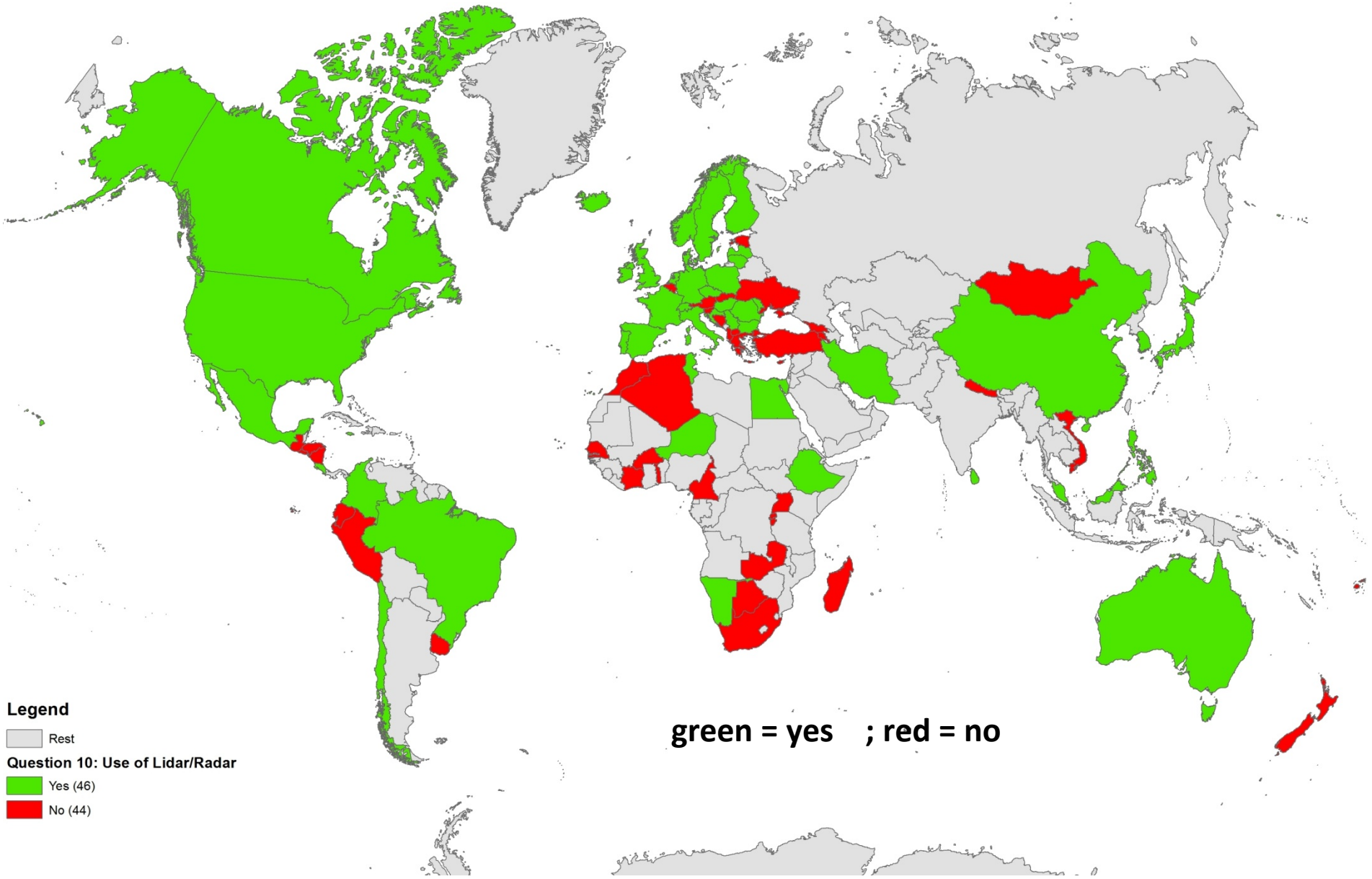


Question 9 : Use of Satellite Imagery for Mapping

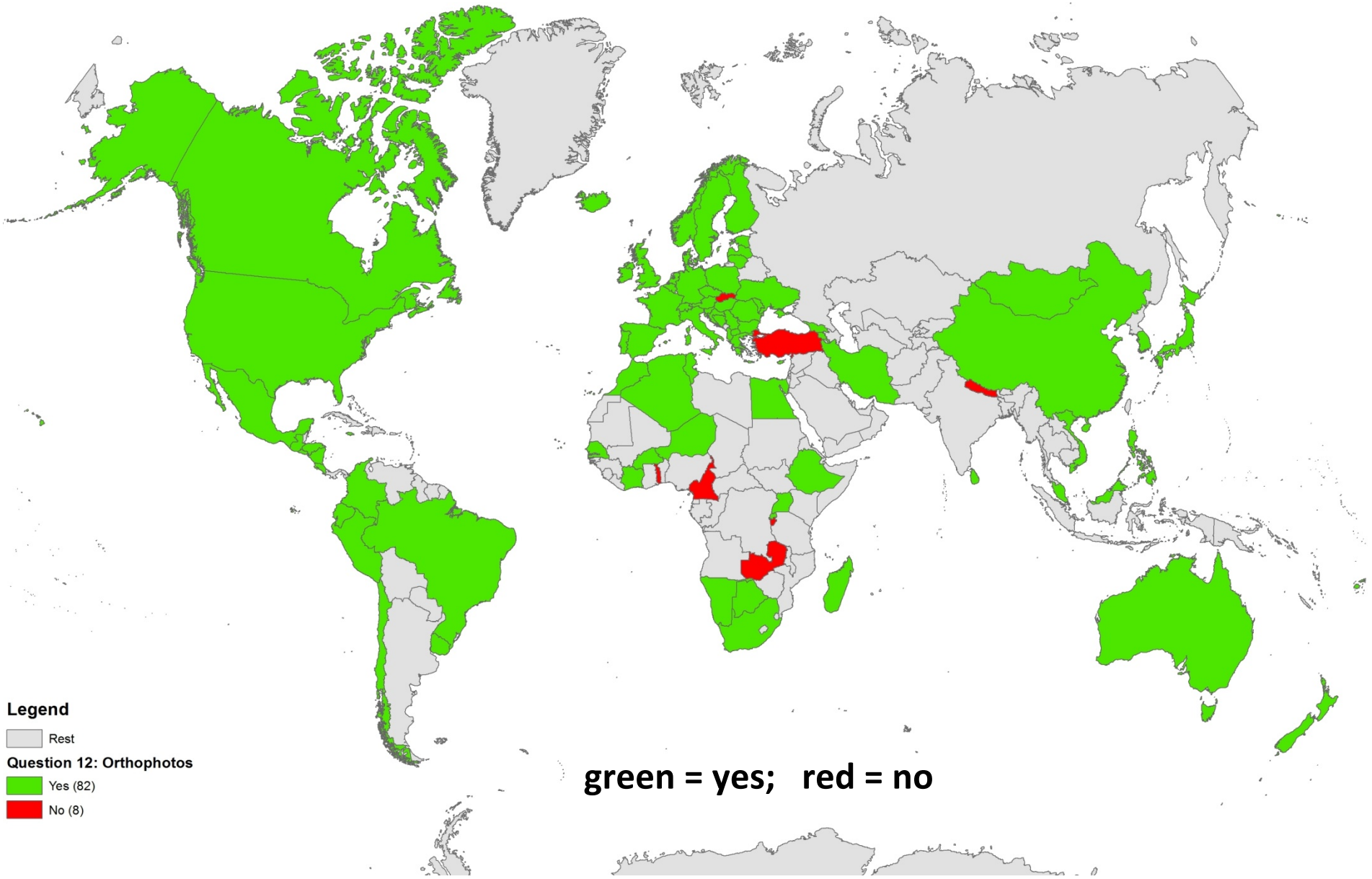
green = yes, red = no



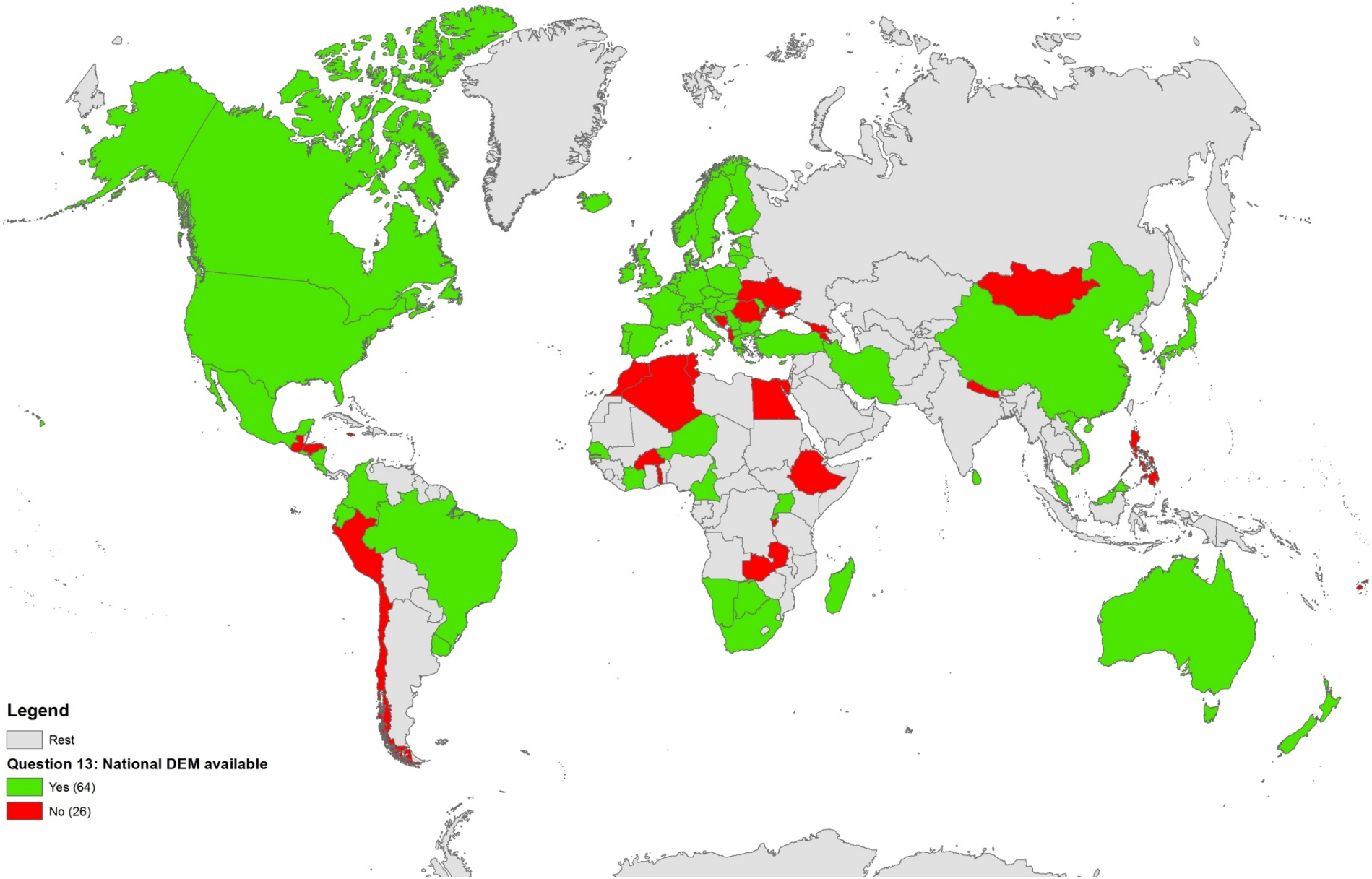
Question 10 : Use of Lidar or Radar



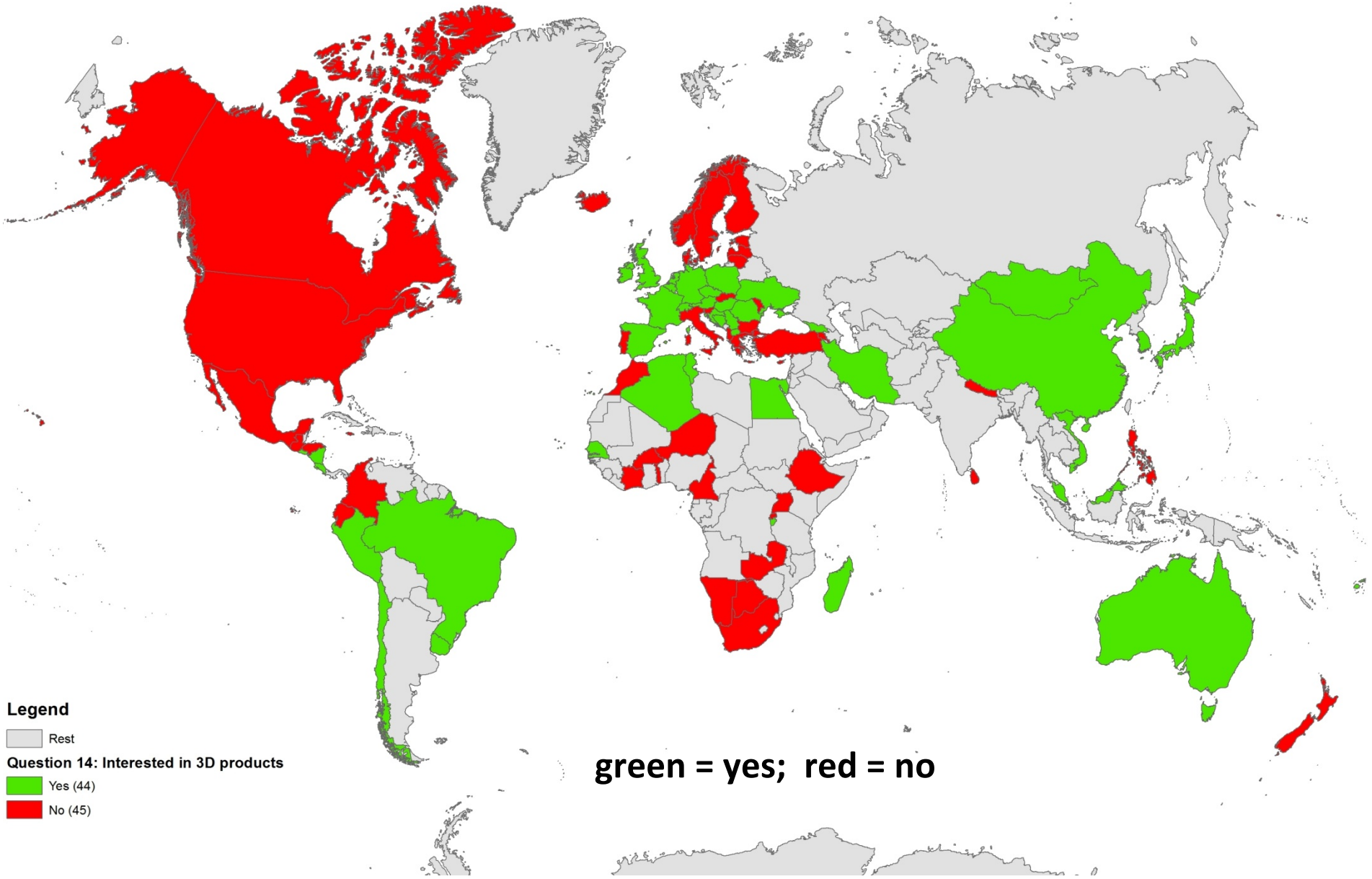
Question 12 : Orthophotos used in national mapping



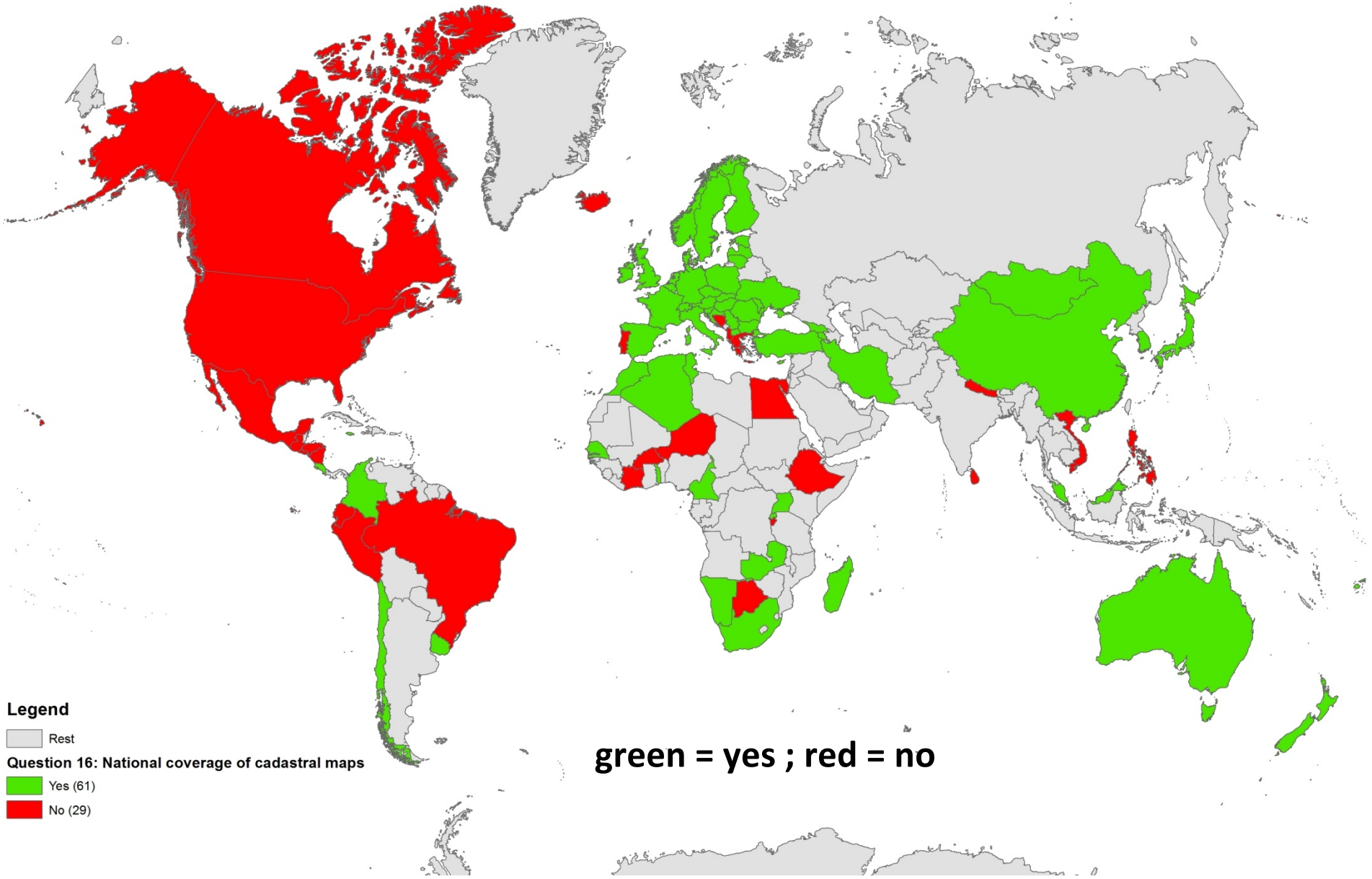
Question 13 : Existence of National Digital Elevation Model



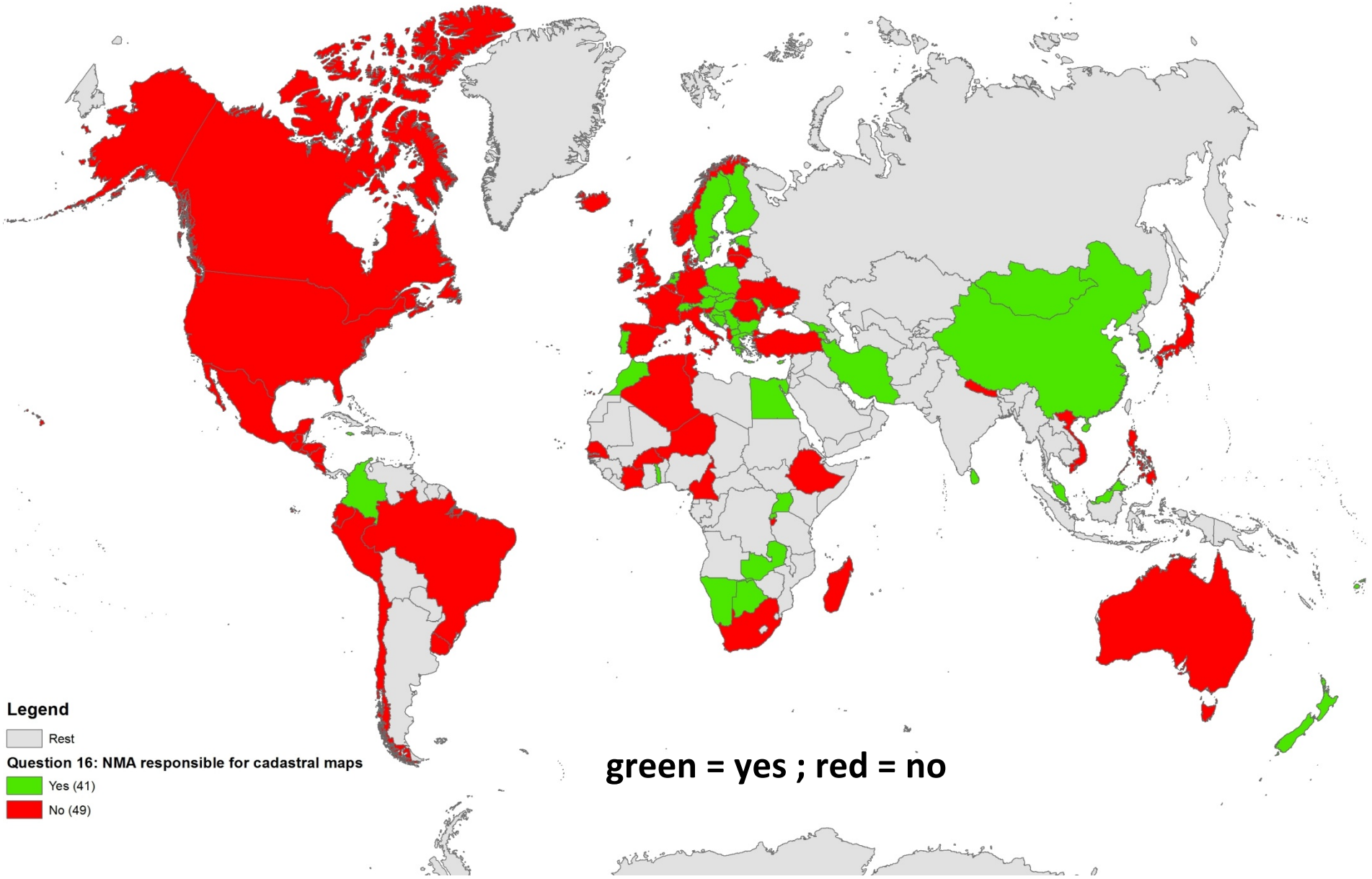
Question 14: NMA Interest in 3D Products



Question 16 : National Coverage of Cadastral Maps

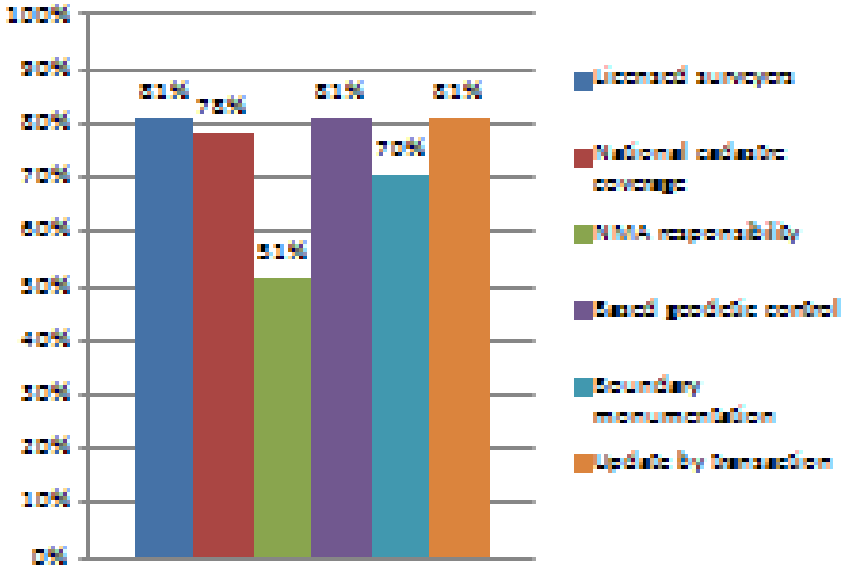


Question 16 : NMA responsibility for Cadastral Mapping



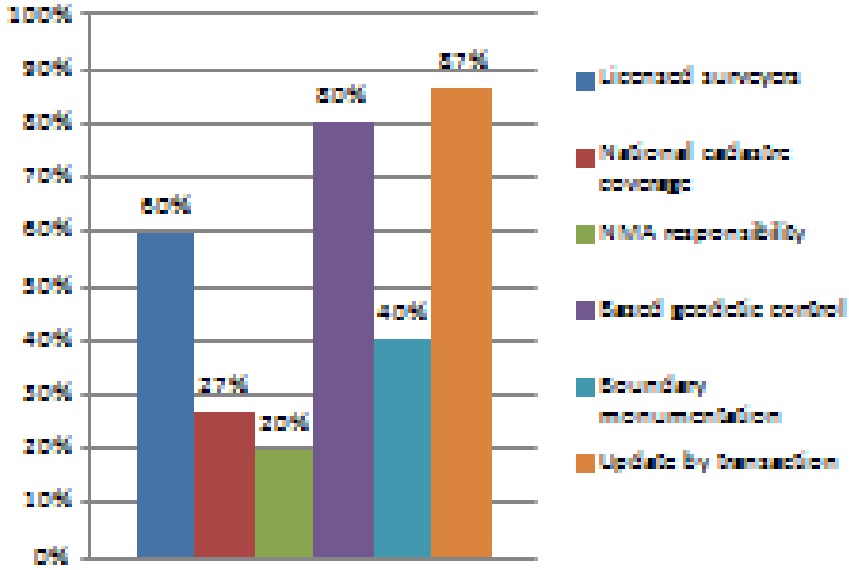
Europe: Property Cadastre

(37 Samples)

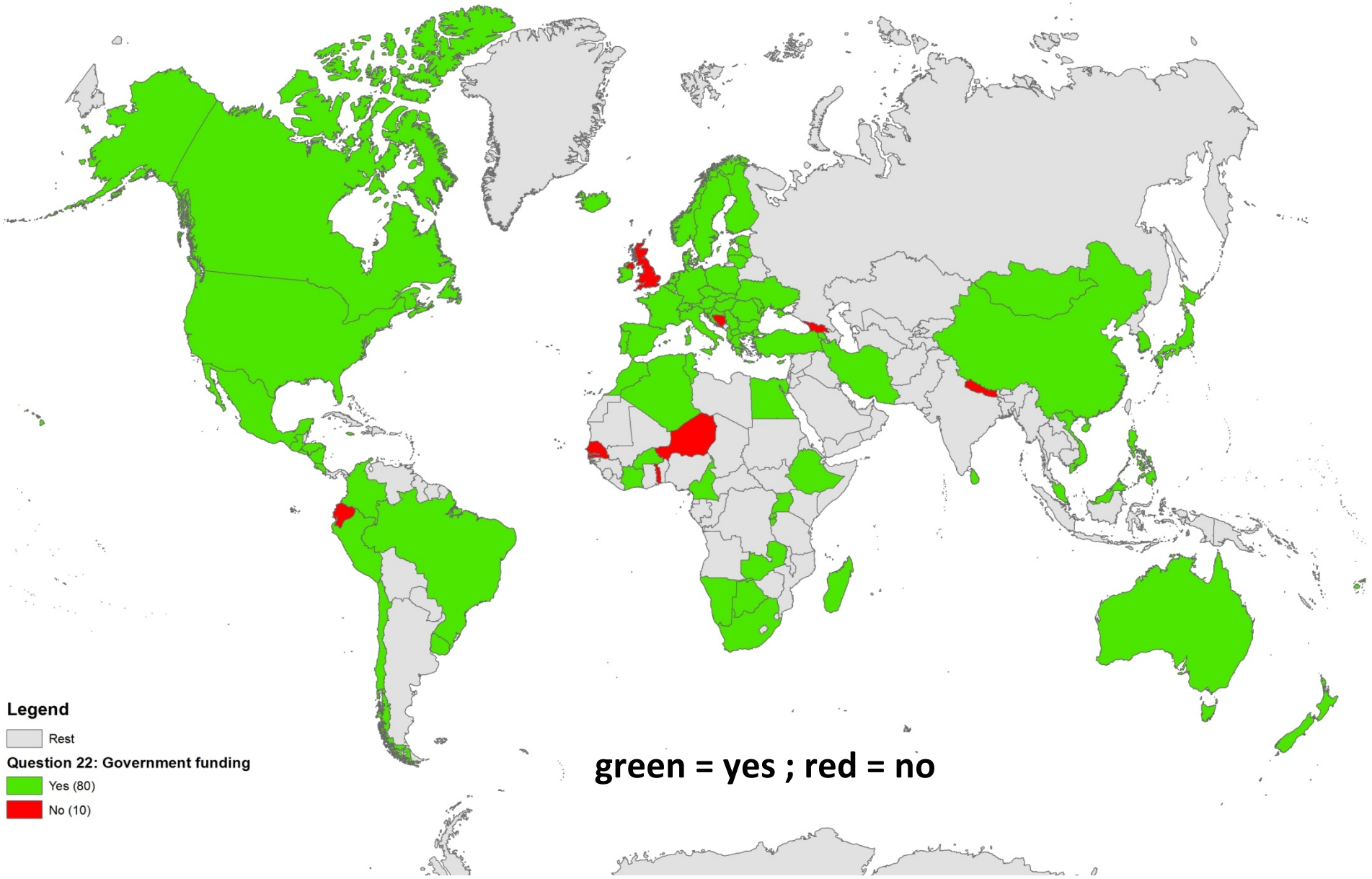


The Americas: Property Cadastre

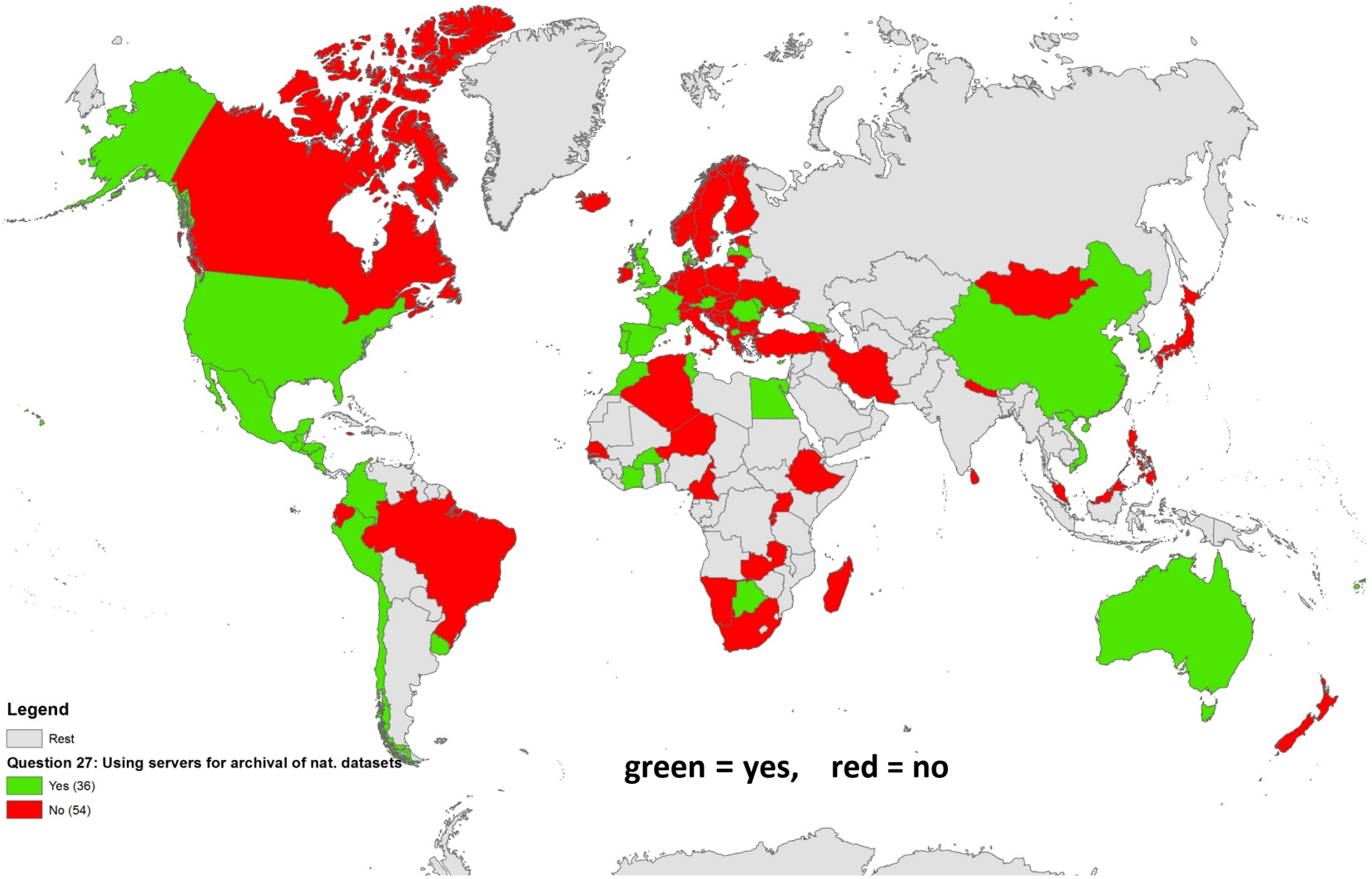
(15 Samples)



Question 22 : Government Funding of Mapping



Question 27 : Use of Servers for Archival of National Data Sets



4. Discussion:

4.1. how to still increase the number of returned questionnaires ?

Options: ISPRS-WG IV-2, regional approaches, discussions with map vendors

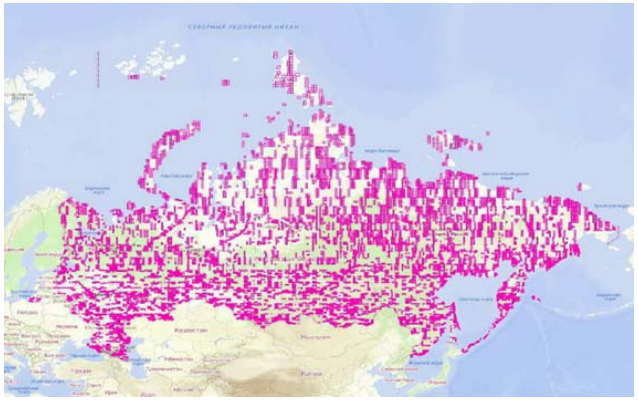
4.2. how to address the efforts of industry ?

Options: activity by GGIM or by ISPRS

4.2. Industrial Efforts (all data courtesy of Scanex, Russian Federation)

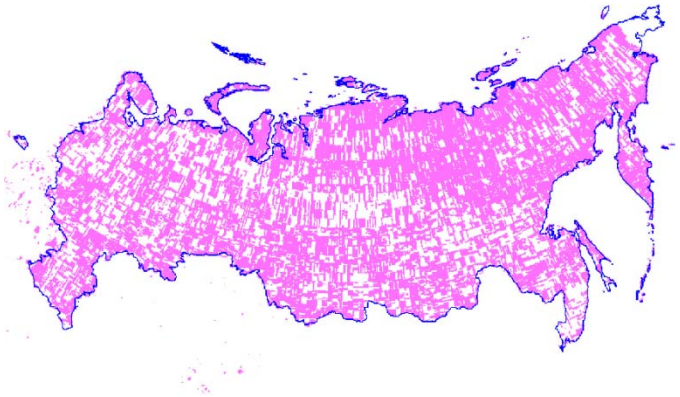
Satellite Image Providers

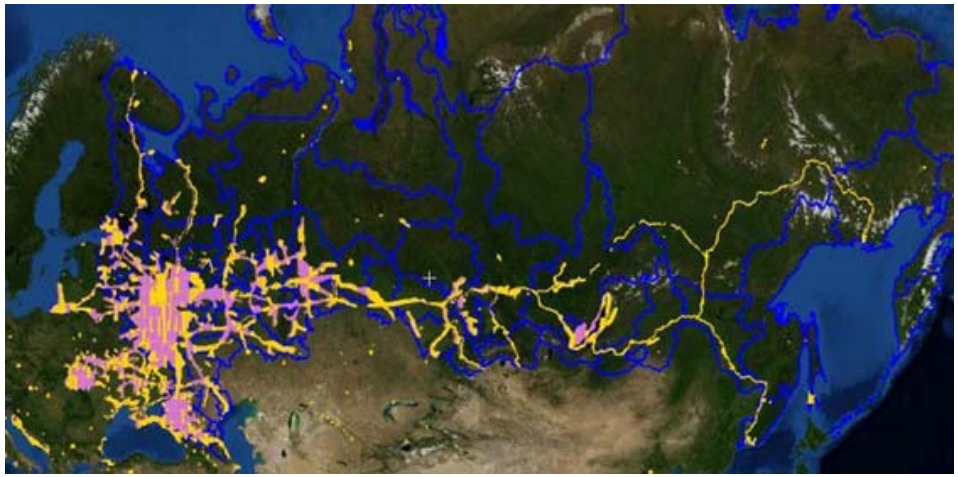
GeoEye1 GSD 50cm Satellite Imagery for the Russian Federation



coverage 2011 by Scanex for Rosreestr 17M km2

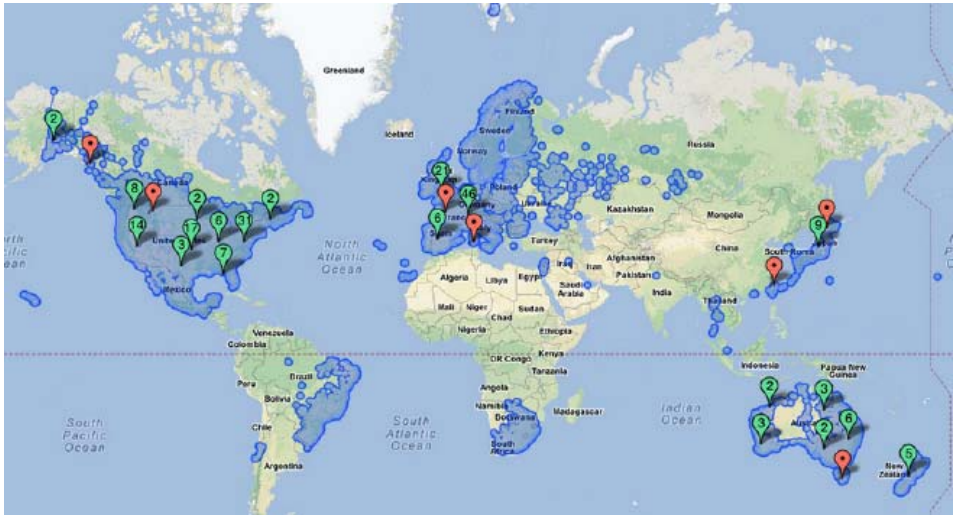
61% coverage by GeoEye1 & World View 2 by Scanex 2012





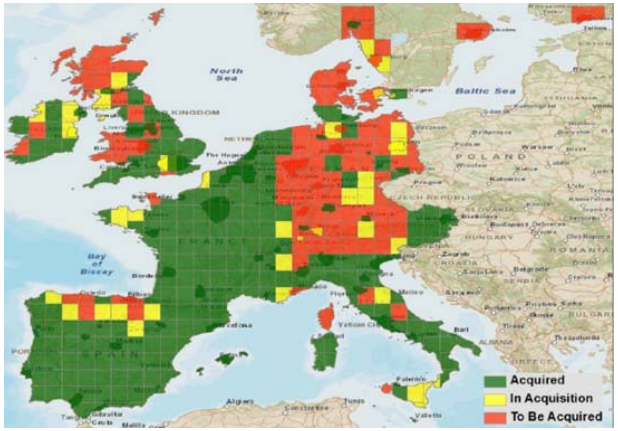
Ikonos 0.8m GSD coverage for Scanex and Yandex in 2011

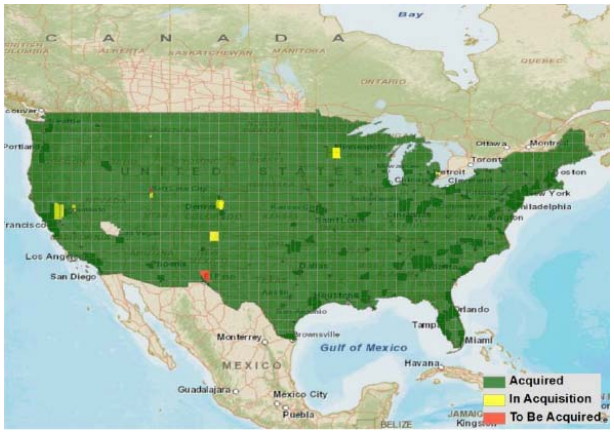
Google Earth, Google Maps, Google Streetmap, Google Ground Truth



4.2. Industrial Efforts

Microsoft Bingmaps GSD 30cm

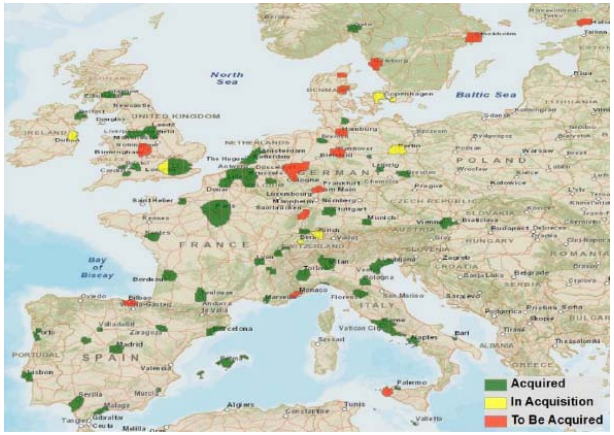




Google Earth and Google Maps

Ultracam Imagery 2012

Microsoft Bingmaps GSD 15cm



aerial imagery locally bought or from satellite imagery providers

Navteq

Global Coverage Statistics

China
% Population Covered
93.78%
% Address Ranges
-
Kms Covered
2,540,000
Points of Interest
4,930,000
Traffic Information (Yes/No)
-

Global Coverage Statistics

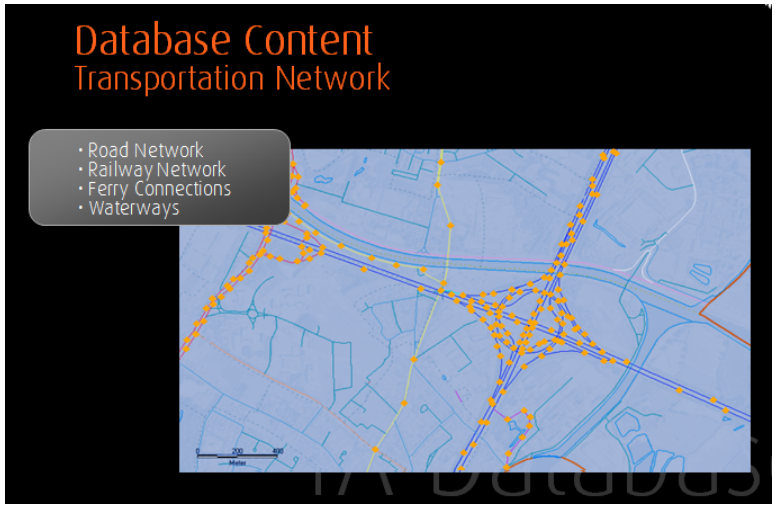
India Q3/11
% Population Covered
100%
% Address Ranges
-
Kms Covered
1,190,623
Points of Interest
2,130,409
Traffic Information (Yes/No)
No

Global Coverage Statistics

Russia Q3/11
% Population Covered
71%
% Address Ranges
53%
Kms Covered
2,177,103
Points of Interest
414,609
Traffic Information (Yes/No)
Yes

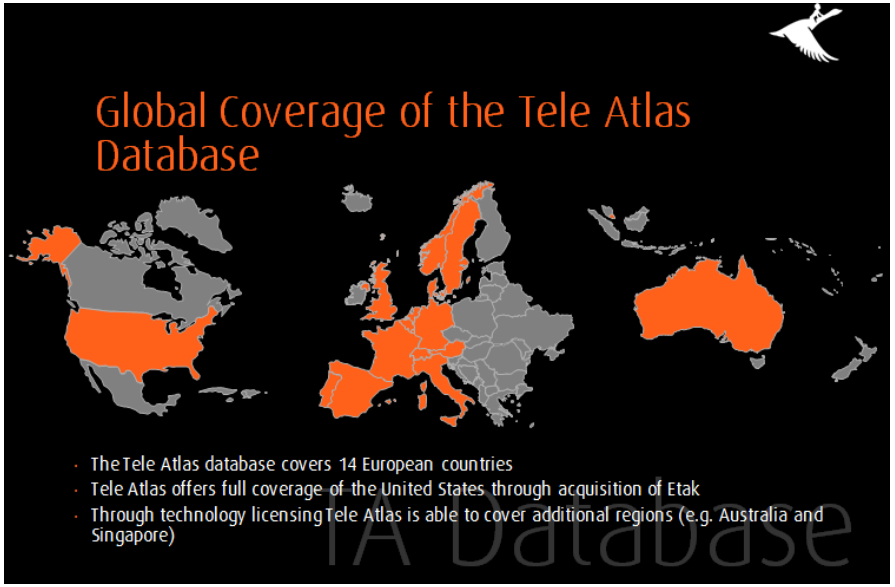
Global Coverage Statistics

Brazil Q3/11
% Population Covered
86%
% Address Ranges
86%
Kms Covered
1,160,077
Points of Interest
259,672
Traffic Information (Yes/No)
Yes


Database Content
Transportation Network
• Road Network
• Railway Network
• Ferry Connections
• Waterways


E.g.
• Complex Intersections
• Signpost Information
• Manoeuvre Relationships
• TMC Codes
2
Berlin
Hannover

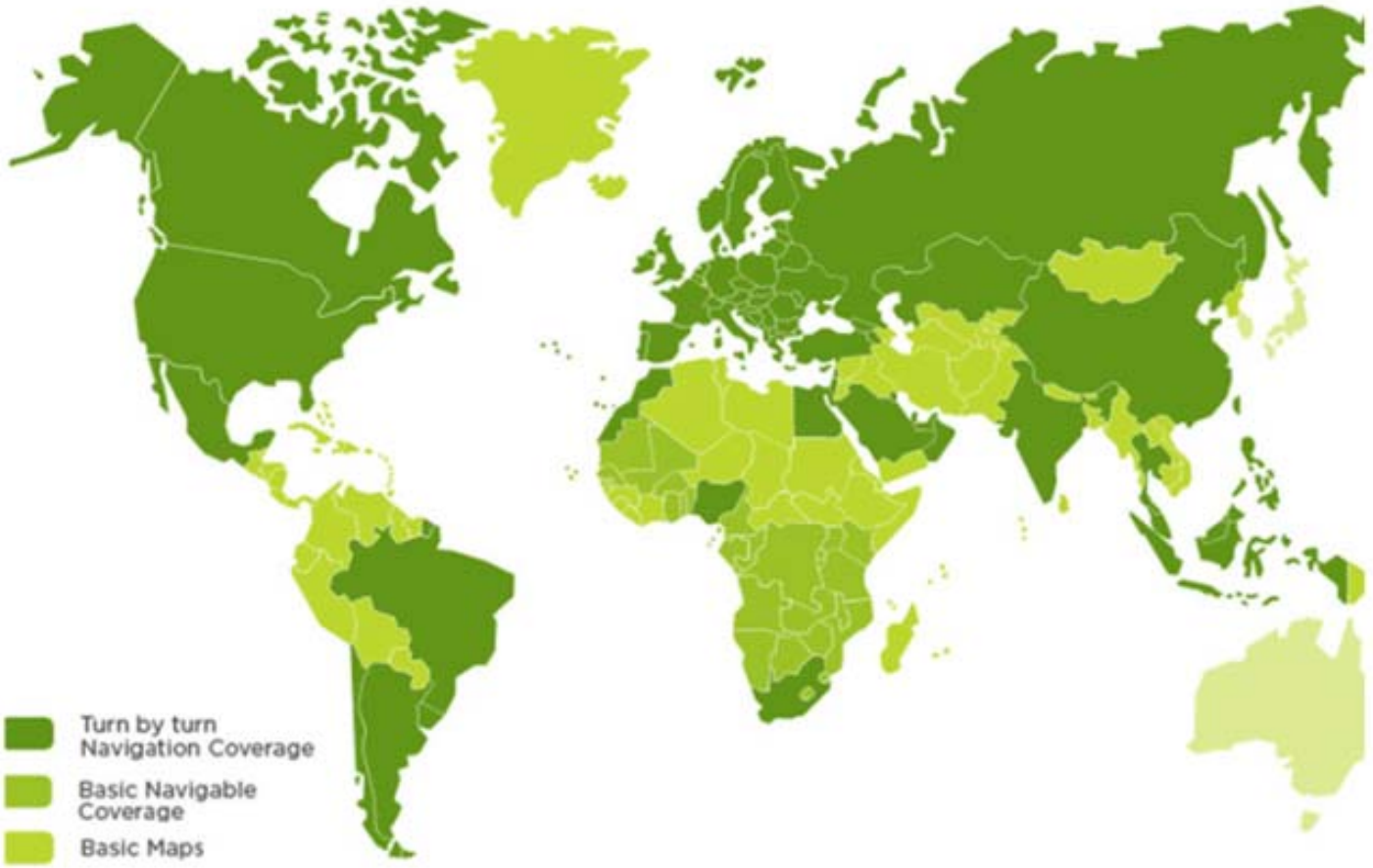

E.g.
• Street Names
• Road Classification
• House Number Information
• Direction of Traffic Flow
Goethe Allee


Global Coverage of the Tele Atlas Database
• The Tele Atlas database covers 14 European countries
• Tele Atlas offers full coverage of the United States through acquisition of Etak
• Through technology licensing Tele Atlas is able to cover additional regions (e.g. Australia and Singapore)

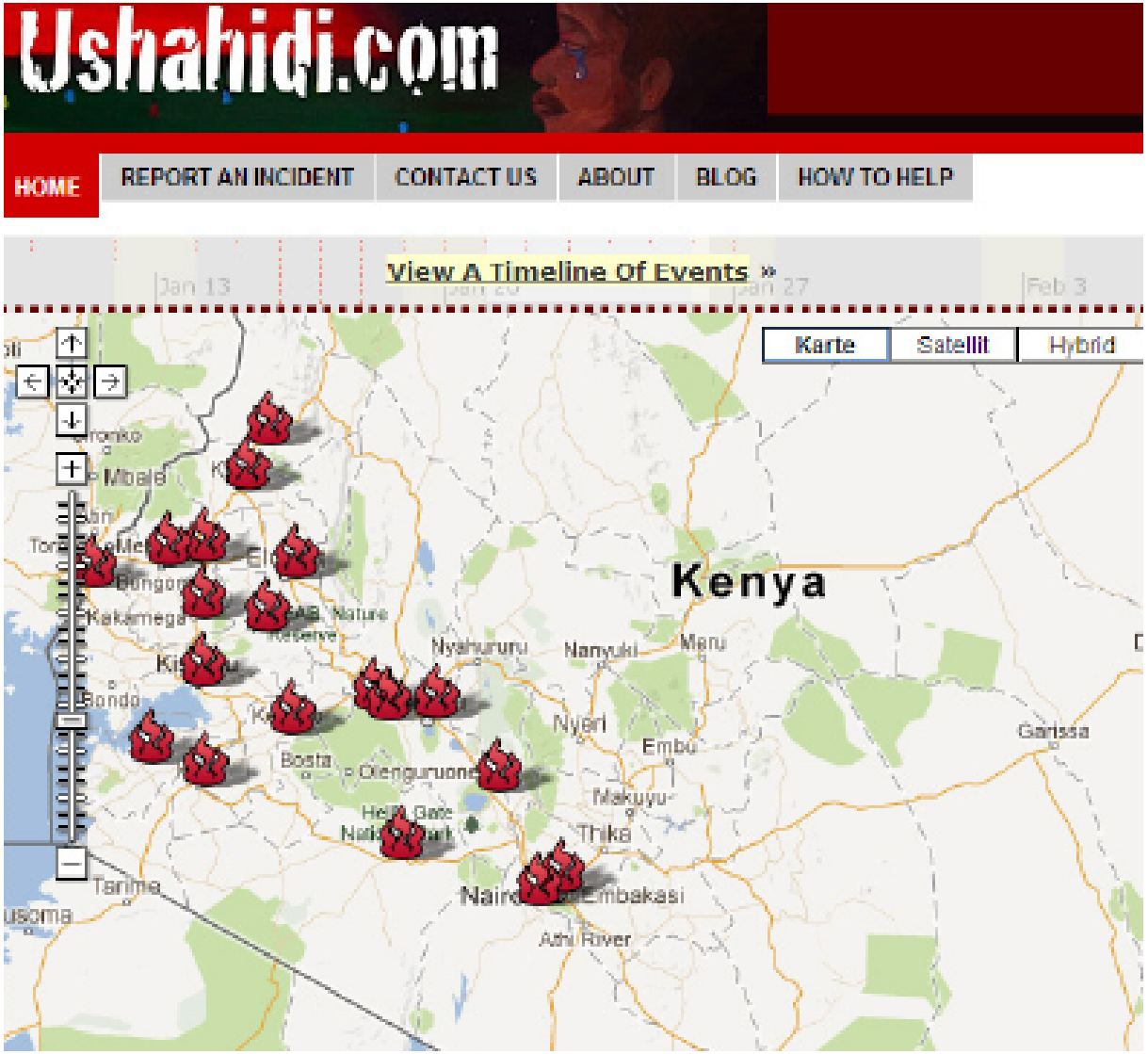

E.g.
• Airports
• Petrol Stations
• Parking Areas
• Hotel or Motel
• Rent-A-Car
• Post Offices
• Railway Stations
• Car Dealer
DAIMLERCHRYSLER
Avis
Aral
Europcar
DB

Tele Atlas

TomTom Road Navigation Coverage



Crowd Sourcing in emergency situations



Conclusion:

1. UN-GGIM needs to have the requested information

2. The member countries can help to provide and improve it

3. ISPRS will try its best to obtain it in sustainable cooperation with the help of the member countries and the UN-GGIM Secretariat

4. it can invite industry to supplement missing governmental information

5. it hopes to make the information status sustainable despite of legal, political and human obstacles

the next opportunity to do this?

1. Through the Knowledge Base of the UNGGIM Website, where questionnaire forms in English, Spanish and French are still available, and which would be an asset to the effort by the UN Member States

2. ISPRS WG Meeting at Scanex Conference in Moscow, October 1-3, 2013 concentrating on imagery

3. The ISPRS Commission IV Symposium 2014 in Suzhou, May 14-16, 2014