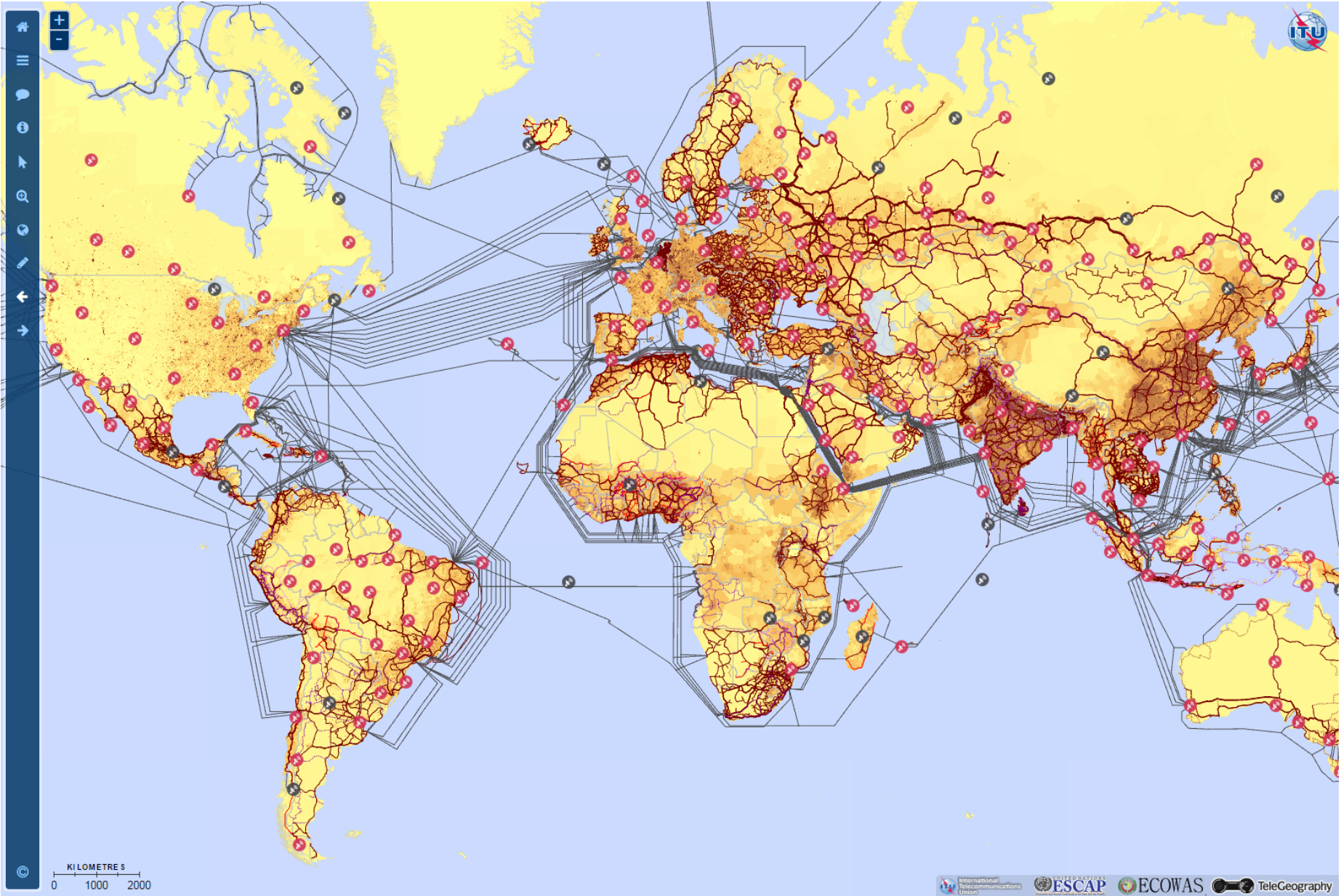


ITU Interactive Transmission Maps

User Guide

September 2017

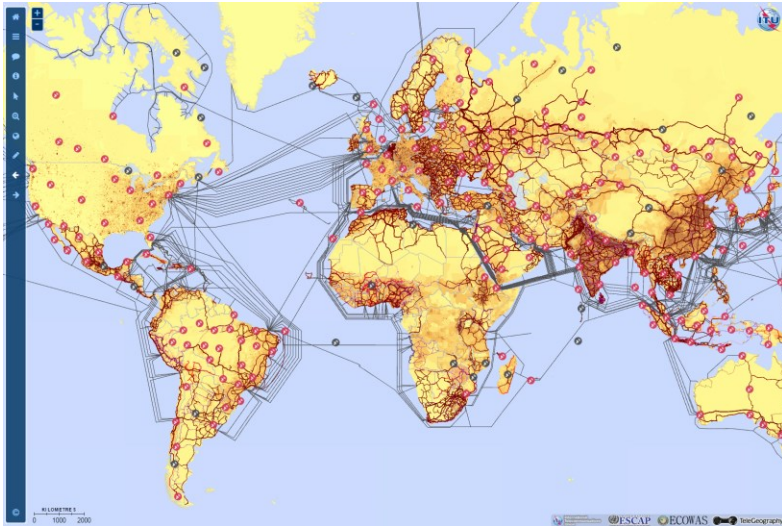
ITU Interactive Transmission Maps



Topics covered

- Introduction
- Statistics
- Layers
- Validation Framework
- Indicators

Introduction



1) Purpose: To quantify supply-side indicators for the reach of broadband networks.

2) Research: Desk research, primary research in conjunction with ITU Regional Offices, and working with partner organisations.

3) Validation: The map is validated by network operators and administrations through the ITU Regional Offices and recorded in the Validation Framework.

4) Outputs: Broadband Capacity Indicators.

Broadband Transmission Capacity Indicators

Underneath the map is a database, containing records of each individual link. The following indicators are either compiled or calculated from this database:

Indicator 1: **Transmission network length (Route kilometres)**

Indicator 2: **Node locations**

Indicator 3: **Equipment type of terrestrial transmission network**

Indicator 4: **Network capacity (bit rate)**

Indicator 5: **Number of optical fibres within the cable**

Indicator 6: **Operational status of the transmission network**

Indicator 7a: **Percentage of population within reach of transmission networks**

Indicator 7b: **Percentage of area within reach of transmission networks**

Map Statistics

Home

Welcome to the ITU Interactive Transmission Map. Select from map layers below and navigate using the icons in the toolbar below.

For help using this application please refer to the Sources & Help section.

Alternatively, visit the [Public 2D version](#) of the Map or the public [Google Earth - 3D version](#)

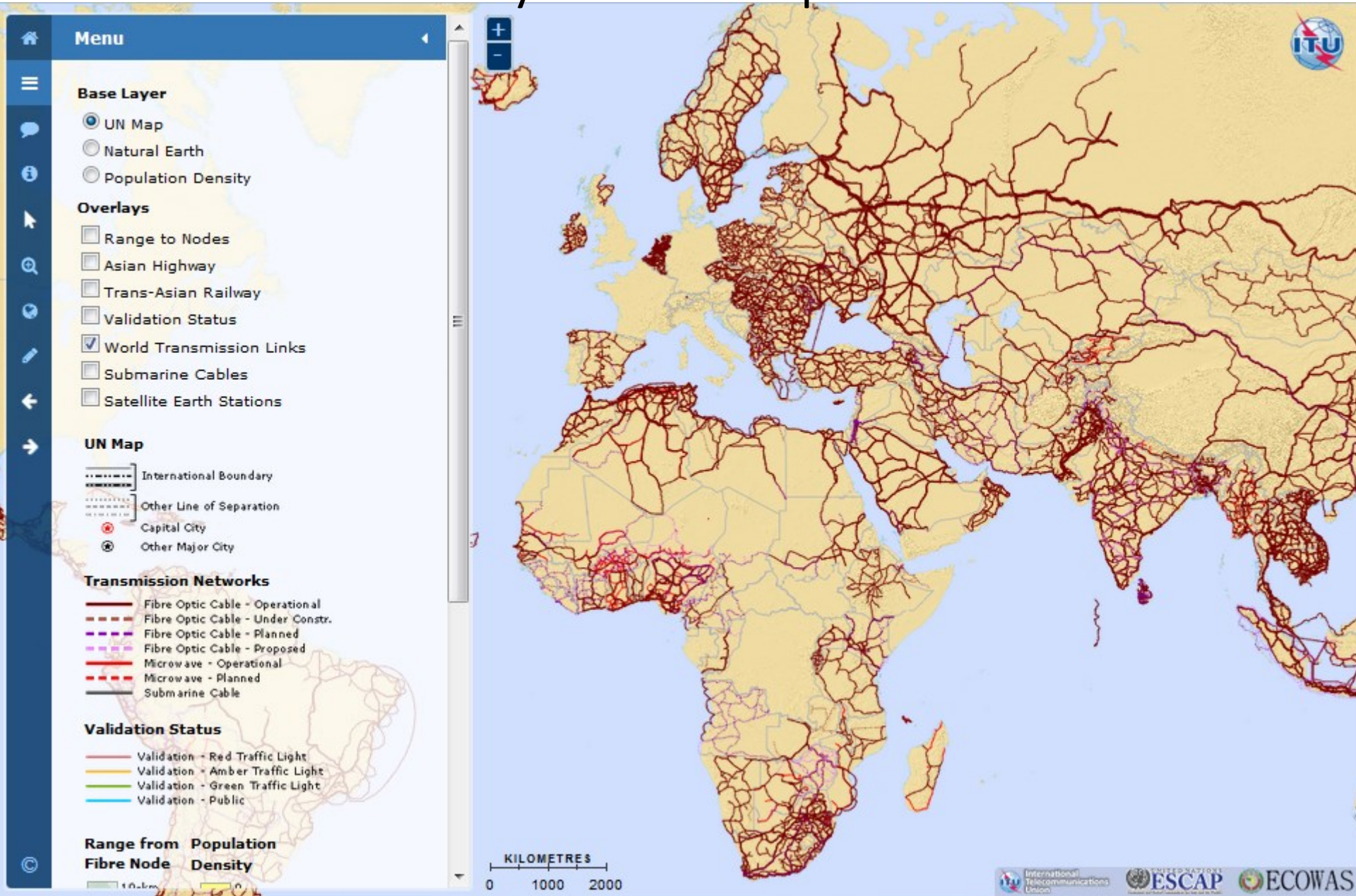
Last updated: March 2016

Region	AFR	ARB	ASP
Route kms drawn	271,418	173,090	627,201
Route kms total	333,412	306,411	4,340,504
Transmission links	3,633	1,260	6,101
Nodes	2,657	730	4,236
Network operators	63	38	74
Validity: Public	58	34	73
Validity: Green	4	3	-
Validity: Amber	1	-	1
Validity: Red	-	1	-
Popn within 10km	177,751,607	78,013,796	670,379,758
Popn within 25km	366,538,475	182,483,303	1,595,113,113
Popn within 50km	554,683,172	262,576,476	2,858,034,321

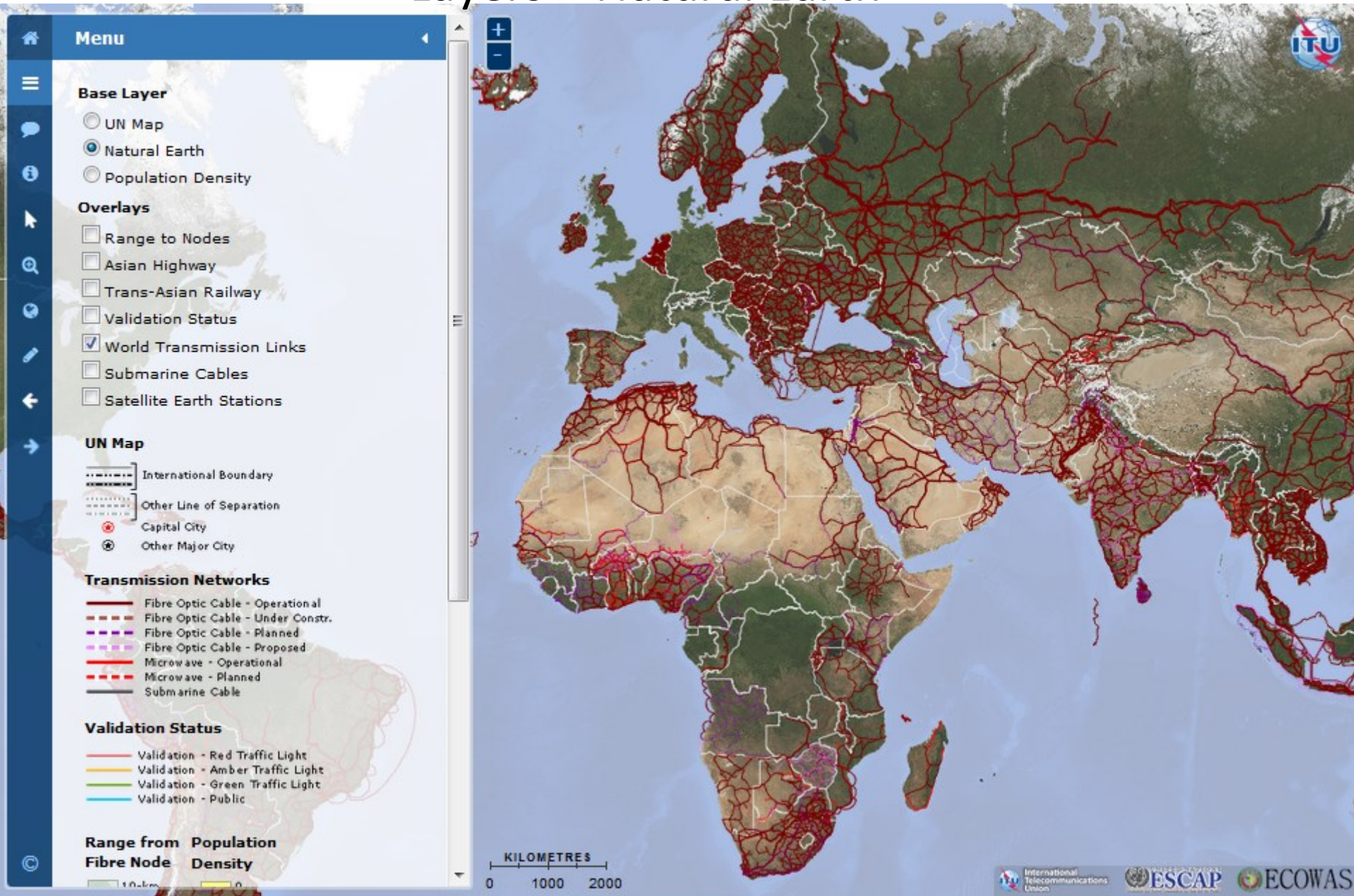
Region	CIS	EUR	LAC
Route kms drawn	330,839	284,279	315,172
Route kms total	969,485	1,964,889	921,701
Transmission links	2,097	3,895	3,448
Nodes	1,148	2,773	2,504
Network operators	35	59	63
Validity: Public	31	52	63
Validity: Green	-	6	-
Validity: Amber	2	1	-
Validity: Red	2	-	-
Popn within 10km	97,511,521	137,289,219	196,645,355
Popn within 25km	183,800,926	223,584,719	397,598,859
Popn within 50km	231,988,809	268,061,936	498,003,862

KILOMETRES
0 1000 2000

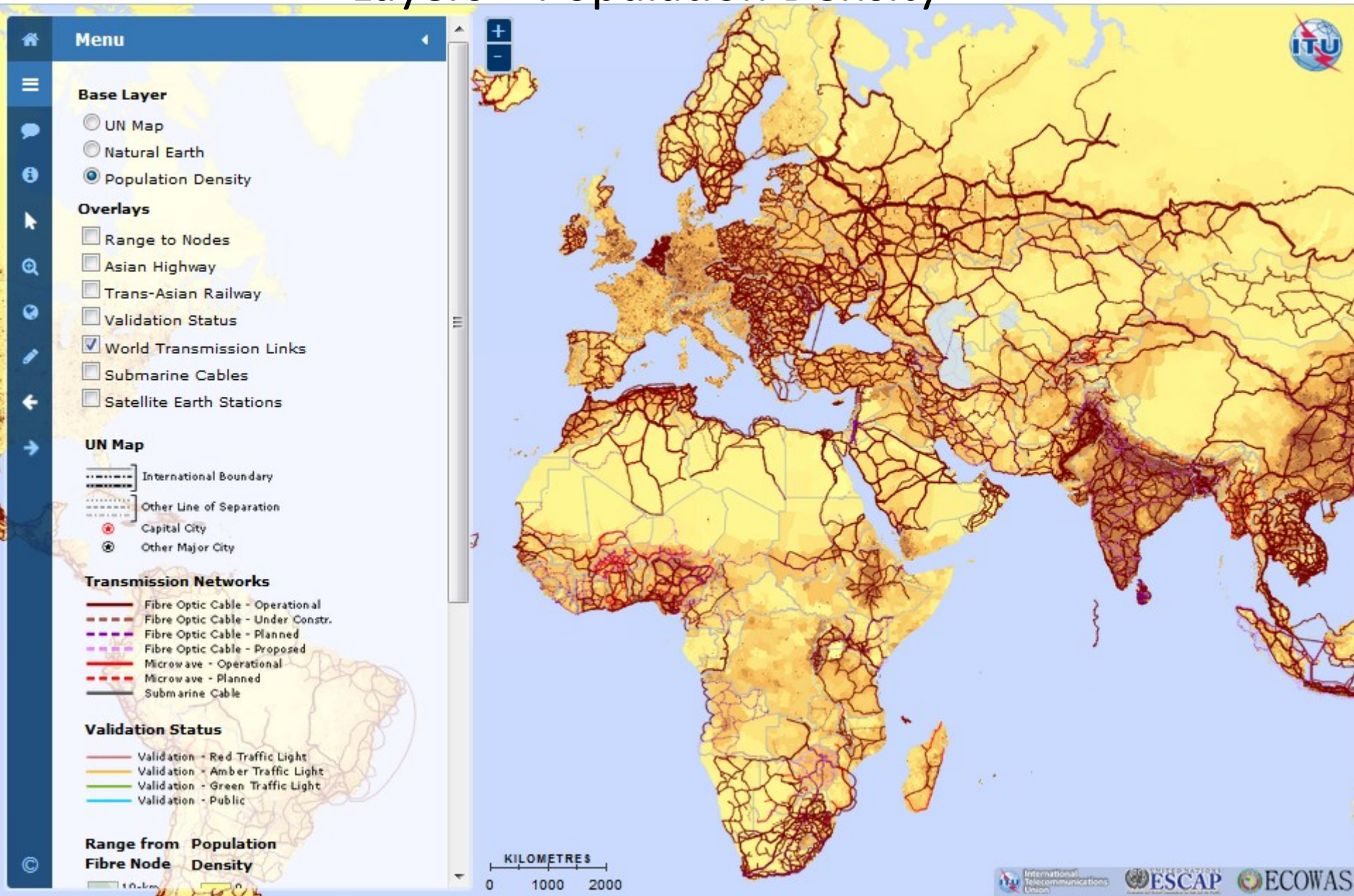
Layers – UN Map



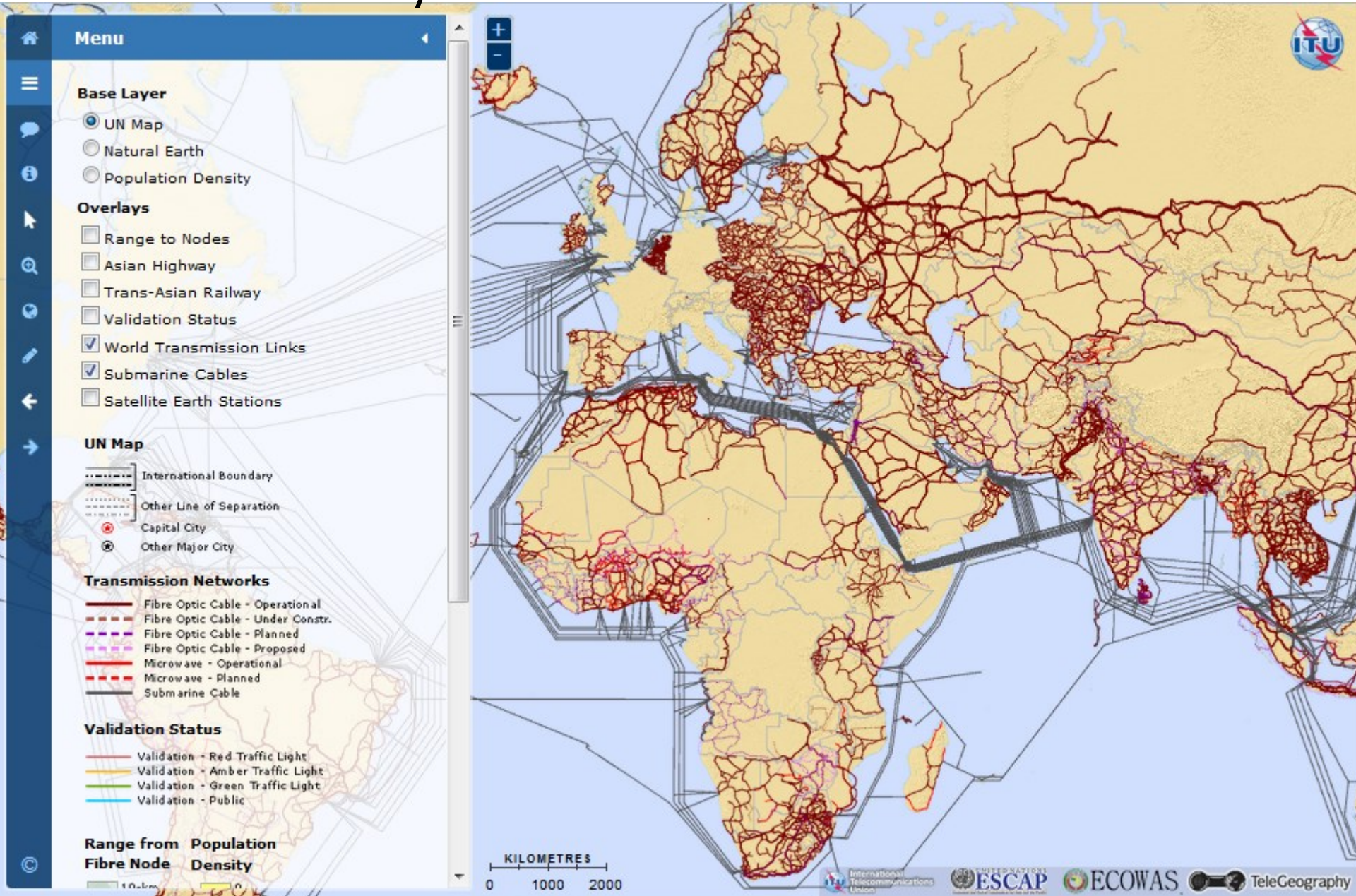
Layers – Natural Earth



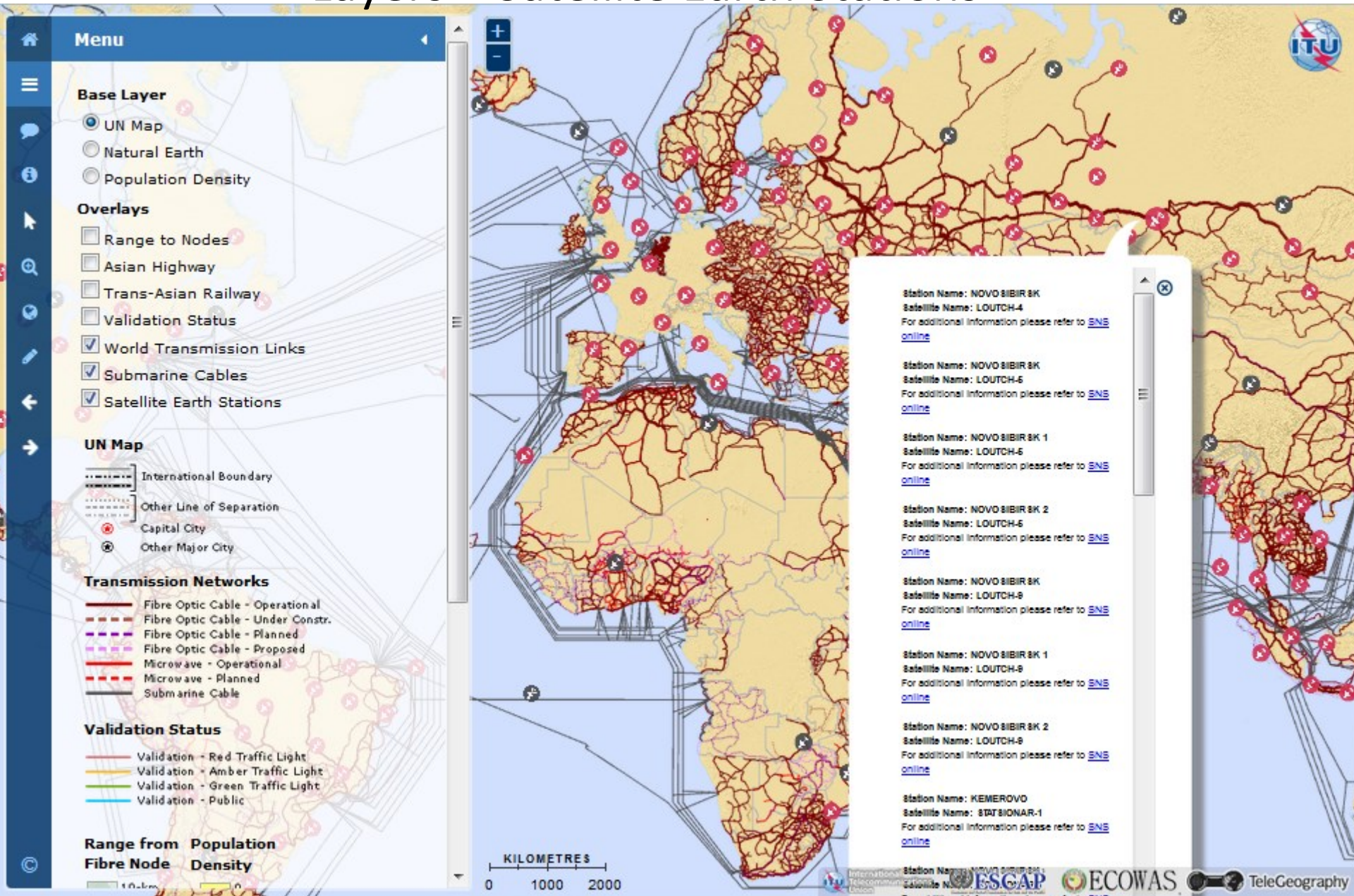
Layers – Population Density



Layers – Submarine Cables



Layers – Satellite Earth Stations



TIES Password Protected Map and Validation Framework

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Validation Procedure

A simple traffic light system is used to indicate the validation status of each piece of network infrastructure shown in the map. In order to see the current status of any line on the map, select the 'Validation Status' checkbox in the map layers panel. Each transmission line falls under one of the four categories: RED, AMBER, GREEN or PUBLIC. The objective of the validation exercise is to engage network operators and administrations to verify the accuracy and integrity of the data, whilst it remains visible (albeit protected) behind TIES. As the validation status will progress from either RED, AMBER or GREEN through to PUBLIC, for a detailed description of this classification, please scroll to the bottom of the page.

To change validation status

1. Check your network on the map. Go to the [ITU Interactive Transmission Map](#) and check the information shown for your network. The map layer called Validation Status indicates whether this network is classified as RED, AMBER, GREEN or PUBLIC (Public). When you hover your mouse over any line, a small image of the source material used to create the map appears in the left hand side. Click this image to go through to the homepage of the network operator.

Type the name of operator or country into the search box

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Navigate by country

Navigate by Validation Status

Or navigate by Region



ITU Interactive Transmission Map – Validation

To validate the information shown in the map, leave a comment or any other feedback, just click the **Leave a Reply** link.

TRANSMISSION MAP LATEST ACTIVITY USER GUIDE INDICATORS RESEARCH STATUS

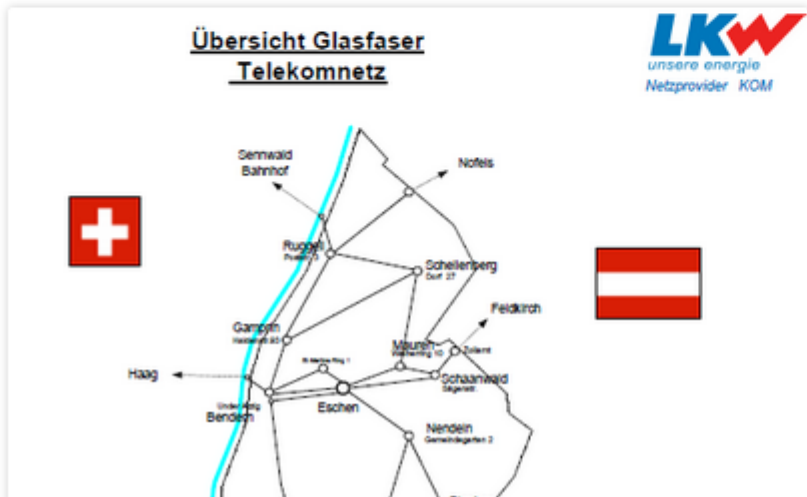
Liechtenstein: Liechtensteinische Kraftwerke

[Leave a reply](#)

Source: [Liechtensteinische Kraftwerke \(LKW\)](#), 2013.

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Research Status

This table shows the research, production and validation status of each network operator. Filter the map by clicking on the up and down arrows to sort by research, production or validation status. This table is updated at the end of each month. Last Updated: **1 April 2016.**

The Research Status table is updated at the end of each month

Show entries

Search:

COUNTRY	RE-GION	OPERA-TOR	DATA	PUB-LIC	RFI	ADDED	MAP	STA-TUS	VALID
Albania	EUR	ALBtelecom	Y	Y	0	Y	Y	Public	N
Albania	EUR	ATU	Y	Y	0	Y	Y	Public	N
Austria	EUR	Tele2	Y	Y	0	N	N	Pending	N
Bulgaria	EUR	Mobistar	Y	Y	0	Y	Y	Public	N
Bulgaria	EUR	Syntigo	Y	Y	0	Y	Y	Public	N
Bulgaria	EUR	GCN	Y	Y	0	Y	Y	Public	N
Bulgaria	EUR	Neterra	Y	Y	0	Y	Y	Public	N
Bulgaria	EUR	Novatel	Y	Y	0	Y	Y	Public	N





Click link here to go through to the operators homepage

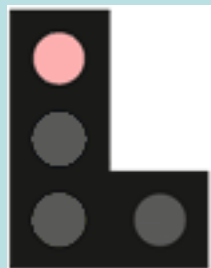
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Each link in the map is given a validation status.

We use a simple traffic light system:

-  Validation - Red Traffic Light
-  Validation - Amber Traffic Light
-  Validation - Green Traffic Light
-  Validation - Public



Red: Information was sourced from a restricted document (for example on TIES), a potentially unreliable publicly available source (such as a third party), may contain information which is confidential or regarded as sensitive by the network operator, and/or is very old and could be out of date (if it is more than 3-5 years old). Information must be validated by network operator or stakeholder to provide clearance that the information is correct, up-to-date, and is not confidential.



Amber: Information was not taken from a publicly available source, may be unreliable because of difficulties reading or interpreting the source material, and/or may be old and out of date. Operator is asked to provide clearance that the information is correct, up-to-date, and is not confidential.



Green: Information was sourced from an authentic, reliable publicly available source (such as a company website, annual report, presentation, or other publication), and has been deliberately put into the public domain by the network operator or administration (it is therefore not confidential). The information is current and correct, and there is no reason why a public version could not be put into the public domain.



Public: Information has been actively checked and validated by stakeholder through the TIES interactive web map platform, specifically granting permission for this information to be put into the public domain.

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- Population Density

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- Trans-Asian Railway
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UN Map

- International Boundary
- Other Line of Separation
- Capital City
- Other Major City

Transmission Networks

- Fibre Optic Cable - Operational
- Fibre Optic Cable - Under Constr.
- Fibre Optic Cable - Planned
- Fibre Optic Cable - Proposed
- Microwave - Operational
- Microwave - Planned
- Submarine Cable

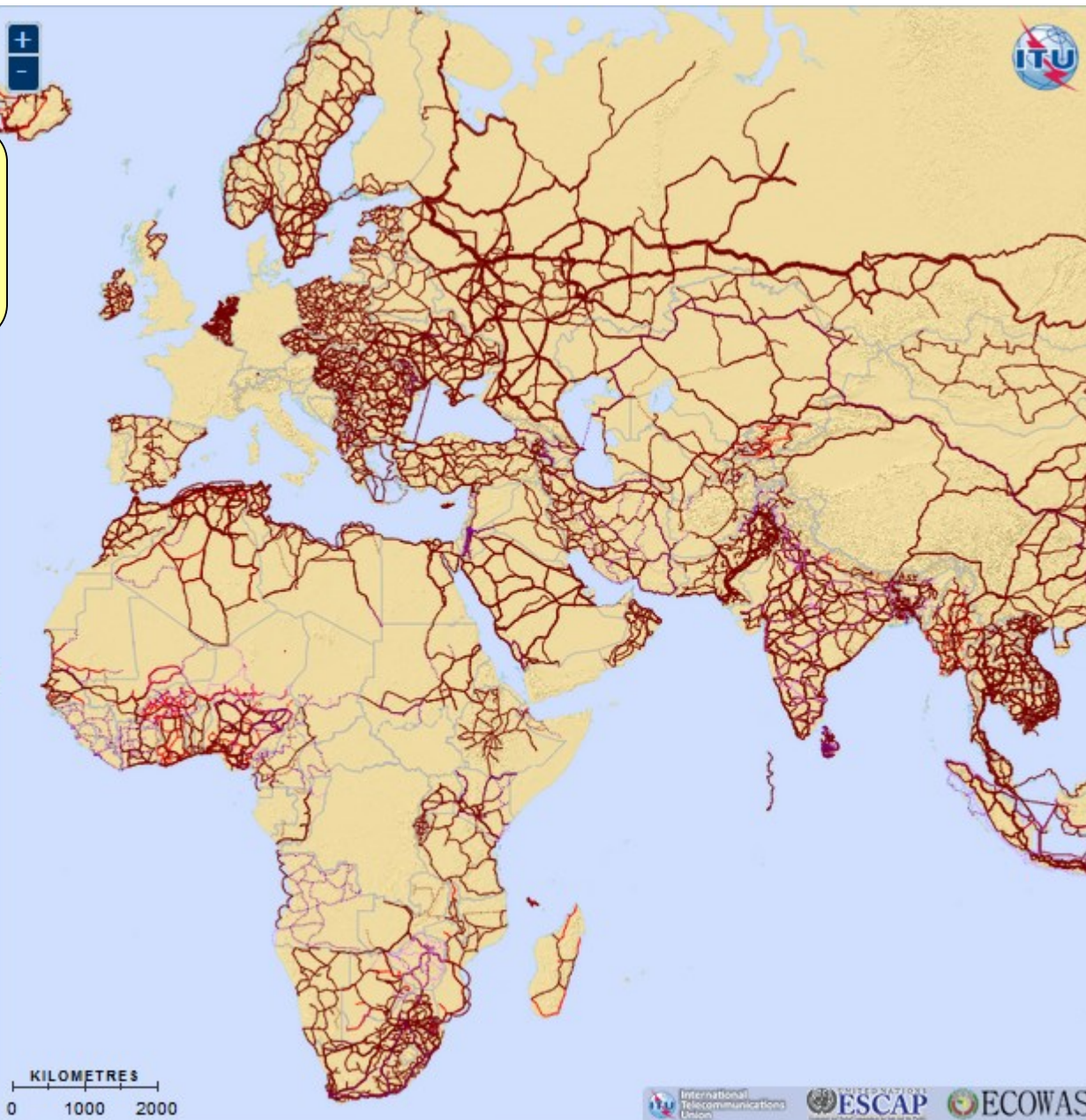
Validation Status

- Validation - Red Traffic Light
- Validation - Amber Traffic Light
- Validation - Green Traffic Light
- Validation - Public

Range from Population Fibre Node Density

- 10-5m
- 5-10m

Click this map layer to show the Validation Status of each network operator.



Menu

Base Layer

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- Population Density

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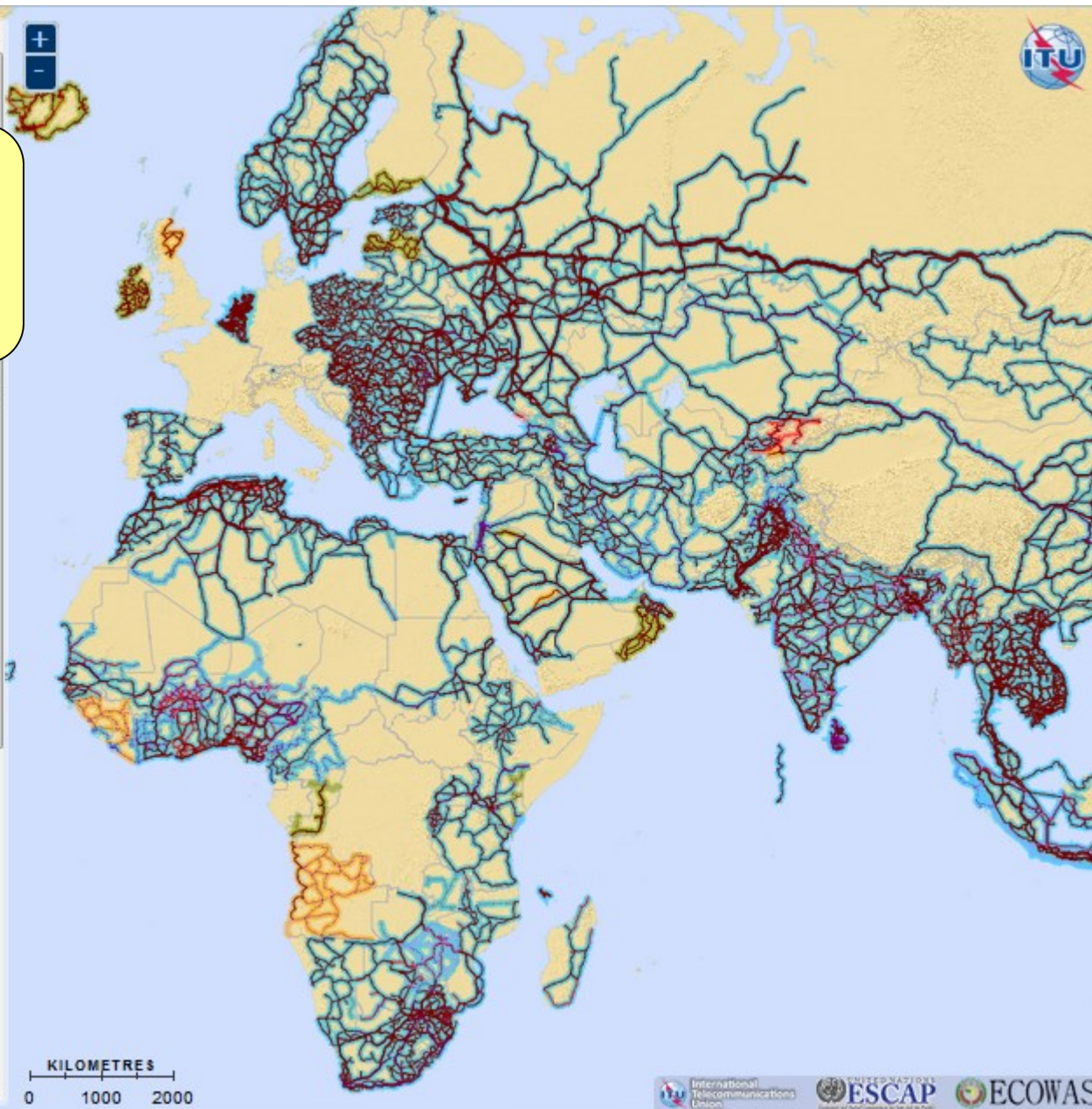
Validation Status

- Validation - Red Traffic Light
- Validation - Amber Traffic Light
- Validation - Green Traffic Light
- Validation - Public

Range from Population Fibre Node Density

- 10-km

Click this panel for information out about the validation and feedback procedure.



KILOMETRES
0 1000 2000

Validation and Feedback

Validation

We use a simple traffic light system to show the status of each piece of network infrastructure. To display the current status of a particular network link, enable the 'Validity' layer checkbox. For a detailed description of the traffic light symbology, please refer to the [validation framework](#).

Feedback

If you notice that a line needs to be added or corrected, or other edits made to the map, please use the line sketch toolbar to add new lines or correct existing ones. Then print screen, paste in the [send to the ITU](#) to be corrected. Additions which are sketched in this way are only temporary in your browser.

For further detailed information regarding the feedback loop please consult the [user guide](#).

Click this link here to open the Validation Framework, or go to <https://www.itu.int/itu-d/tnd-map/validation/>

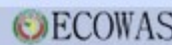
KILOMETRES
0 1000 2000



International
Telecommunications
Union



INTERNATIONAL
ESCAP
Eurasian Sub-Regional Commission



ECOWAS
Eurasian Sub-Regional Commission

<http://www.itu.int/itu-d/tnd-map-public/>



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Indicators

Broadband Capacity Indicators

[Indicator 1: Transmission network length \(Route kilometres\)](#)

[Indicator 7a: Population within reach of transmission networks](#)

[Indicator 7b: Area within reach of transmission networks](#)

Indicator Definitions

Indicator 1: **Transmission network length (Route kilometers)**

Definition: *Transmission network length* refers to the physical length of fibre optic cable in a network irrespective of the number of optical fibres contained within the constituent cables of that network (see Indicator 5: Cable structure), and can also be applied to microwave terrestrial networks. It is expressed in route kilometres (route-kms).

Clarifications and scope: Transmission network length (Route kilometers) can also be applied to microwave terrestrial transmission networks in order to enable comparison on a like-for-like basis, even though the number of microwave 'hops' is also used (a 'hop' is the point-to-point link between one microwave radio antenna and the next. for example there are four 'hops' between

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Indicator 1: Route Kilometres

Indicator 1: Transmission network length (Route kilometres)

Show entries

Search:

COUNTRY	RE-GION	ROUTE KMS 2013	ROUTE KMS 2014	ROUTE KMS 2015	OPERATORS
Bosnia and Herzegovina	EUR	n.a.	n.a.	n.a.	
Bulgaria	EUR	n.a.	8,923	8,923	GCN, Neterra, Novatel
Croatia	EUR	n.a.	-	3,300	HEP, Unitel
Cyprus	EUR	n.a.	865	865	CYTA, Primetel
Czech Republic	EUR	n.a.	12,626	12,626	CR, Dial Telecom, GTS, Level 3
Denmark	EUR	n.a.	-	40,586	Nianet, TDC
Estonia	EUR	n.a.	5,371	5,371	ELA
Finland	EUR	n.a.	-	10,000	Cinia

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Indicator 7a: Population within reach of transmission networks

Indicator 7a: Population within reach of transmission networks 2015

Show entries

Search:

COUNTRY	RE-REGION	10-KM	25-KM	50-KM	10-KM	25-KM	50-KM
Czech Republic	EUR	69.8	98.5	100.0	7,517,286	10,618,623	10,777,060
Denmark	EUR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Estonia	EUR	86.9	99.2	100.0	1,112,721	1,270,053	1,280,171
Finland	EUR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
France	EUR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Germany	EUR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Greece	EUR	43.2	80.4	94.8	4,810,995	8,945,547	10,550,060
Hungary	EUR	60.9	98.1	100.0	6,031,092	9,721,828	9,911,396

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Indicator 7b: Area within reach of transmission networks

Indicator 7b: Area within reach of transmission networks 2015

Show entries

Search:

COUNTRY	RE- GION	10-KM	25-KM	50-KM	10-KM	25-KM	50-KM
Czech Republic	EUR	44.8	96.2	100.0	84,521.8	181,411.0	188,612.9
Denmark	EUR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Estonia	EUR	47.8	96.8	100.0	80,072.9	162,247.0	167,625.3
Finland	EUR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
France	EUR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Germany	EUR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Greece	EUR	12.1	54.7	90.6	26,601.0	120,505.7	199,535.1
Hungary	EUR	35.2	96.1	100.0	70,927.8	193,641.5	201,411.8
Ireland	EUR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

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RESEARCH STATUS

Research Status

This table shows the research, production and validation status of each network operator. Filter the map by clicking on the up and down arrows to sort by research, production or validation status. This table is updated at the end of each month. Last Updated: **1 April 2016.**

The Research Status table is updated at the end of each month

Show entries

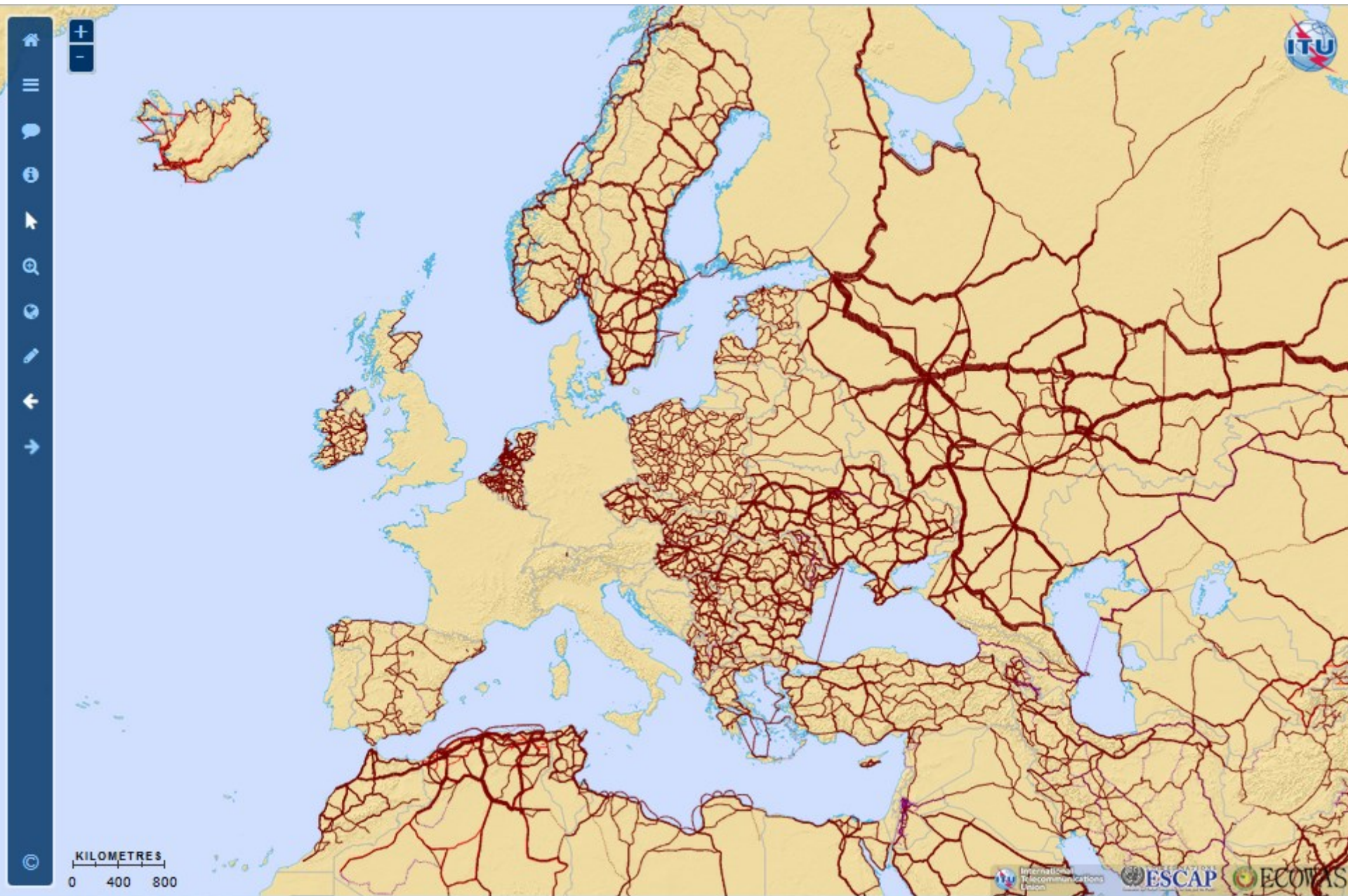
Search:

COUNTRY	RE-GION	OPERA-TOR	DATA	PUB-LIC	RFI	ADDED	MAP	STA-TUS	VALID
Albania	EUR	ALBtelecom	Y	Y	0	Y	Y	Public	N
Albania	EUR	ATU	Y	Y	0	Y	Y	Public	N
Austria	EUR	Tele2	Y	Y	0	N	N	Pending	N
Bulgaria	EUR	Mobistar	Y	Y	0	Y	Y	Public	N
Bulgaria	EUR	Syntigo	Y	Y	0	Y	Y	Public	N
Bulgaria	EUR	GCN	Y	Y	0	Y	Y	Public	N
Bulgaria	EUR	Neterra	Y	Y	0	Y	Y	Public	N
Bulgaria	EUR	Novatel	Y	Y	0	Y	Y	Public	N

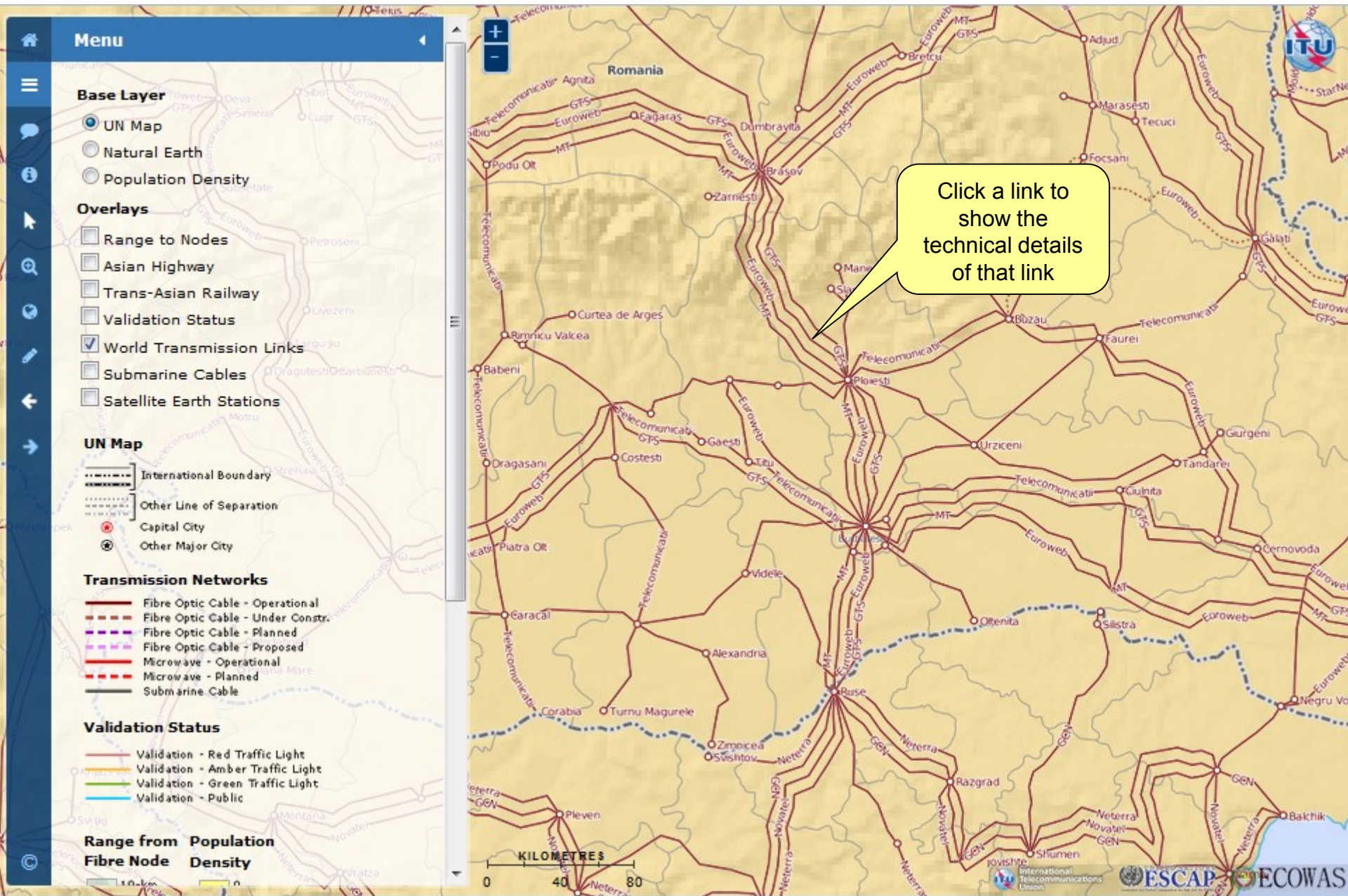
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- Satellite Earth Stations

UN Map

- International Boundary
- Other Line of Separation
- Capital City
- Other Major City

Transmission Networks

- Fibre Optic Cable - Operational
- Fibre Optic Cable - Under Constr.
- Fibre Optic Cable - Planned
- Fibre Optic Cable - Proposed
- Microwave - Operational
- Microwave - Planned
- Submarine Cable

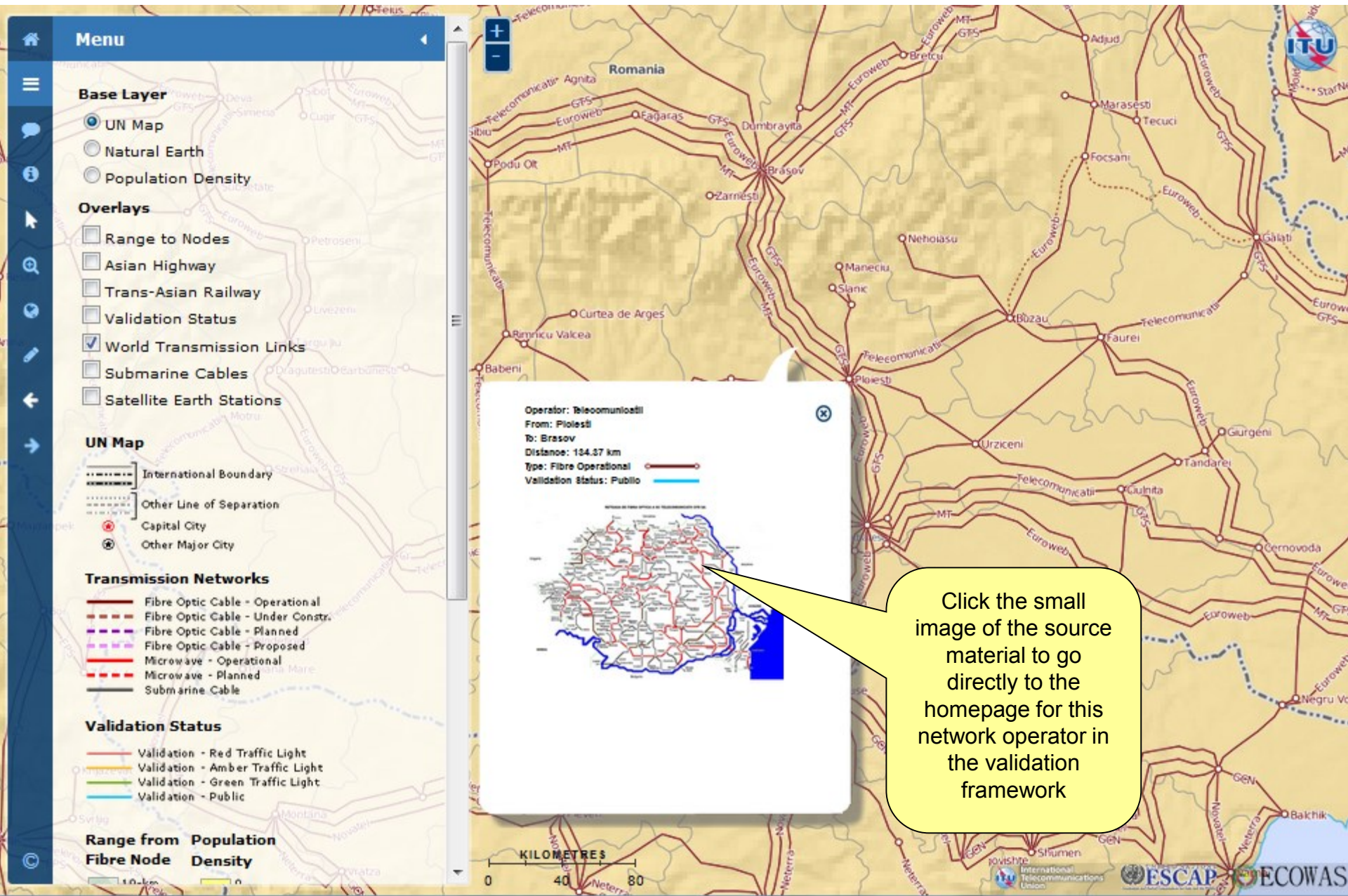
Validation Status

- Validation - Red Traffic Light
- Validation - Amber Traffic Light
- Validation - Green Traffic Light
- Validation - Public

Range from Population Fibre Node Density

- 10-km
- 0





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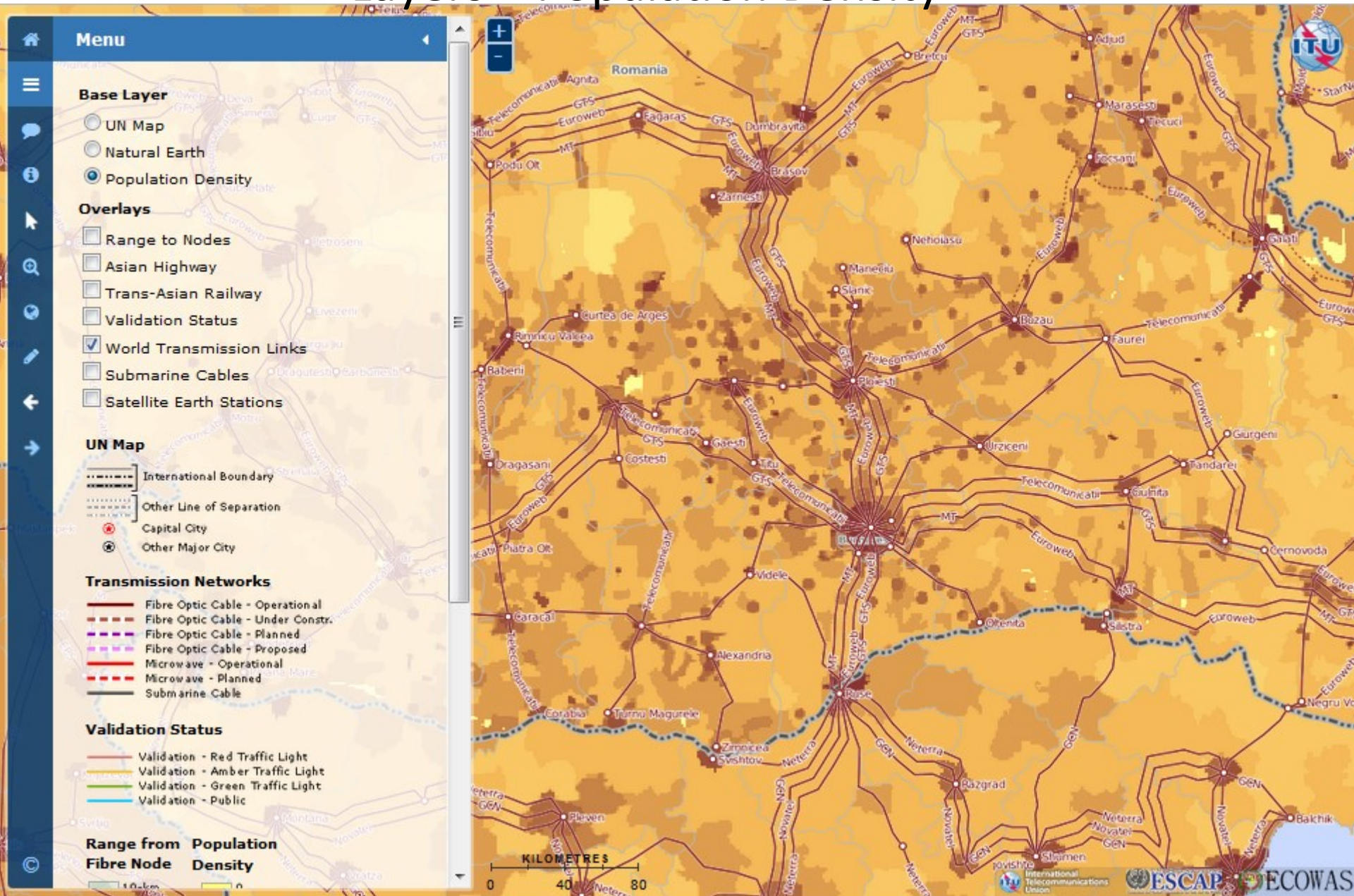
Source: [SC Telecomunicatii CFA SA](#), 2014. <http://www.tccfr.ro/index-4.html>



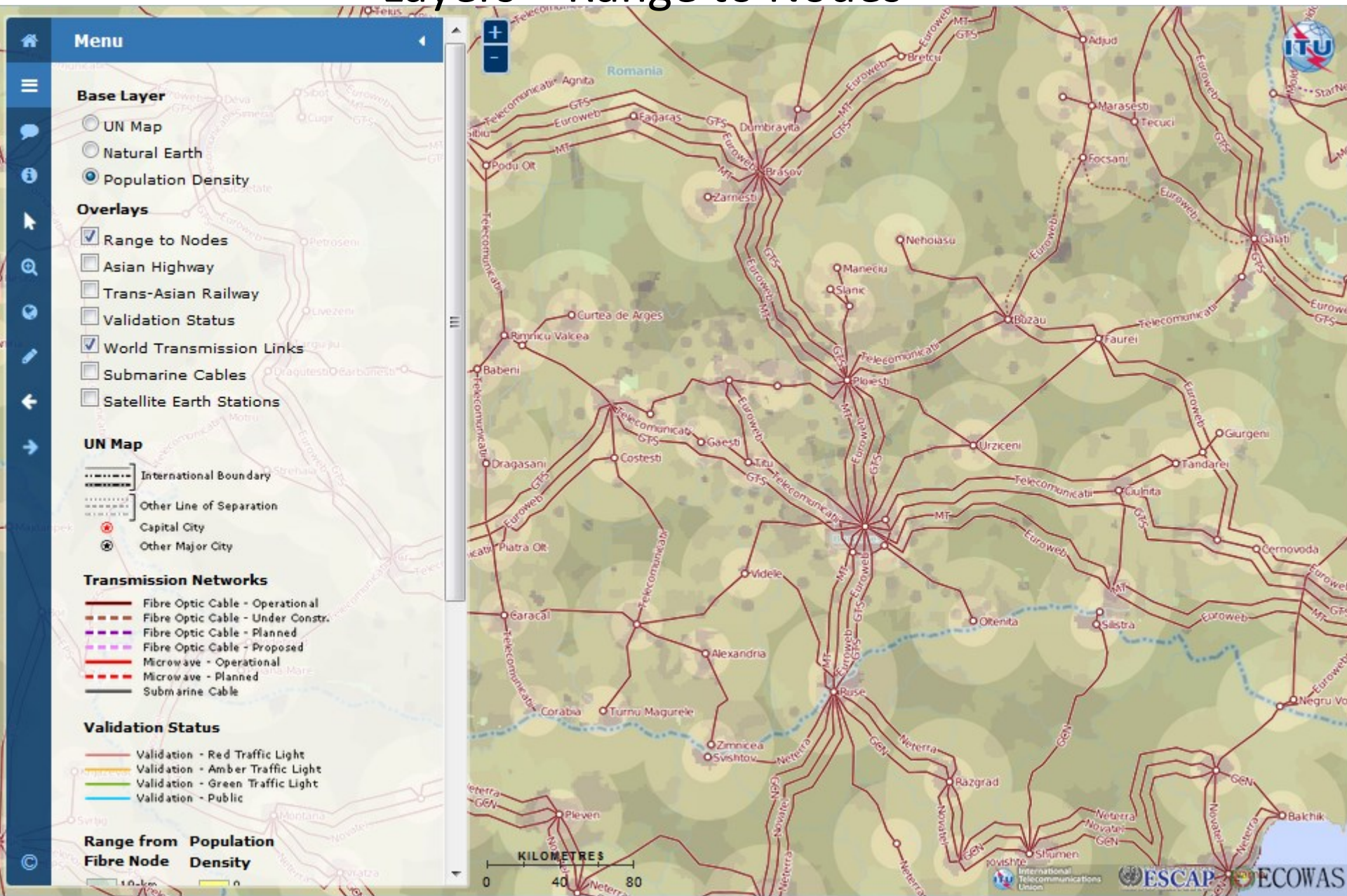
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Layers – Population Density



Layers – Range to Nodes



Thank you

We value your feedback and contributions. Please log in using your ITU TIES username and password, to submit comments, feedback and to validate the information shown in the map through the Validation Framework.

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