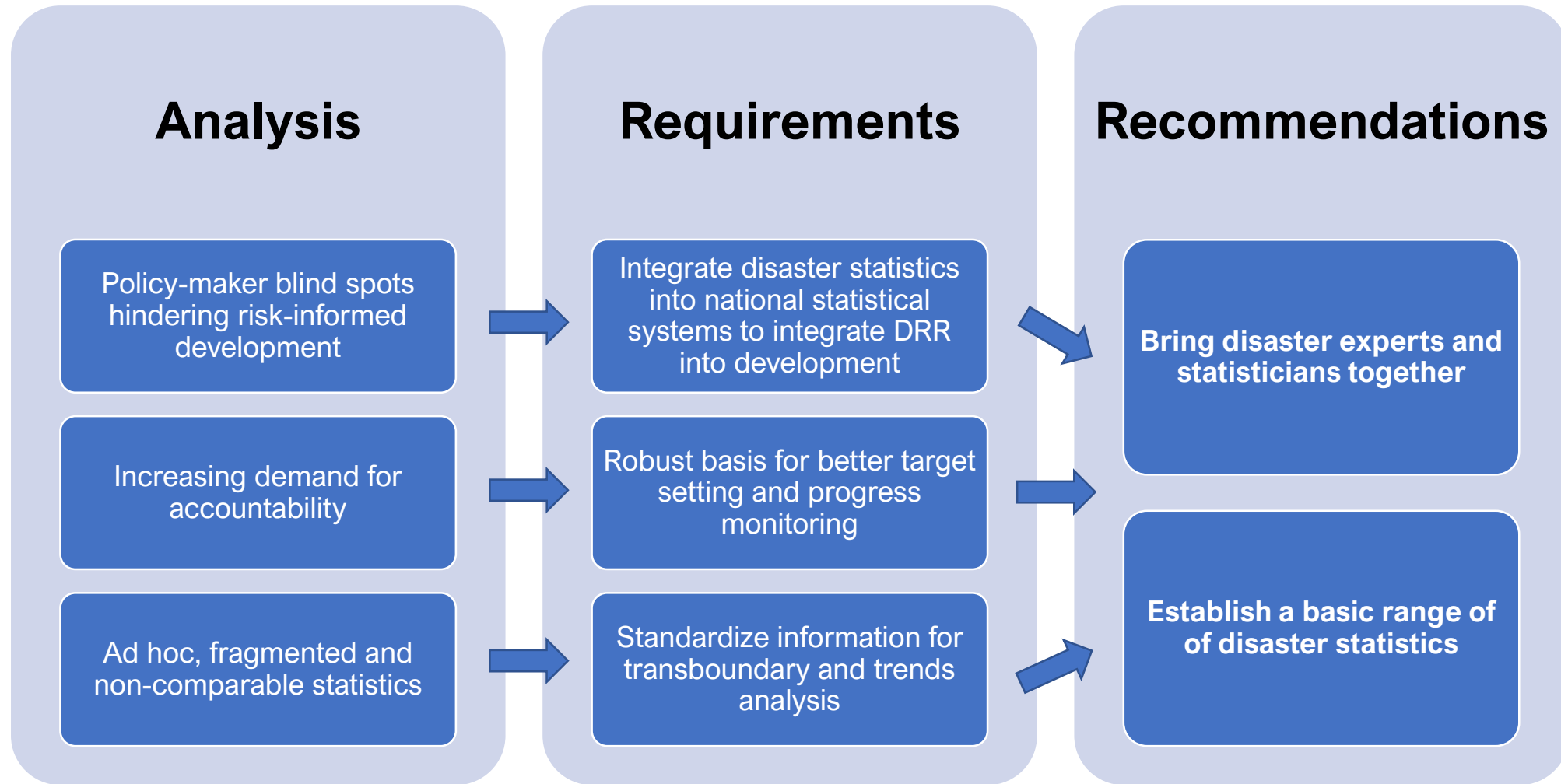Session 2: Measuring climate change adaptation and hazardous events and disasters

The Disaster-Related Statistics Framework From concept to production
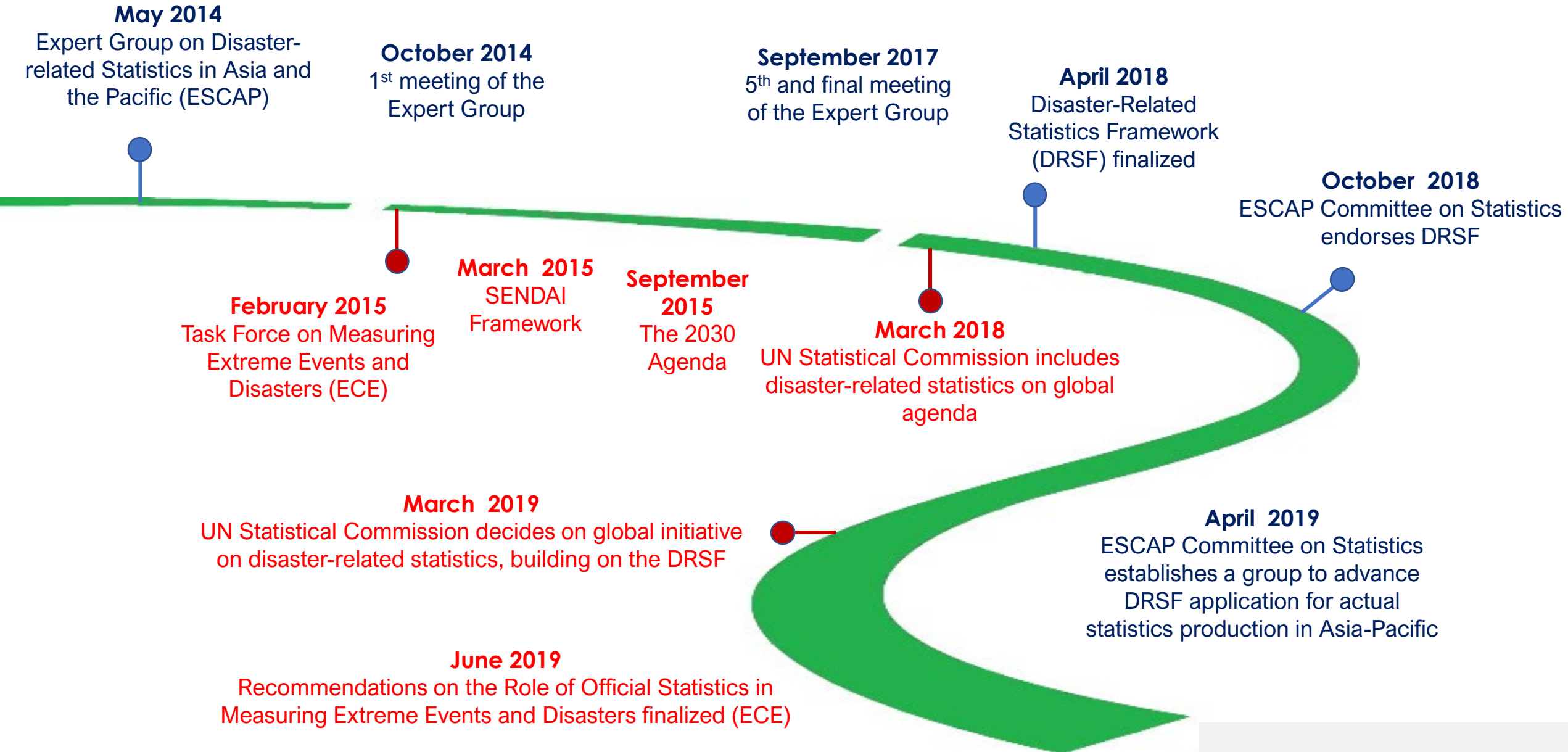
Expert Forum for producers and users of climate change-related statistics
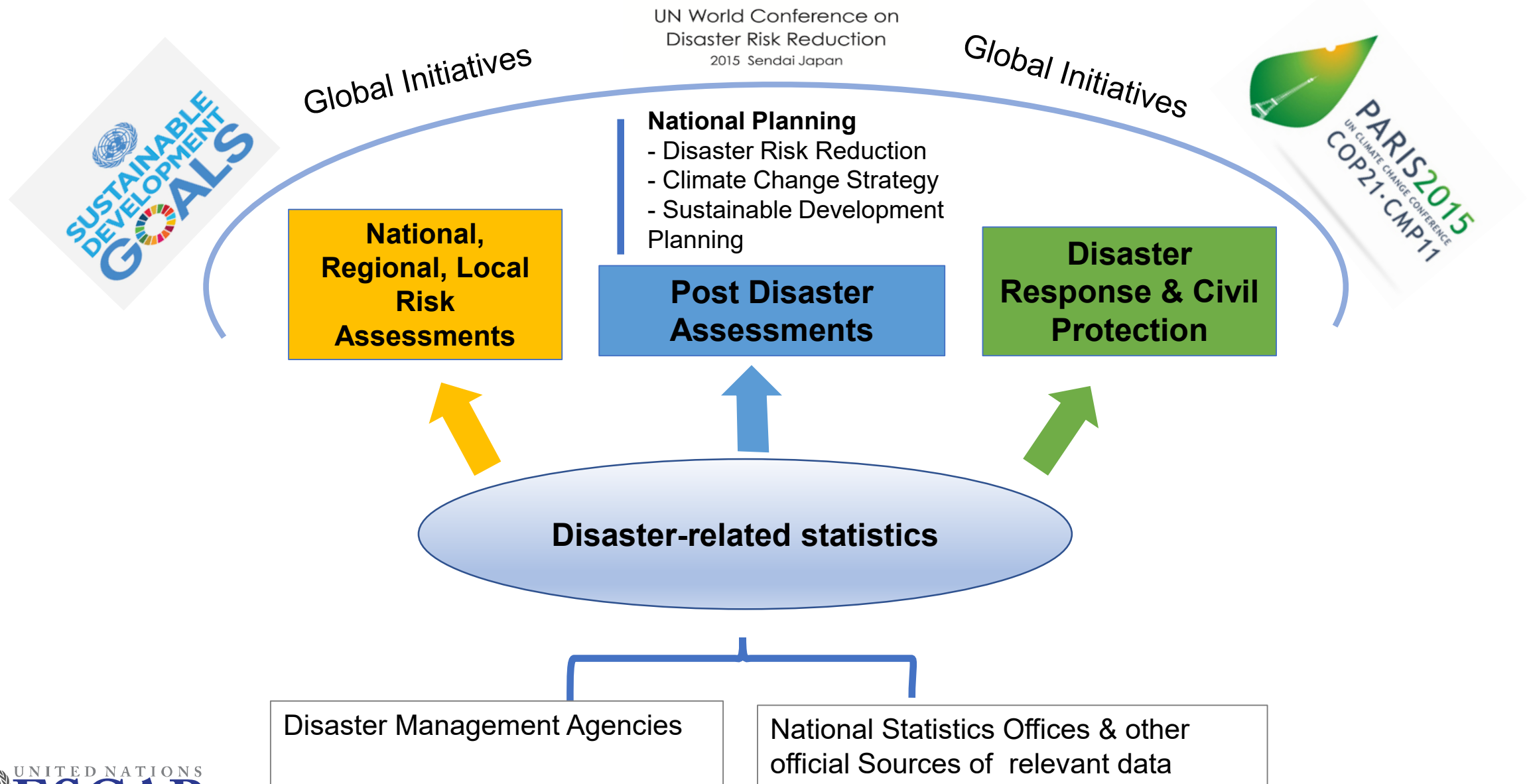Geneva, 3-4 October 2019

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

Why disaster-related statistics?

Analysis

- Policy-maker blind spots hindering risk-informed development
- Increasing demand for accountability
- Ad hoc, fragmented and non-comparable statistics

Requirements

- Integrate disaster statistics into national statistical systems to integrate DRR into development
- Robust basis for better target setting and progress monitoring
- Standardize information for transboundary and trends analysis

Recommendations

- **Bring disaster experts and statisticians together**
- **Establish a basic range of of disaster statistics**

Towards better disaster-related statistics

May 2014
Expert Group on Disaster-related Statistics in Asia and the Pacific (ESCAP)

October 2014
1st meeting of the Expert Group

September 2017
5th and final meeting of the Expert Group

April 2018
Disaster-Related Statistics Framework (DRSF) finalized

October 2018
ESCAP Committee on Statistics endorses DRSF

February 2015
Task Force on Measuring Extreme Events and Disasters (ECE)

March 2015
SENDAI Framework

September 2015
The 2030 Agenda

March 2018
UN Statistical Commission includes disaster-related statistics on global agenda

March 2019
UN Statistical Commission decides on global initiative on disaster-related statistics, building on the DRSF

April 2019
ESCAP Committee on Statistics establishes a group to advance DRSF application for actual statistics production in Asia-Pacific

June 2019
Recommendations on the Role of Official Statistics in Measuring Extreme Events and Disasters finalized (ECE)

The context

Global Initiatives

UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

Global Initiatives

PARIS2015 COP21·CMP11
UN CLIMATE CHANGE CONFERENCE

National Planning
- Disaster Risk Reduction
- Climate Change Strategy
- Sustainable Development Planning

National, Regional, Local Risk Assessments

Post Disaster Assessments

Disaster Response & Civil Protection

Disaster-related statistics

Disaster Management Agencies

National Statistics Offices & other official Sources of relevant data

The Expert Group

Two professions working together

- Statisticians from national statistical offices; disaster experts from national disaster management agencies; other national and international experts

Development of a statistical framework – the DRSF

- Responding to local, national and global demands in a coherent manner

- Bridge between disaster and risk management information and socio-economic statistics

- Developed through sharing of best practices; country case studies and pilots; expert discussions and online consultation

The Disaster-Related Statistics Framework (DRSF)

A guideline for developing a common, comparable, standardized basic range of disaster-related statistics

Part I: Statistical concepts for measurement

- Occurrence, risk, impact, …

Part II: Implementation guidance

- Implementation steps
- Definitions and classifications
- Tables for the basic range of statistics

DISASTER-RELATED STATISTICS FRAMEWORK (DRSF)

Asia-Pacific Expert Group on Disaster-related Statistics

What's next for Asia and the Pacific?

Priorities

- Apply the DRSF to produce disaster-related statistics and indicators
- Develop training materials
- Provide technical assistance

Mechanism

- Technical working group for coordination, exchange of practices and capacity strengthening in Asia-Pacific
- The group will function as a community of practice
- The group is open to individuals and institutions from within and beyond Asia-Pacific

Land Accounts
Based on Remote sensing and GIS

- An automated QGIS-R based production of SEEA land cover accounts per SEEA land cover class
- Produce unofficial land cover change account as a starting point for national checking and verification, with view to publishing an official land cover change account based on SEEA

METHODOLOGY

Data Collection (Natural Earth lights) 1

Data analysis Reclassification 2

Web based information system development 3

Land cover transformation matrix for the Capital City of Uzbekistan 10 kilometres radius

| From 1995 km2 \ To 2015 km2	Artificial surfaces (including urban and associated areas)	Herbaceous crops	Multiple or layered crops	Grassland	Sparsely natural vegetated areas	Terrestrial barren land	Inland water bodies	Grand Total
Artificial surfaces (including urban and associated areas)	....	0.18	0.54	0.30	0.06			216.51
Herbaceous crops	22.33	......	0.72	0.36				29.89
Multiple or layered crops	33.01	1.02	......	0.36	0.06			66.75
Grassland	9.12	0.24	0.42	....				13.15
Sparsely natural vegetated areas	0.96	0.24	1.20		....			2.82
Terrestrial barren land	0.36					.....		0.42
Inland water bodies		0.12					....	0.36
Grand Total	281.22	8.28	35.17	4.38	0.54	0.06	0.24	329.90

1995

2015

Tashkent City HotSport
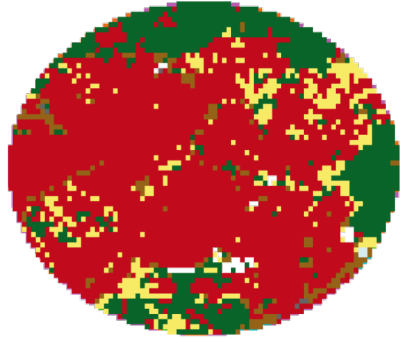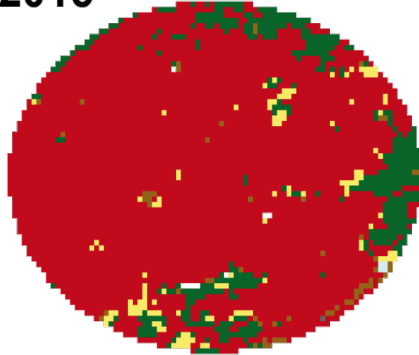
Legend

🟥	Artificial surfaces (including urban and associated areas)
🟨	Herbaceous crops
🟩	Multiple or layered crops
🟫	Grassland
⬜	Sparsely natural vegetated areas
⬛	Terrestrial barren land
🟦	Inland water bodies

Pixel change   From 1995 To 2015
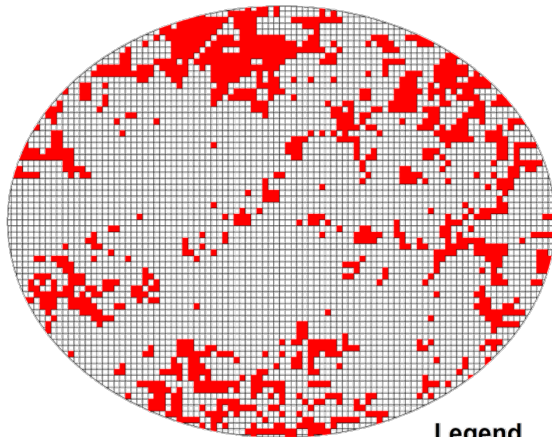
10 km Radios

Legend

🟥	Chainged
⬜	NO Chaing

Not to scale
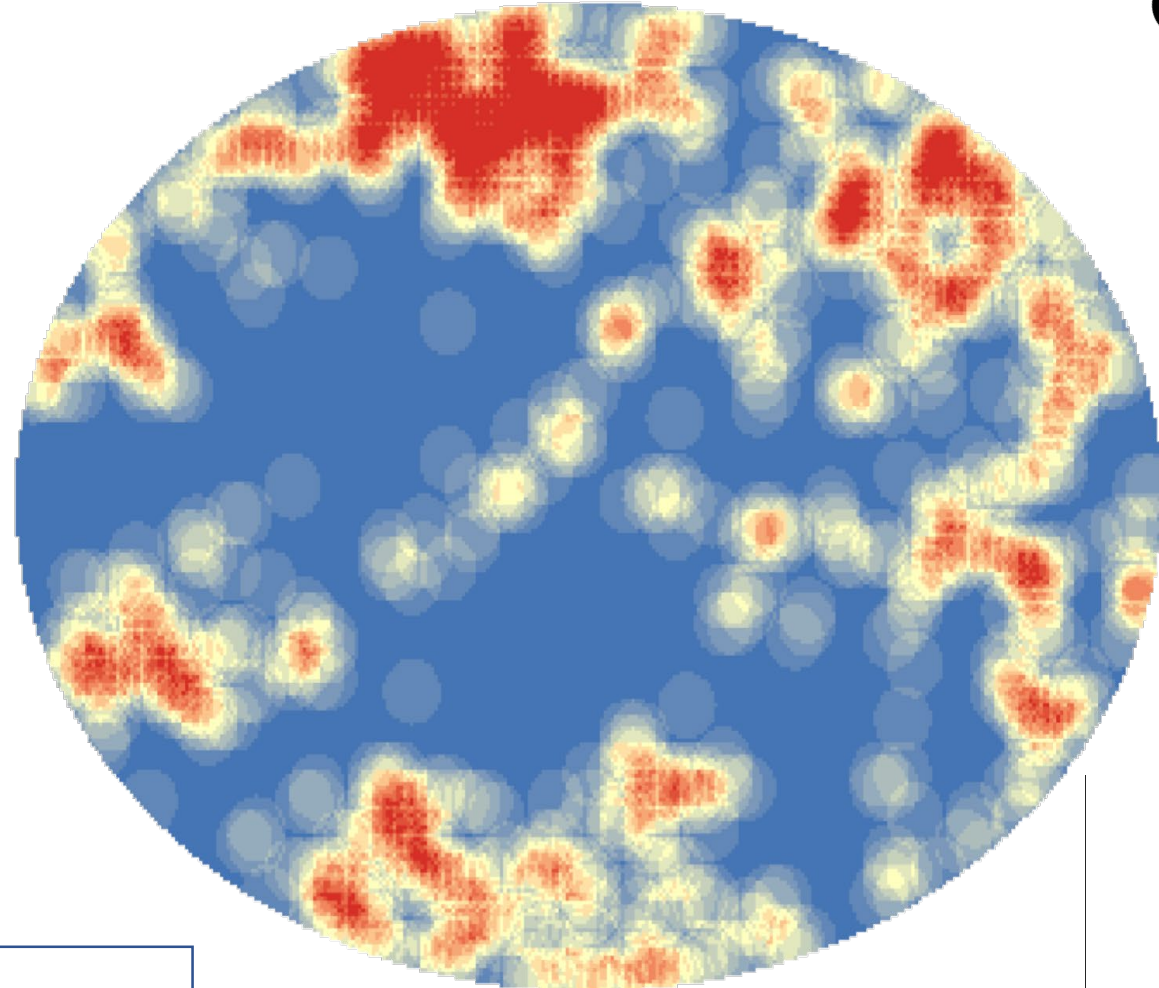
Uzbekistan Land cover 1995 to 2015

1995

2015
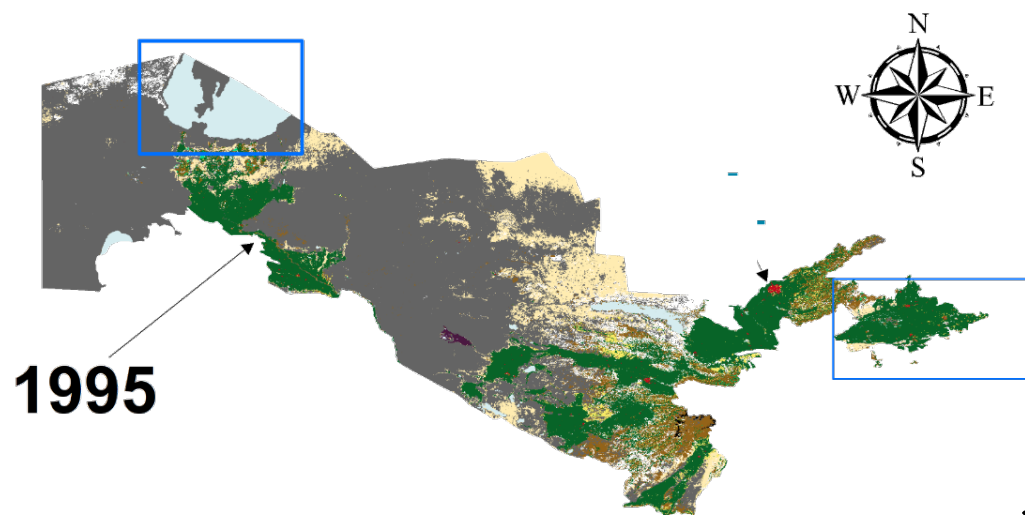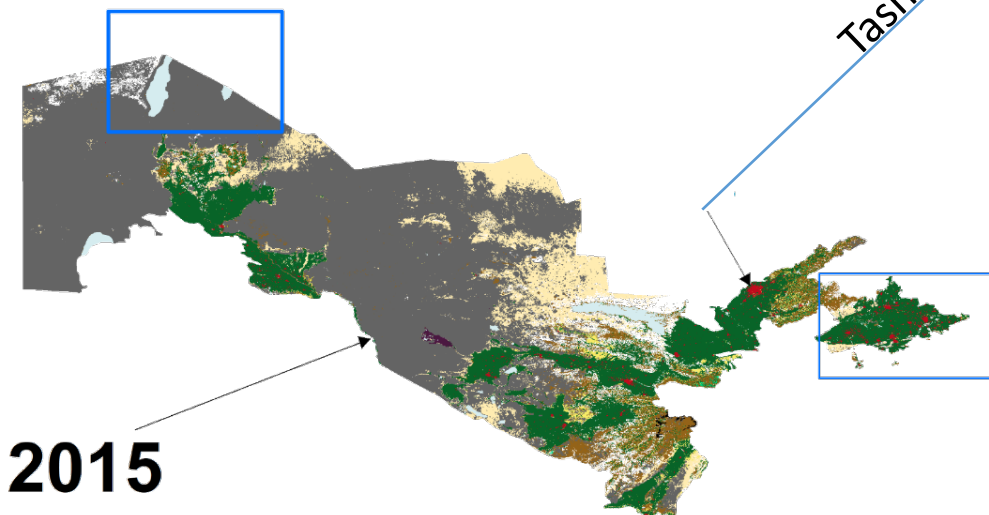
Tashkent City
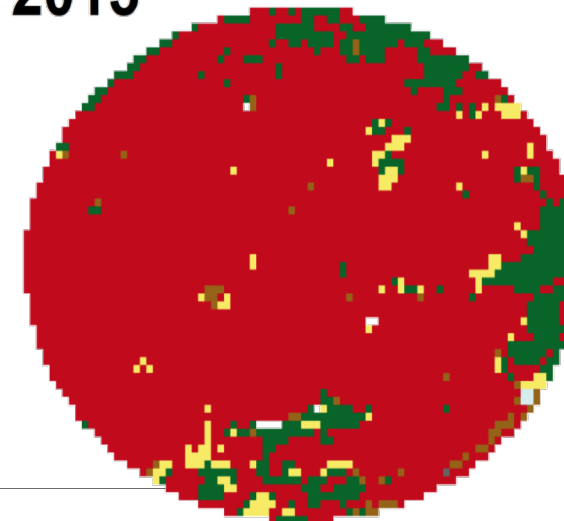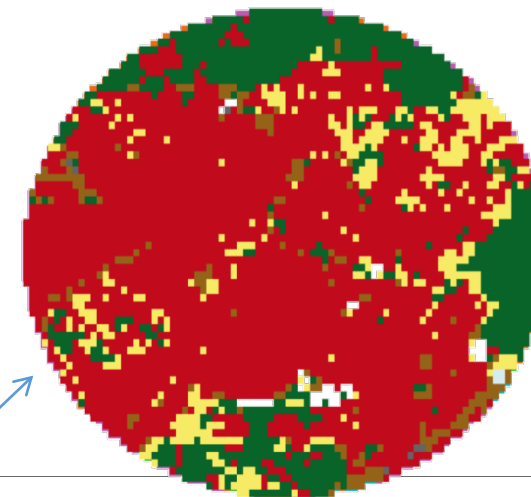
1995

2015

0 75 150   300   450   600 Kilometers

Mongolia Land Cover: 1995 versus 2015

Mongolia SEEA Land Cover Class	1995 Area km2	% in 1995	2015 Area km2	% in 2015
Artificial surfaces	384	0.02%	554	0.04%
Herbaceous crops	13,419	0.86%	17,758	1.14%
Multiple or layered crops	90,543	5.83%	98,344	6.33%
Grassland	315,186	20.29%	326,539	21.02%
Tree-covered areas	74,861	4.82%	66,091	4.25%
Mangroves	2	0.00%	2	0.00%
Shrub-covered areas	7,797	0.50%	7,975	0.51%
Shrubs and/or herbaceous vegetation	3,517	0.23%	3,521	0.23%
Sparsely natural vegetated areas	377,631	24.31%	368,434	23.72%
Terrestrial barren land	656,531	42.26%	650,819	41.89%
Permanent snow and glaciers	547	0.04%	547	0.04%
Inland water bodies	13,141	0.85%	12,978	0.84%

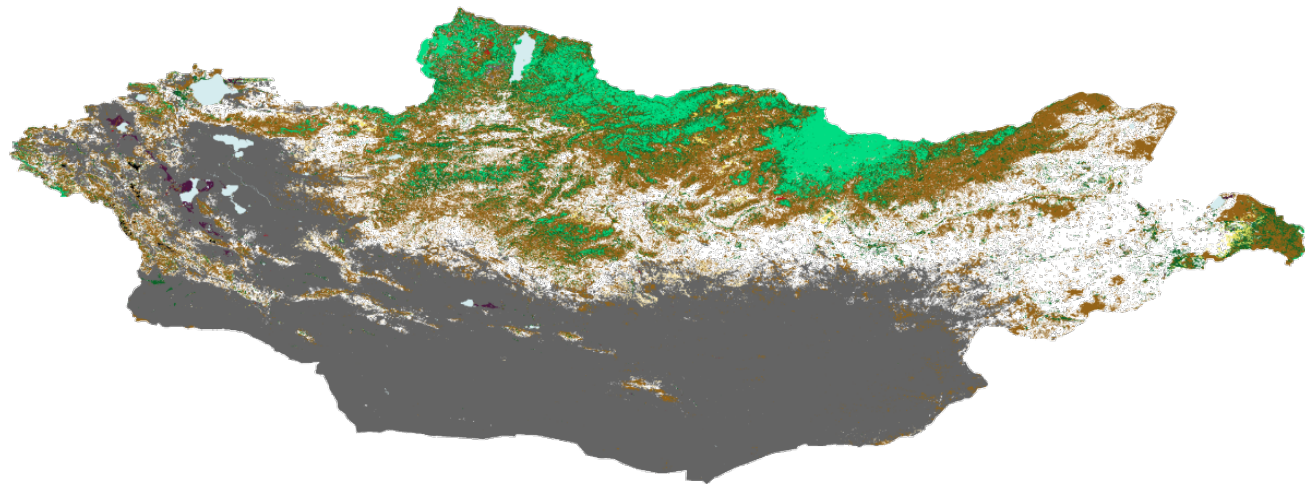Using R script through QGIS: run time 63 seconds
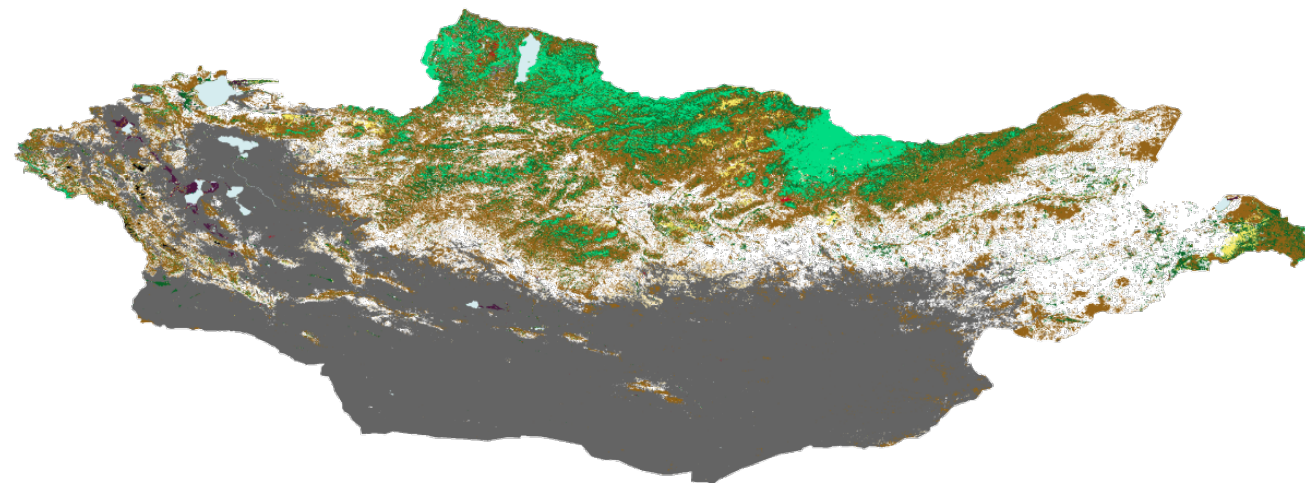
Land Use land Cover maps 1995 2015

Mongolia

1995

2015

0   162.5   325   650   975   1,300
Kilometers

Kazakhstan Land Cover: 1995 versus 2015

SEEA Land Cover Kazakhstan	1995 km2	2015 km2	% change
Artificial surfaces	1,808	3,698	105%
Herbaceous crops	302,944	343,927	14%
Multiple or layered crops	247,701	322,141	30%
Grassland	846,968	828,711	-2%
Tree-covered areas	46,152	48,802	6%
Mangroves	3	7	133%
Shrub-covered areas	160,566	160,859	0%
Shrubs and/or herbaceous vegetation	11,110	11,514	4%
Sparsely natural vegetated areas	658,684	613,157	-7%
Terrestrial barren land	360,617	307,440	-15%
Permanent snow and glaciers	1,065	1,065	0%
Inland water bodies	62,084	58,380	-6%

Using R script through QGIS
From asking to delivery – 13 minutes

What's next for the World?

Global
- Standards-setting and research
- Sendai and Agenda 2030 monitoring
- Paris21?

Regional
- Guidance and training material
- Capacity support
- Standards-setting (e.g. the ECE Expert Group on CC)

National
- Statistics compilation
- Inter-agency collaboration
- National and international reporting

THANK YOU!