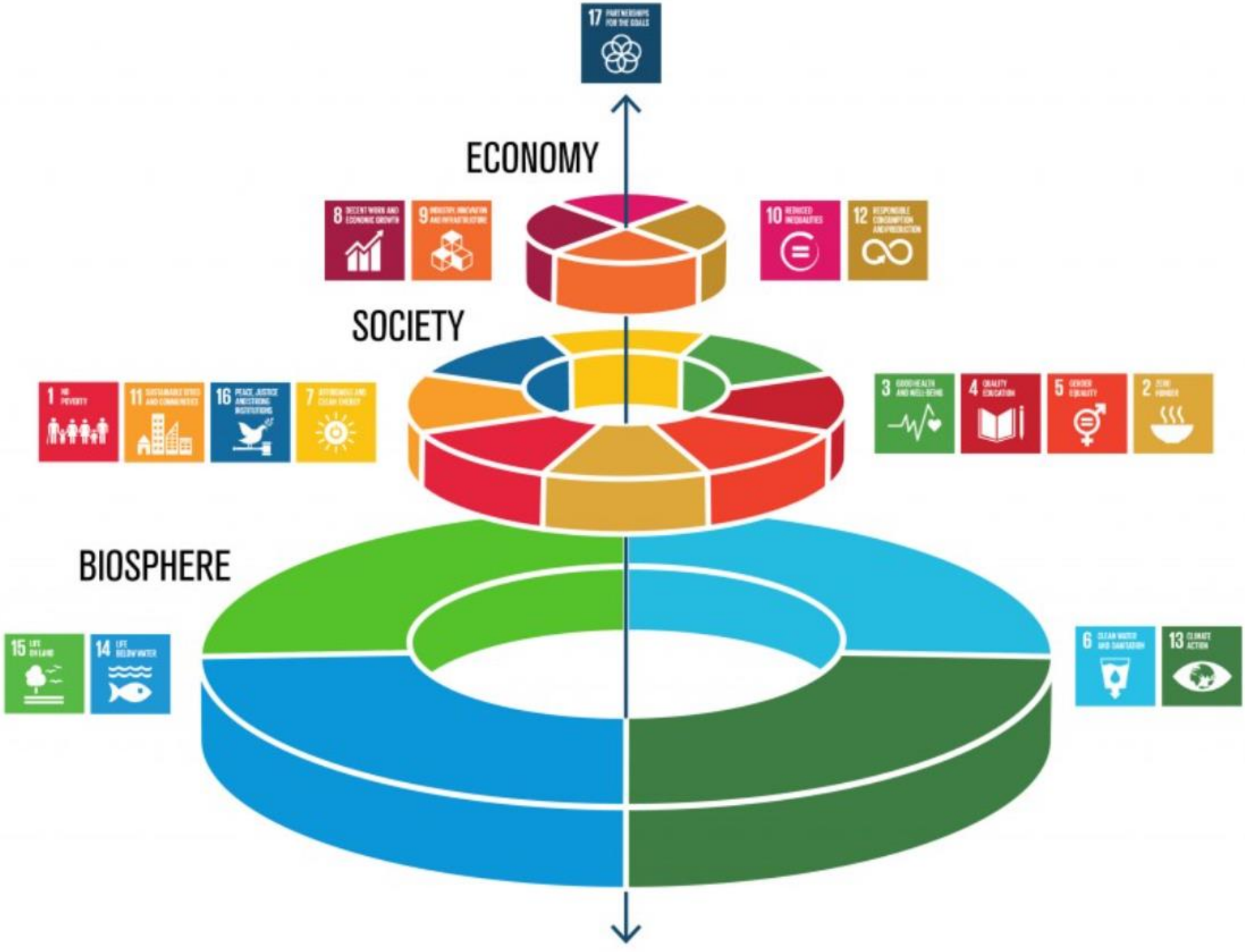
Agenda 2030
vs
Metria AB

Agenda 2030

FN:s gemensamma mål om hållbar utveckling

Vad är unikt med Agenda 2030?

- Agenda 2030 är ett historiskt dokument – för första gången finns en samlad strategi för hur alla världens länder gemensamt ska uppnå hållbar utveckling inte bara U-Länder
- Att vi börjar på bred front prata om detta, t,ex på Kartdagarna


17
ECONOMY
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SOCIETY
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BIOSPHERE
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13

Agenda 2030

En presentation av Svenska FN-förbundet

GLOBALA MÅLEN
för hållbar utveckling

Agenda 2030

FN:s gemensamma mål om hållbar utveckling

Nedan ser ni att Metrias verksamhet har en tydlig koppling till 11 av de 17 målen!

1. Avskaffa fattigdom i alla dess former överallt.
2. Avskaffa hunger, uppnå tryggad livsmedelsförsörjning och förbättrad nutrition samt främja ett hållbart jordbruk.
3. Säkerställa hälsosamma liv och främja välbefinnande för alla i alla åldrar.
4. Säkerställa en inkluderande och likvärdig utbildning av god kvalitet och främja livslångt lärande för alla.
5. Uppnå jämställdhet och alla kvinnors och flickors egenmakt.
6. Säkerställa tillgången till och en hållbar förvaltning av vatten och sanitet för alla.
7. Säkerställa tillgång till ekonomiskt överkomlig, hållbar och modern energi för alla.
8. Verka för varaktig, inkluderande och hållbar ekonomisk tillväxt, full och produktiv sysselsättning med anständiga arbetsvillkor för alla.
9. Bygga motståndskraftig infrastruktur, verka för en inkluderande och hållbar industrialisering samt främja innovation.
10. Minska ojämlikheten inom och mellan länder.
11. Göra städer och bosättningar inkluderande, säkra, motståndskraftiga och hållbara.
12. Säkerställa hållbara konsumtions- och produktionsmönster.
13. Vidta omedelbara åtgärder för att bekämpa klimatförändringarna och dess konsekvenser*.
14. Bevara och nyttja haven och de marina resurserna på ett hållbart sätt för en hållbar utveckling.
15. Skydda, återställa och främja ett hållbart nyttjande av landbaserade ekosystem, hållbart bruka skogar, bekämpa ökenspridning, hejda och vrida tillbaka markförstöringen samt hejda förlusten av biologisk mångfald.
16. Främja fredliga och inkluderande samhällen för hållbar utveckling, tillhandahålla tillgång till rättvisa för alla samt bygga upp effektiva och inkluderande institutioner med ansvarsutkrävande på alla nivåer.
17. Stärka genomförandemedlen och återvitalisera det globala partnerskapet för hållbar utveckling.

** Med hänvisning till klimatmötet i Paris i december 2015.*

GLOBALA MÅLEN
för hållbar utveckling

Earth Observations

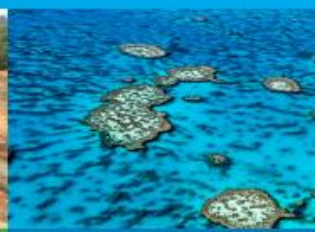
in support of the

2030 Agenda for Sustainable Development

GROUP ON EARTH OBSERVATIONS







GROUP ON EARTH OBSERVATIONS

Flood Prediction System Using the Global Satellite Map of Precipitation (GSMaP)

6.5	By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
6.5.1	Degree of integrated water resources management implementation (0-100)

Many countries in the Asia-Pacific region have suffered from floods caused by typhoons and heavy rains. The severity and frequency of floods are expected to increase with intensification of the hydrological cycle due to global warming.

As one of the most powerful nonstructural measures against flooding, monitoring and warning systems have been implemented in the region, which combine satellite-based global precipitation data such as the Global Satellite Mapping of Precipitation (GSMaP) dataset with ground observations (rain gauges, water-level gauges) thereby improving prediction accuracy of extreme weather events; and strengthening capacities of both governments and communities for pre-and post-disaster actions.

GSMaP provides estimates of precipitation within river basin areas, which often extend beyond national boundaries. Flood predictions are made using calibrated GSMaP data and river run-off models. Flood warnings are transmitted by mobile phone.

Earth Observation Data Use

- GSMaP data
- Rain-gauge data for correction and validation

satellites and thermal infrared data from geostationary satellites. Methodologies and systems to calibrate and validate GSMaP data with ground rainfall data have been developed in pilot areas of each country.

The calibrated GSMaP data is used as input data for flood models in the target river basin for flood forecasting. These models include the Integrated Flood Analysis System developed by the International Centre for Water Hazard and Risk Management (ICHARM), and the Water and Energy Budget-Based Distributed Hydrological Model, developed by the University of Tokyo. Target river basins are Jamuna river basin in Bangladesh, Cagayan river basin in the Philippines, Red-Thai river basin in Vietnam and Indus river basin in Pakistan.

For flood models, satellite-based topographical information (digital elevation model [DEM] or digital surface model [DSM]) obtained from the Advanced Land Observing Satellite (ALOS) is used to make an inundation map in the pilot area as an alternate source of geographic data to those obtained from spot surveys.

Key Issues and Results

The main outcome is the mitigation of flood damage risk through improvements in flood prediction and through increased early warnings broadcast by mobile phone. The frequent updates to the data and warning systems facilitate longer times for communities to evacuate.

The accuracy of the satellite-based precipitation data is fundamental to the flood prediction reliability and the rain gauge data is absolutely fundamental

Fig. 6 Global Satellite Map of Precipitation (GSMaP)
Available at:
http://sharaku.eorc.jaxa.jp/GSMaP/index.htm

Analysis, Status, and Outlook

Flood prediction systems using GSMaP have been implemented in Bangladesh, the Philippines, Vietnam, and in Pakistan in collaboration with the Asian Development Bank (ADB) and UNESCO.

The goal of these pilots is to increase the number of countries which provide flood prediction systems using GSMaP as an input.

Partne

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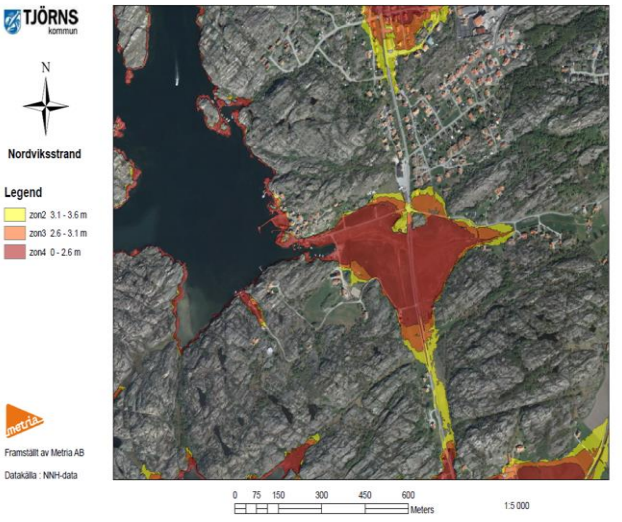
oki.riko

Dr. Taku
kubota.

Ekosystemtjänster – dagvattenhantering



Landskapsavsnitt med våta öppna marker och fuktskogar.

The Global Forest Observations Initiative and Space Agency Support to Forest Monitoring

15.2	By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally
15.2.1	Progress towards sustainable forest management

The Intergovernmental Panel on Climate Change (IPCC) has reported that land-use change emissions (dominated by tropical deforestation) are equivalent to up to 25% of global human-induced CO2 emissions. Tropical forests are found in at least 56 countries, but the vast majority are found in just 30 (PRP, 2009), with most of these being developing countries. Commercial agriculture is the dominant driver of deforestation in the majority of developing countries, with commercial timber extraction, selective logging, fuel wood collection, and charcoal production also contributing (Kissinger et al, 2012).

Reducing Emissions from Deforestation and forest Degradation in developing countries, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries (REDD+) looks to provide financial incentives for countries to maintain and sustain forests.

In order to ensure that countries can present the significant evidence required to demonstrate the accuracy of REDD+ claims, GFOI aims to provide countries with wall-to-wall national coverages of satellite data, in addition to methods and guidance documentation that will facilitate reporting consistent with IPCC Good Practice Guidance such that countries and donors can have confidence in agreements – as well as ensuring consistency and comparability among reporting countries.

Earth Observation Data Use

The GFOI's baseline, coordinated global data acquisition strategy involves a number of 'core data streams' (e.g., Landsat, Sentinel) that can be used free-of-charge for GFOI purposes. This involves systematic and sustained wall-to-wall acquisitions of forested areas globally (repeated on timescales consistent with national reporting commitments and requirements of national forest monitoring systems) and provides the default forest observation data for all countries.

These core data streams are complemented by contributing data streams – a wider range of satellite data sources, including data which is ordinarily provided on a commercial basis (e.g., RADARSAT, ALOS, TerraSAR-X/TanDEM-X, COSMO-SkyMed).

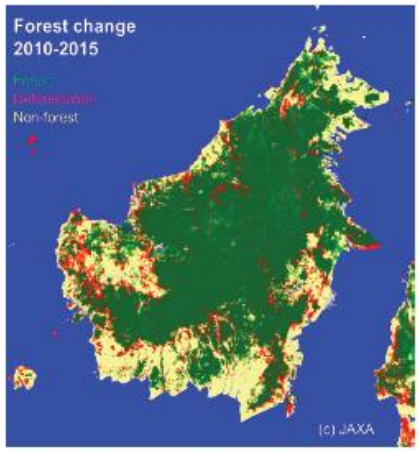


Fig. 19 ALOS-1/2 derived forest change (2010–2015) on Borneo Island. Credit: JAXA

Another example of complementary products are the Japan Aerospace Exploration Agency (JAXA) global SAR mosaics and forest/non-forest maps, produced at 25m resolution using the ALOS-1/2 and JERS-1 satellites. SAR produces images of a similar resolution to those from high-resolution optical imagers, but radars have the capability to 'see' through clouds, providing data on an all-weather, day/night basis. JAXA has released these products for free in order to promote the use of L-band SAR for forest monitoring applications. JAXA plans to provide annual global forest/non-forest maps generated using ALOS-2 to help the community better understand forest distributions.

More information: http://www.eorc.jaxa.jp/ALOS/en/palsar_fnf/fnf_index.htm

Methodology

GFOI has developed a set of methods and guidelines for estimating future carbon stocks to support countries in their effort to build national forest monitoring systems. These methods and guidelines help ensure that forest carbon assessments are credible, comparable and transparent. Its first set of methods and guidance advice is titled 'Integrating remote sensing and ground-based observations for estimation of emissions and removals of greenhouse gases in forests: Methods and Guidance (MGD) from the Global Forest Observations Initiative', and is now available in English, Spanish and French: http://www.gfoi.org/methods-guidance/

The MGD provides recommendations on establishing national measurement, reporting and verification (MRV) systems consistent with IPCC guidance and UNFCCC requirements for REDD+ reporting.

Key Issues and Results

CEOS has committed to providing global annual coverage of the world's forests to ensure that countries have the minimum data necessary to participate in frameworks such as REDD+ or equivalent bilateral donor arrangements focused on sustaining forest cover.

The GFOI MGD ensures that countries and donors have confidence in the derived national forest maps, such that they can form the basis of reporting to the UNFCCC or donors in a way that is compliant with IPCC guidance.

Analysis, Status, and Outlook

GFOI achieved its global baseline coverage in 2016 – with at least one annual global coverage provided by the core data streams – thanks to a series of new launches and the nominal operation of existing assets.

The CEOS Space Data Coordination Group for GFOI is also investigating further historical datasets for the purpose of baseline forest map generation.

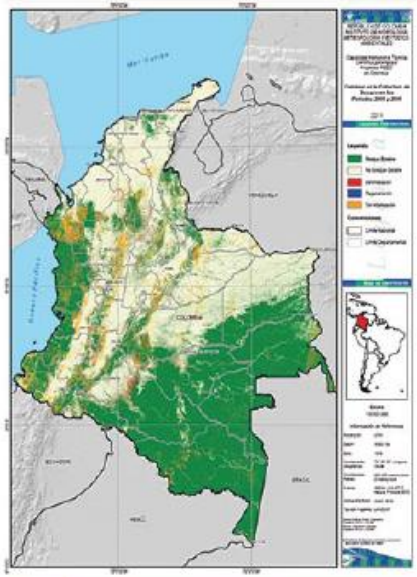


Fig. 20 MODIS Composite of Colombia

Further capacity is expected in 2017 and beyond with new launches planned, including Europe's Sentinel-2B.

In 2016, the second version of the GFOI Methods and Guidance Documentation (MGD) was released, as well as a new online tool – REDDCompass – which guides users through the core themes, concepts and actions involved in the development of National Forest Monitoring Systems (NFMS) for Measurement, Reporting and Verification (MRV). It provides contextual links to GFOI methods and guidance, space data resources, references and tools, training materials and advances in research and development as users work through the pyramid framework.

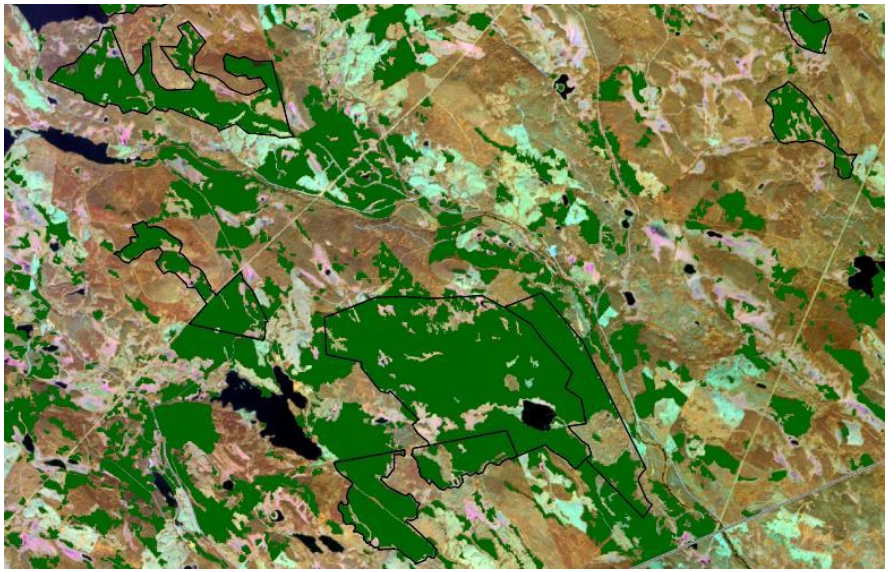
GFOI is seeking to promote one or more end-to-end country demonstrations in 2017, which would include implementation of the MGD, the GFOI Space Data Coordination Group's Space Data Services, and CEOS developed tools to demonstrate the potential of the framework for countries.

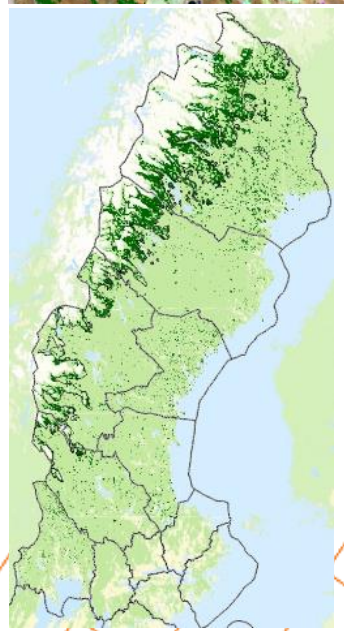
Partners, Contacts and More Information

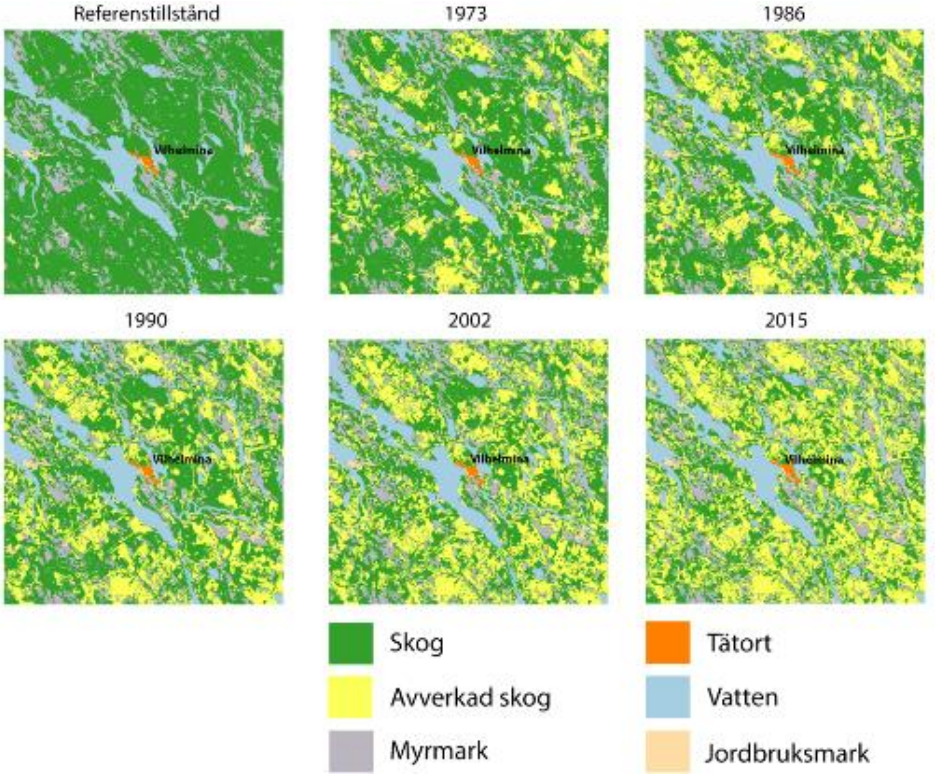
Contact: GFOI Office: office@gfoi.org

More information: www.gfoi.org

Kontinuitetsskogar







Resultat av en analys över förändrad skog från 1970-2015. Största sammanhängande opåverkade skogen i Västerbottens län, runt Björnlandets nationalpark

Air Pollution Monitoring for Sustainable Cities and Human Settlements

11.6	By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
11.6.2	Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)
3.9	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
3.9.1	Mortality rate attributed to household and ambient air pollution

Air pollution is now considered the world's largest environmental health risk. The World Health Organization (WHO) attributes 3.2 million deaths to air pollution in 2012. People living in Asia are considered most at risk of ambient air pollution, with more than 2.6 million deaths caused by it.

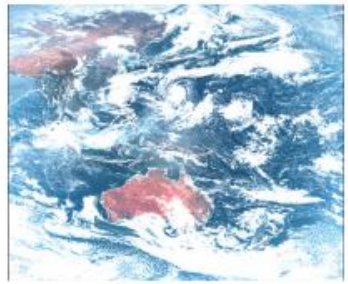
Rapid urbanization and industrialization in Asia have generated increasing air pollution. The particulates PM2.5 and PM10 (tiny particles in the air that reduce visibility and cause the air to appear hazy when levels are elevated) are produced from a wide range of industrial processes through bulk material handling, combustion and minerals processing. PM2.5 particles are so small – 30 times smaller than the width of a human hair – that they can easily infiltrate human respiratory and circulatory systems, contributing to health problems such as asthma, pulmonary vascular disease, and heart attacks.

Besides industrial causes, climate change also results in more frequent drought episodes in the region, increasing the risk of forest fire, smoke haze and land degradation. All of these matters and industrial air pollution are transboundary environmental issues, and can be monitored using Earth observations.

Considering these issues, many countries realize that there is an urgent need to take drastic measures in order to reduce air pollution and improve health – especially in urban areas. Following severe land forest fires in 1997-1998, ASEAN (Association of Southeast Asian Nations) Member States signed the ASEAN Agreement on Transboundary Haze Pollution in June 2002 to prevent, monitor, and mitigate land and forest fires to control transboundary haze pollution through concerted national efforts, regional and international cooperation. The Japan-China-Korea Tripartite Environment Ministers Meeting (TEMM) in 2016 agreed on reinforcement of regional cooperation for improving the regional atmospheric air quality.

Fig. 13

TANSO-FTS has been targeting Addis Ababa and Accra since February 2016 in response to a WHO request.



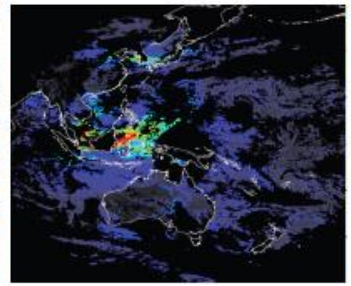


Fig. 14

Himawari-8 Product: Aerosol

JAXA EORC applied the aerosol algorithm developed for JAXA LEO missions (GCOM-C, EarthCARE, GOSAT-2) to Himawari-8.

The Asia-Pacific Regional Space Agency Forum (APRSAF) 2016 discussed regional cooperation for monitoring and predicting air pollution in the region, as satellite data can complement *in-situ* observations by filling gaps in areas where data is low or non-existent. With improved modeling that integrates geostationary and low Earth orbit satellite data, together with field data, fine particulate matters (e.g., PM2.5 and PM10) will be estimated for major cities in the Asia-Pacific region.

Earth Observation Data Use

Satellite data: Himawari, GOSAT/GOSAT-2, GCOM-C, Sentinels, others.

In-situ data: MOE/AEROS, US Air Now, JMA yellow sands estimation map, etc.

Numerical model data: University of Tokyo/JAMSTEC/NIES/Kyushu Univ. MICRO-SPRINTARS, University of Tokyo/RIKEN/NIES/Kyushu Univ. NICAM-Chem, MRI MASINGAR.

Methodology

Fine particulate matter concentrations over cities are estimated by numerical modelling, integrating satellite data and *in-situ* data.

Aerosol data from the geostationary satellite Himawari-8 are available every 10 min with 5 km ground resolution. Hot spot detection and forest fire/smoke haze monitoring are conducted using other geostationary and low Earth orbiting satellites. Satellite-based estimates of PM2.5 rely on this data.

This data will contribute to SDG 11 by providing annual mean of PM2.5 and PM10 concentrations and SDG 3 (Health) by assessing a causal link between air pollution and mortality. These data are critical for policy decision making on air quality management in urban areas, as well as for estimating population-weighted exposures and health outcomes.

Key Issues and Results

Monitoring air quality through Earth observation data:

- Increases cooperation between Asia-Pacific countries (data sharing) and with Europe (Sentinels) and U.S. AirNow (a unique system centralizing data from the US EPA; NOAA; National Park Service; and tribal, state, and local agency systems to provide the public with easy access to national air quality information);
- Contributes to air quality management of mega cities in the Asia-Pacific region; and,
- Fosters cooperation in monitoring of haze caused by forest fires, yellow sands and air pollution.

Analysis, Status, and Outlook

With the launch of new Japanese satellites (Himawari-8 and -9), greater satellite coverage and corresponding aerosol observations will allow better estimations of surface aerosol concentration, providing more information for civil authorities and modeling systems. JAXA began distributing Himawari-8 aerosol data in September 2016. (https://www.eorc.jaxa.jp/ptree/index.html).

Partners, Contacts and More Information

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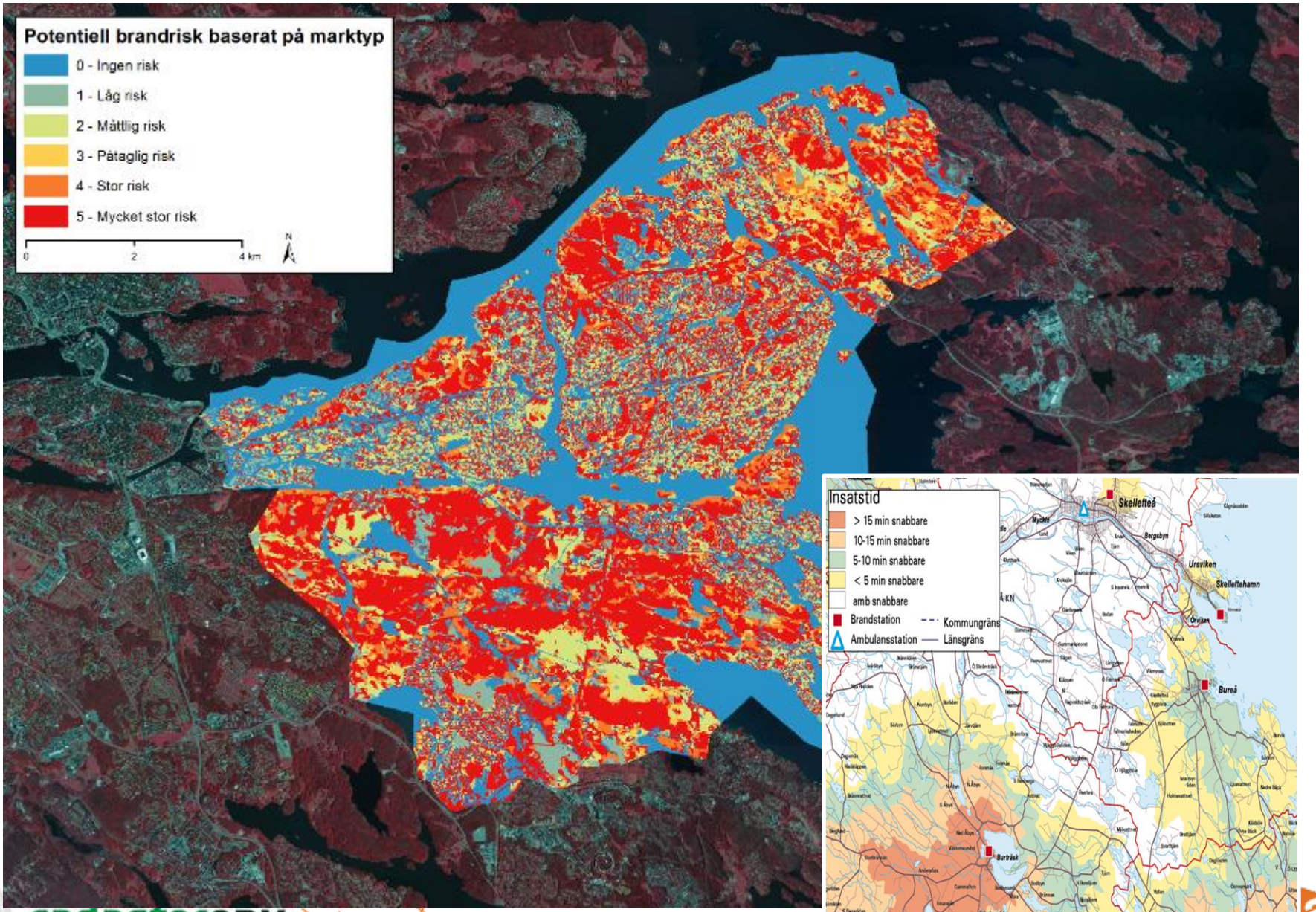
Partners:

JMA, MOE, NIES, CSIRO, WHO

Brandrisk



cadasterenv sweden

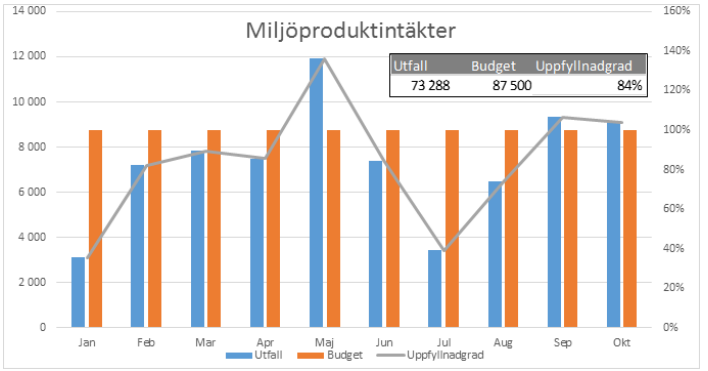
metria

Solkartan

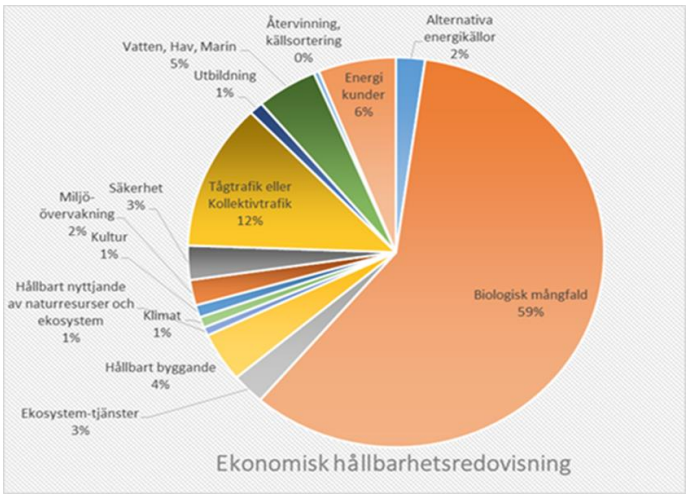
7 HÅLLBAR ENERGI FÖR ALLA

Ex på Redovisning av Metrias hållbarhetsmål

1 a. Ökade intäkter från produkt/tjänst med positiv miljöpåverkan



1b. Ekonomisk redovisning



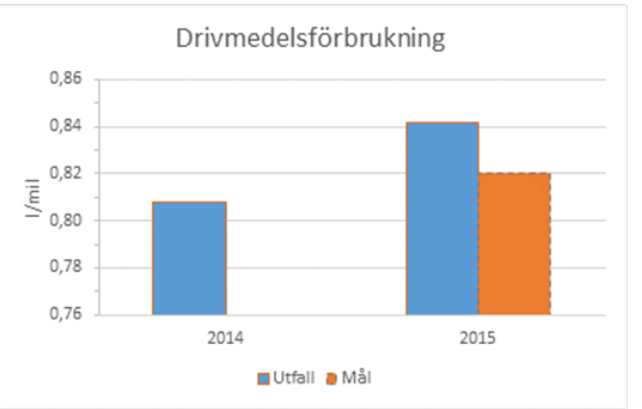
2. Attraktiv arbetsgivare

3. Minskad miljöpåverkan fr resor

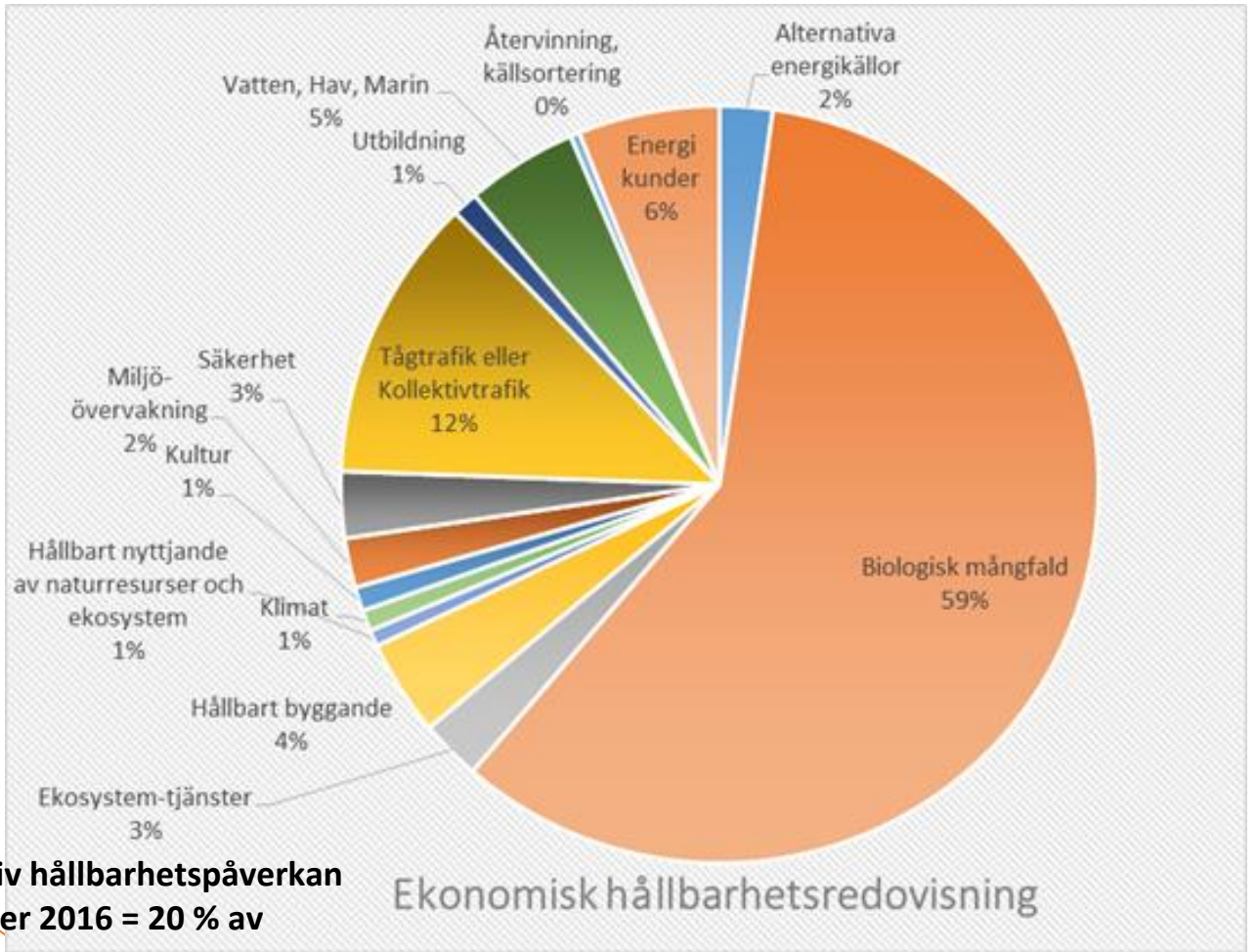
Mål för 2016 - 0,76 l/mil

Utfall 2016

- **Q1: 0,90 l/mil** *(avser perioden 2016-01*
- **Q2: 0,77 l/mil** *(avser perioden 2016-04*
- **Q3: 0,75 l/mil** *(avser perioden 2016-0*
- **Q4: 0,xx l/mil** *(avser perioden 2016-1*



Metrias verksamhet presenterad utifrån Agenda 2030 målen – Produkter med positiv miljöpåverkan



Produkter med positiv hållbarhetspåverkan omsatte ca 90 miljoner 2016 = 20 % av verksamheten, 2016.

ISO 14001 miljöstandard – ett kundkrav!

Krav på Metrias miljöarbete t ex

- Återanvändning, källsortering, farligt avfall
- Kemikalier
- Inköp – hänsyn till mänskliga rättigheter
- Städavtal – hänsyn till mänskliga rättigheter
- Elavtal
- Ventilation
- Brandskydd
- Transporter och Bilpark alternativt videokonferens

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