



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



SUSTAINABLE DEVELOPMENT GOAL 9
INDUSTRY, INNOVATION AND INFRASTRUCTURE

UNIDO technical cooperation, industry 4.0 and remote sensing

Joint ICTP-IAEA School on LoRa Enabled Radiation
and Environmental Monitoring Sensors

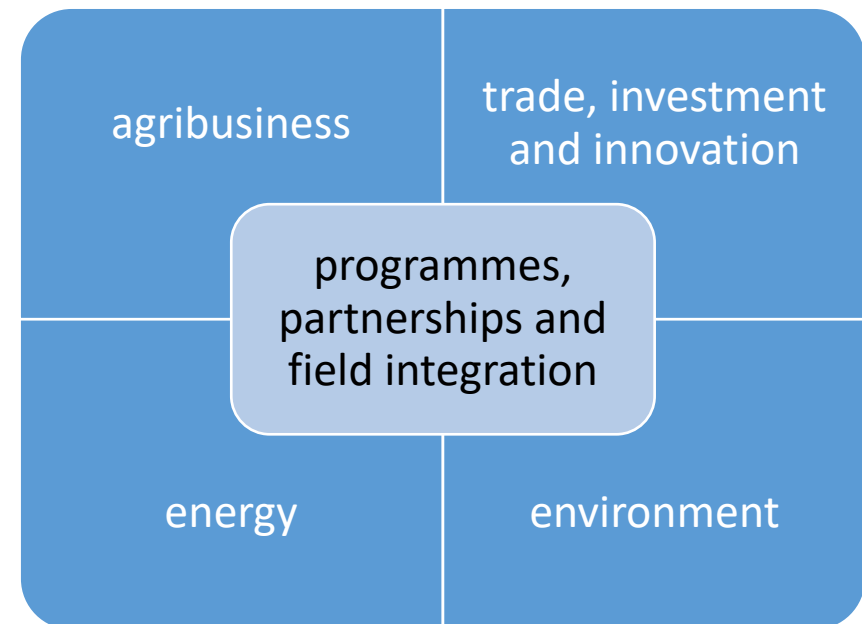
Philippe Scholtès, UNIDO | Trieste, 10 May 2018





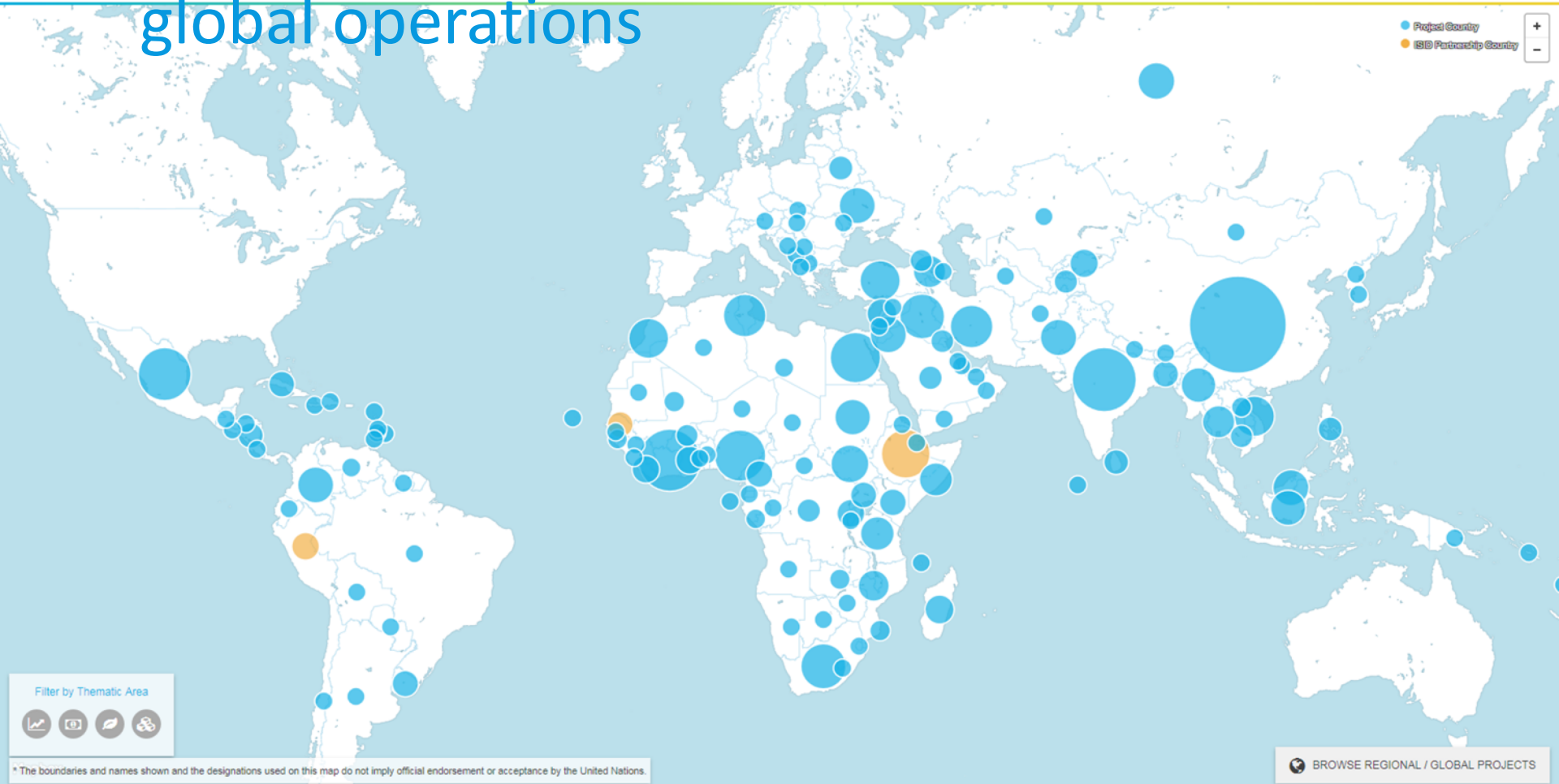
1. about UNIDO

- specialized agency of the UN system
- promotes Inclusive and Sustainable Industrial Development (ISID)
- operations in 100 countries
- 840 projects underway worth \$1.4b
- 660 staff; 1,600 project personnel
- five departments in TC directorate:





global operations





UNIDO supports Agenda 2030

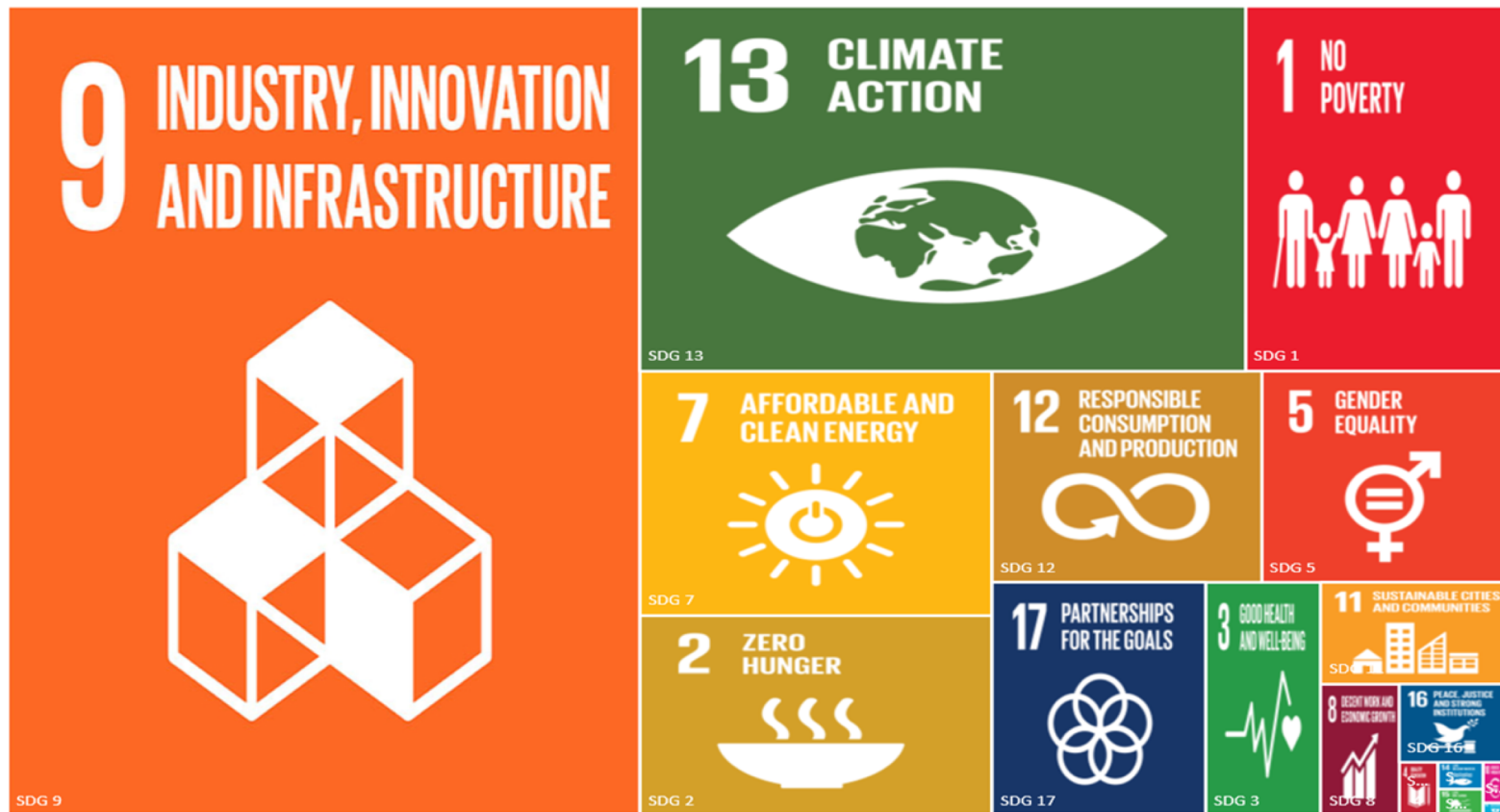




with a focus on SDG 9



but contributes to a broader range of SDGs

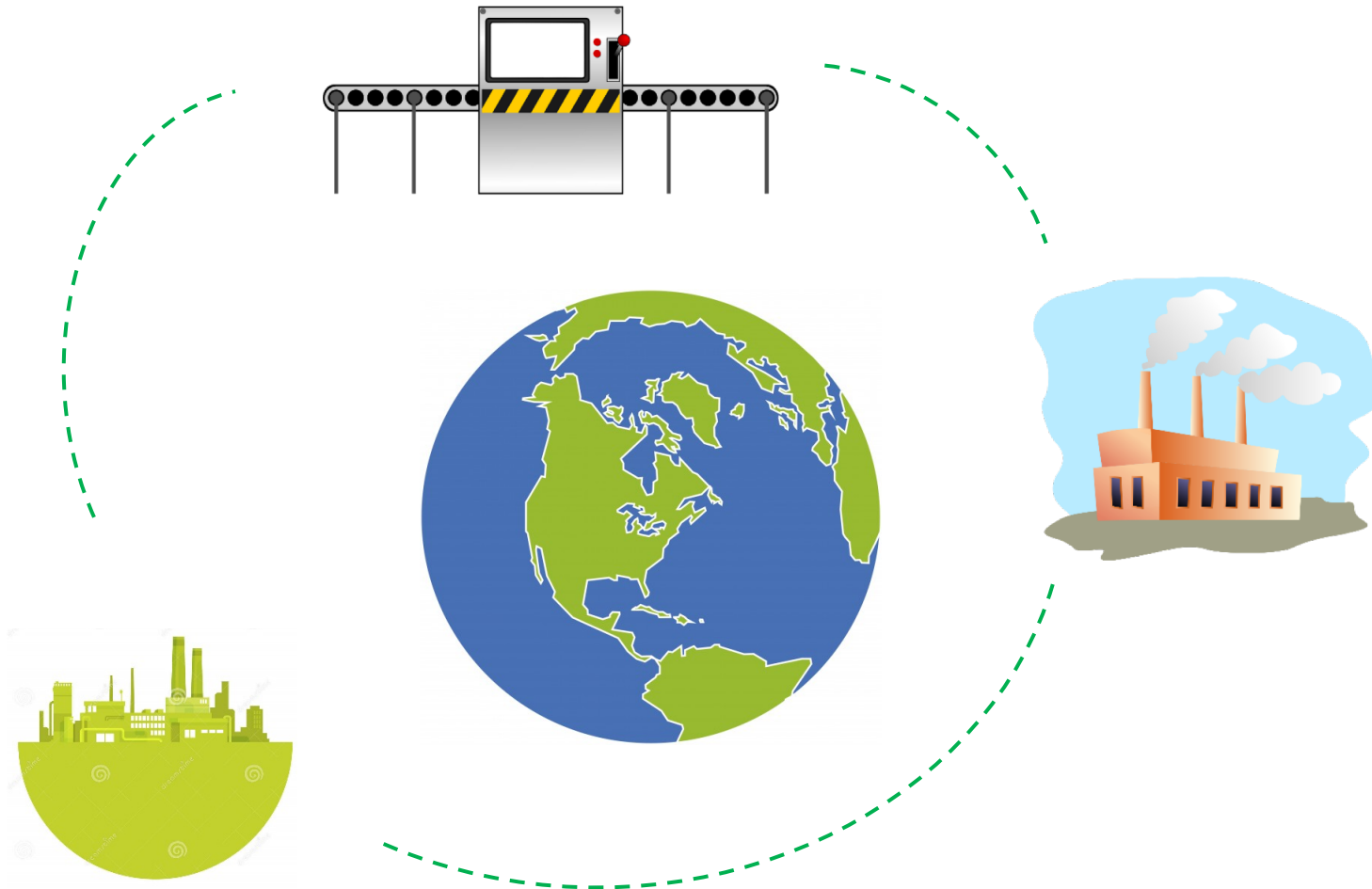




2. from S&T to development assistance

- life sciences and the bio-economy
- resource efficiency and the circular economy
- industry 4.0 and the future of manufacturing
-

helping DCs engage in Industry 4.0





helping DCs engage in Industry 4.0

machine-to-machine communications require:

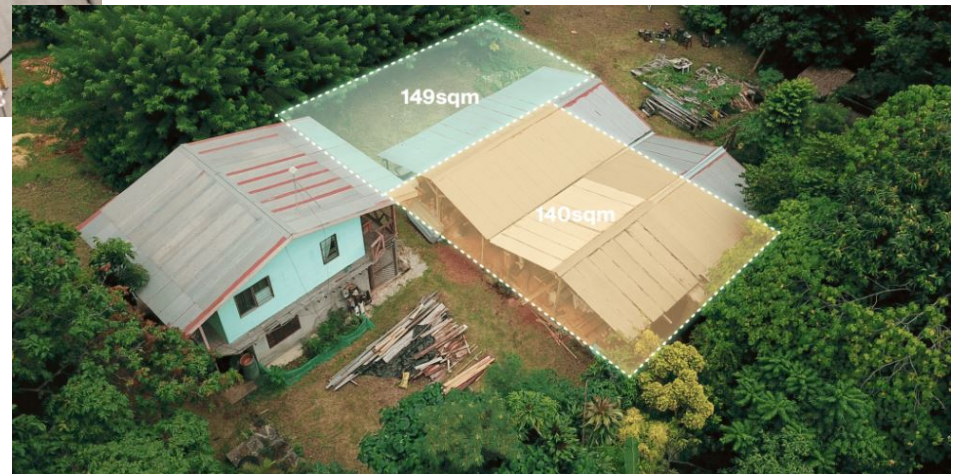
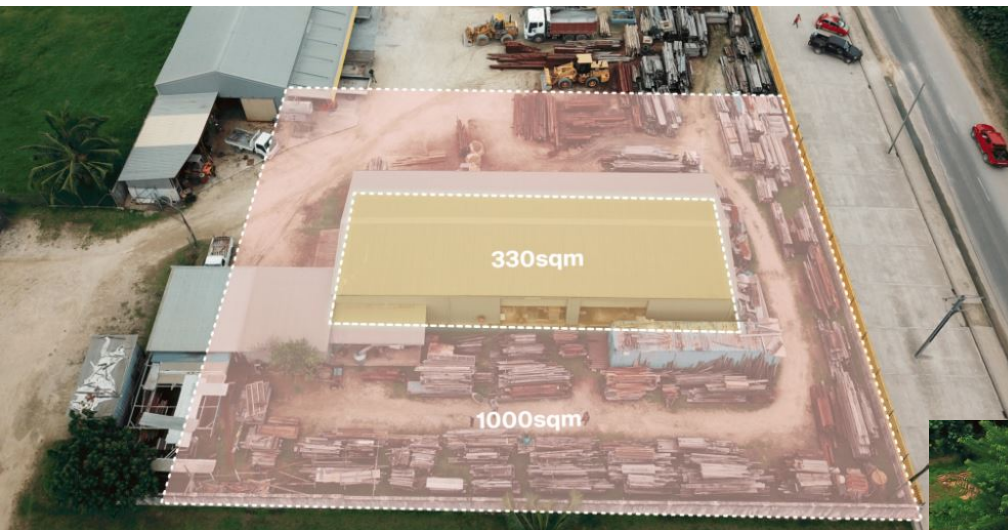
- sensors to collect data
- IT platforms to process it
- and a communication protocol between them

the main challenge in developing countries (DCs) is connectivity:
accessible, affordable and reliable communication networks



collecting data with drones ...

... for areal imagery today ..



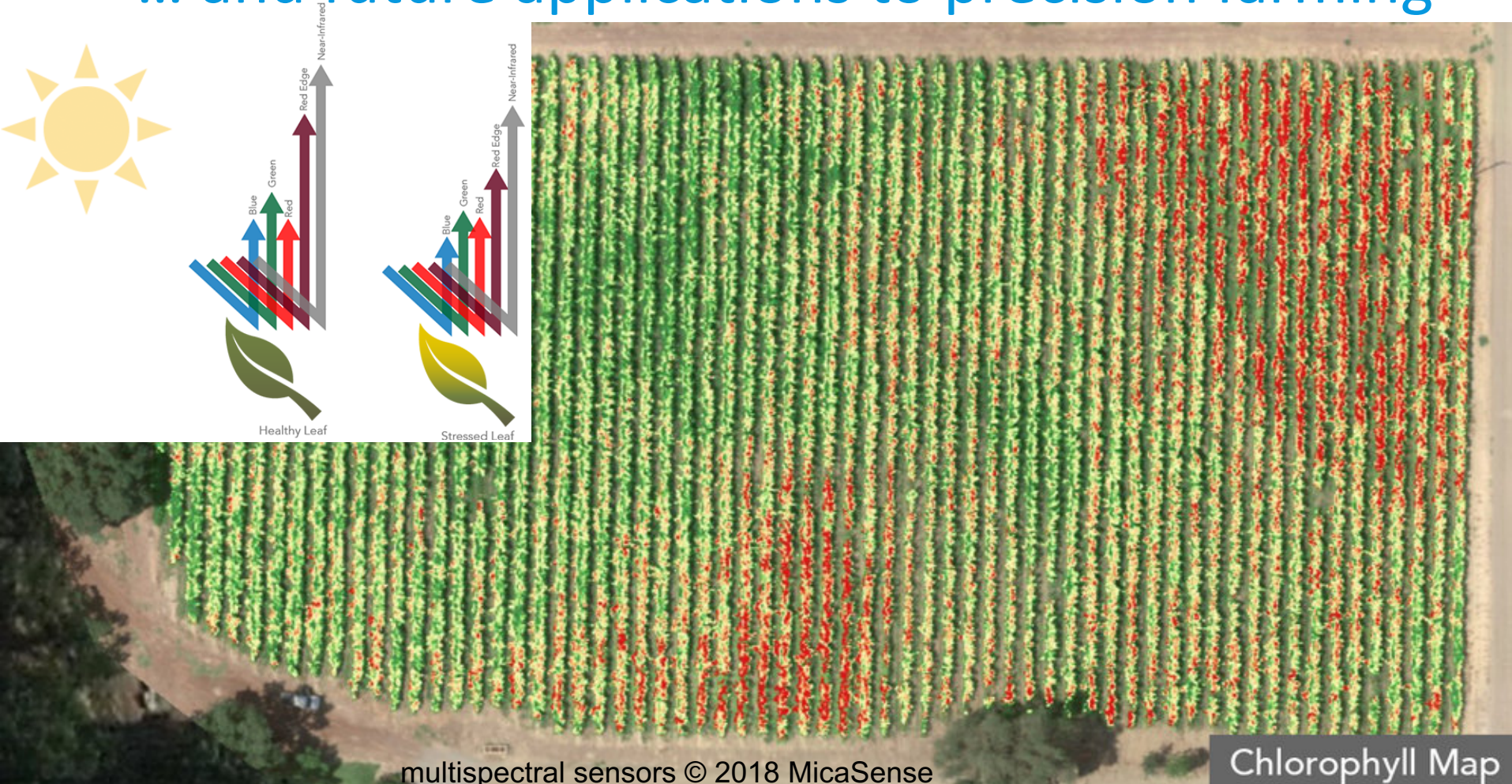


... and future applications to precision farming



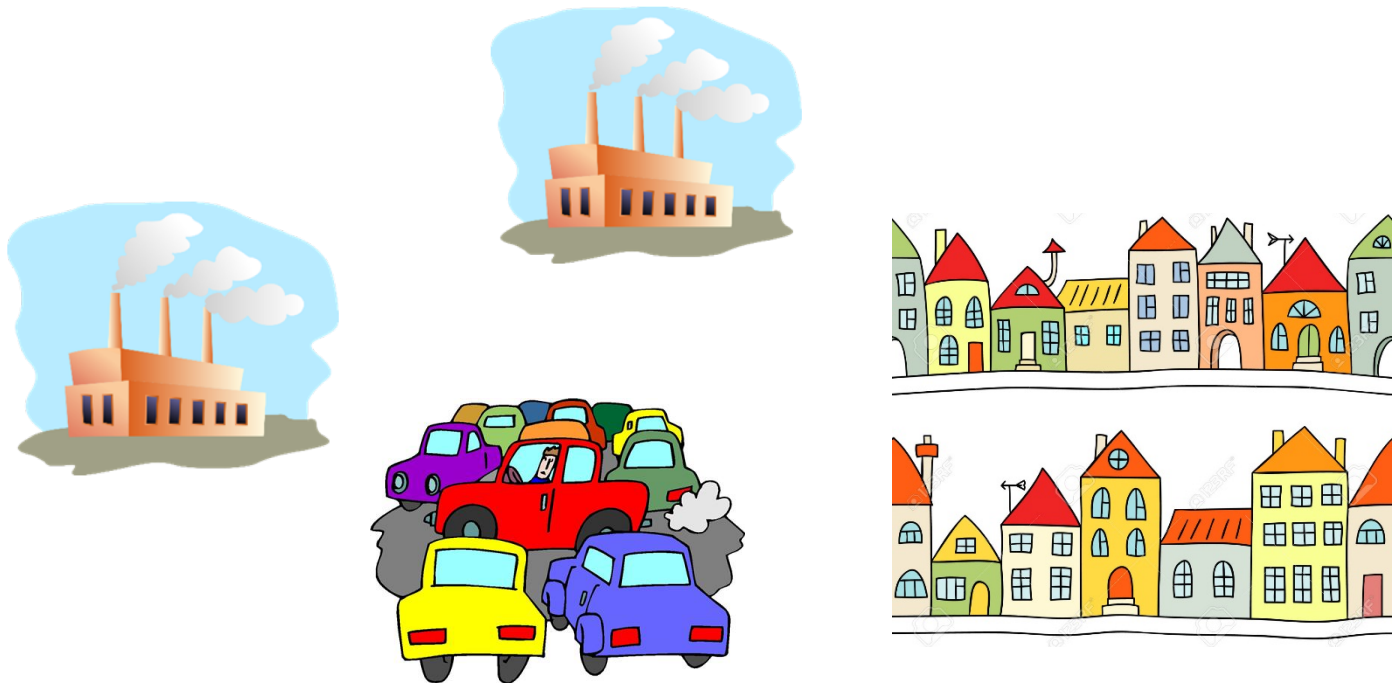
RGB Color

... and future applications to precision farming



... or to air pollution control with LoRa sensors

for which we are seeking the support of IAEA and ICTP experts



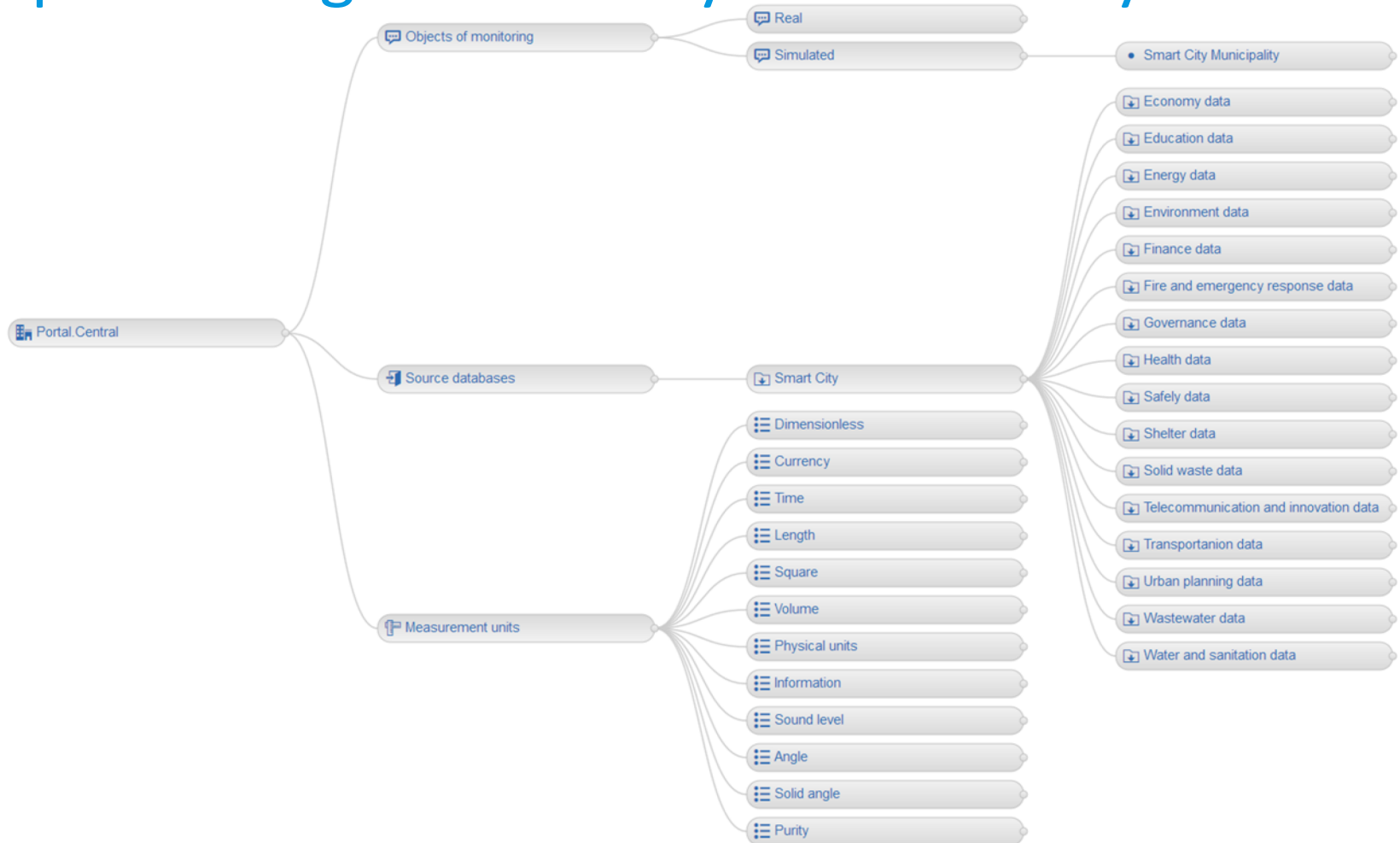


processing data on city sustainability

<https://pharosnavigator.com/>



processing data on city sustainability





processing data on city sustainability

Main Menu Mobile Events Log Tools PortalCentral									
Events ... Navigate Prefere... Help Accele... Map Depend... Car ser... My fuel... Stores My doc... Quick L... WIFI Parking ATM My kids... Business ISO 37...									
Monitor ISO 37120									
Object Name	Status				Tags	Calculated by engine	Updated on monitor	Info	
Environment					Particules, CO2e, Carbon dioxide, Concentration, Environment	2016-07-24T12:10:42	2018-05-02T14:10:43		
Smart City Municipality					City, Municipality, Council, Urban area, ISO 37120, Services, Management, Benchmarking, ISO 37101	2016-07-24T12:10:42	2018-05-02T14:10:43		
Economy					Citizens, Labor, Property value, Income, Economy, Employment	2016-07-01T12:10:42	2018-05-02T14:10:43		
Energy					Renewable sources, Consumption, Electricity	2016-07-01T12:10:42	2018-05-02T14:10:43		
Water and Sanitation					Sanitation facilities, Potable water, Access to improved water, Water supply	2016-07-01T12:10:42	2018-05-02T14:10:43		
Urban Planning					Green area, Urban Planning	2016-07-01T12:10:42	2018-05-02T14:10:43		
Wastewater					Primary treatment, Wastewater collection, Water treatment, Secondary treatment	2016-07-01T12:10:42	2018-05-02T14:10:43		
Telecommunication and innovation					Internet, Cell phones, Connections	2016-07-01T12:10:42	2018-05-02T14:10:43		
Solid waste					Waste Collection, Solid waste, Recycled waste	2016-07-01T12:10:42	2018-05-02T14:10:43		
Shelter					Slums, Shelter	2016-07-01T12:10:42	2018-05-02T14:10:43		
Safety					Police, Homicides, Safety	2016-07-01T12:10:42	2018-05-02T14:10:43		
Health					Physicians, Hospital beds, Health, Life expectancy, Child mortality	2016-07-01T12:10:42	2018-05-02T14:10:43		
Governance					Women employed, Voters, Governance, Municipal elections	2016-07-01T12:10:42	2018-05-02T14:10:43		
Fire and emergency response					Fire-related deaths, Emergency Response, Disaster-related deaths, Fire Response, Firefighters	2016-07-01T12:10:42	2018-05-02T14:10:43		
Education					Schools, Primary, Education, Secondary, Students	2016-07-01T12:10:42	2018-05-02T14:10:43		



sat for global access or mobile applications





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AGRICULTURE



EMERGENCY
SERVICES



HEALTHCARE



MONITORING



SMART CITIES



DANGEROUS GOODS
MONITORING



RAILWAY
MONITORING



AUTOMOTIVE



LOGISTICS



CONTAINER
MONITORING



BORDER
CONTROL



CONSTRUCTION



INTERNET
PLATFORM



PIPELINE



WASTE
MANAGEMENT



application to IAFP Ethiopia

- Integrated Agro-Food Parks (IAFPs) to process local agro produces
- on the input side, optimized energy-water-land use nexus through geospatial data collection and monitoring
- on the output side, trade facilitation through tracking of goods in transit, delays at border posts etc ...



