

DRR in the era of CC, SDGs and the Fourth Industrial Revolution (4IR)



THE AFRICAN CAPACITY
BUILDING FOUNDATION

FONDATION POUR LE RENFORCEMENT
DES CAPACITES EN AFRIQUE

ACBF BROWN BAG PRESENTATION

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Presentation Outline

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- 5 Key points to take home

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- From MDGs (2000-2015) to SDGs (2016-2030)

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- Highlights on Industry 4.0

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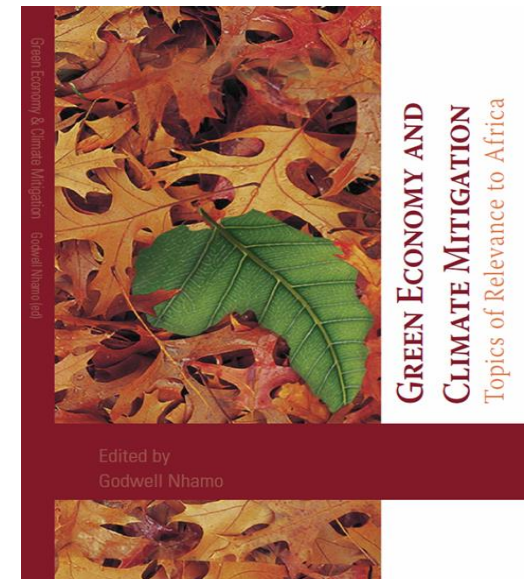
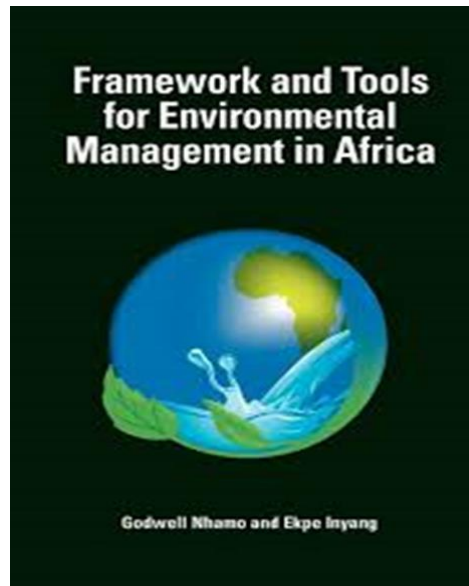
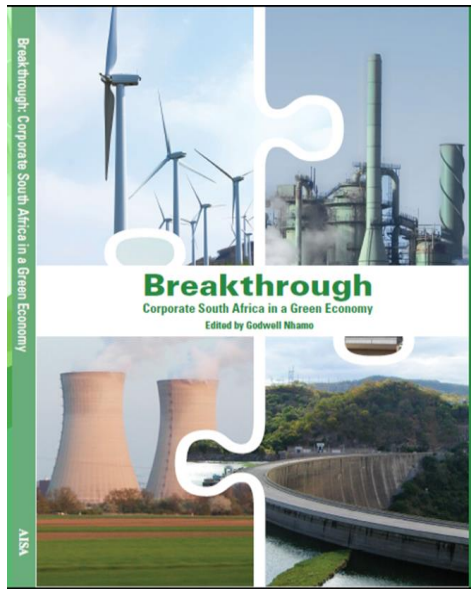
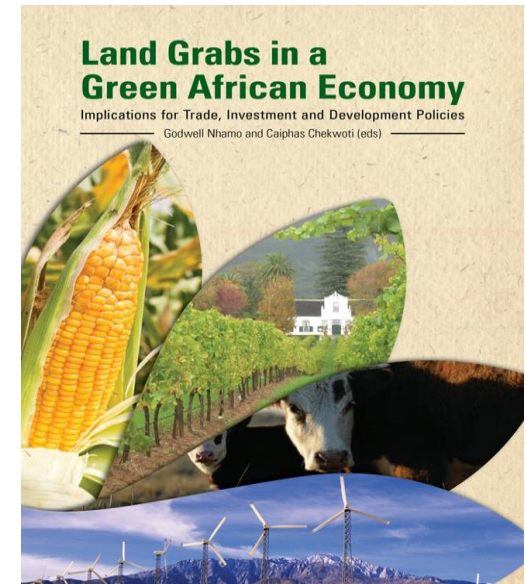
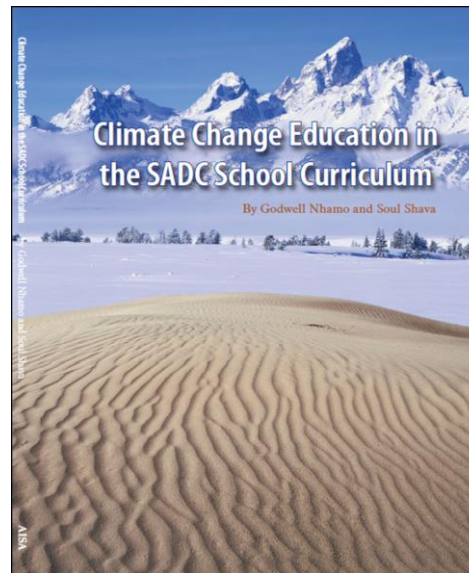
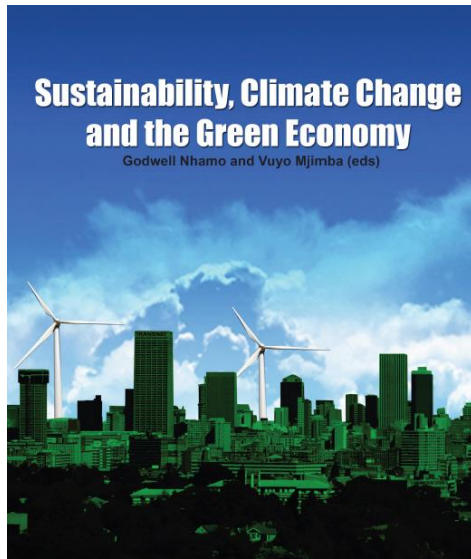
- Interesting things have/are happening

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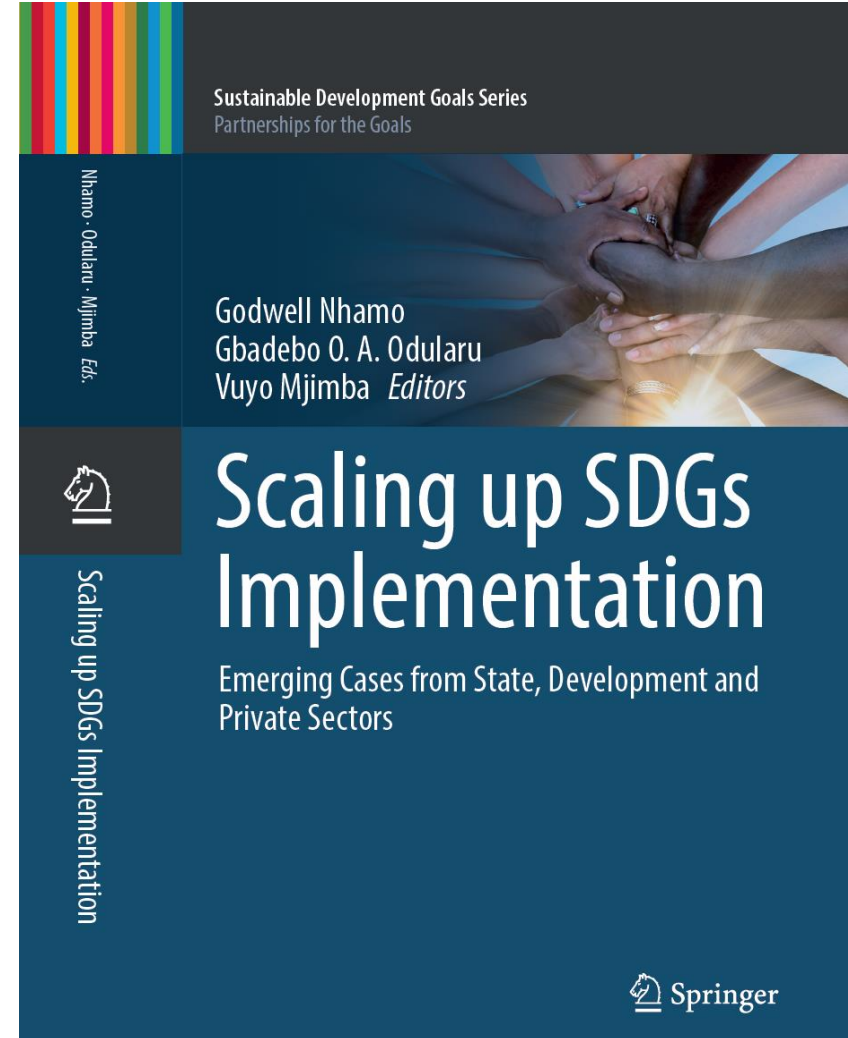
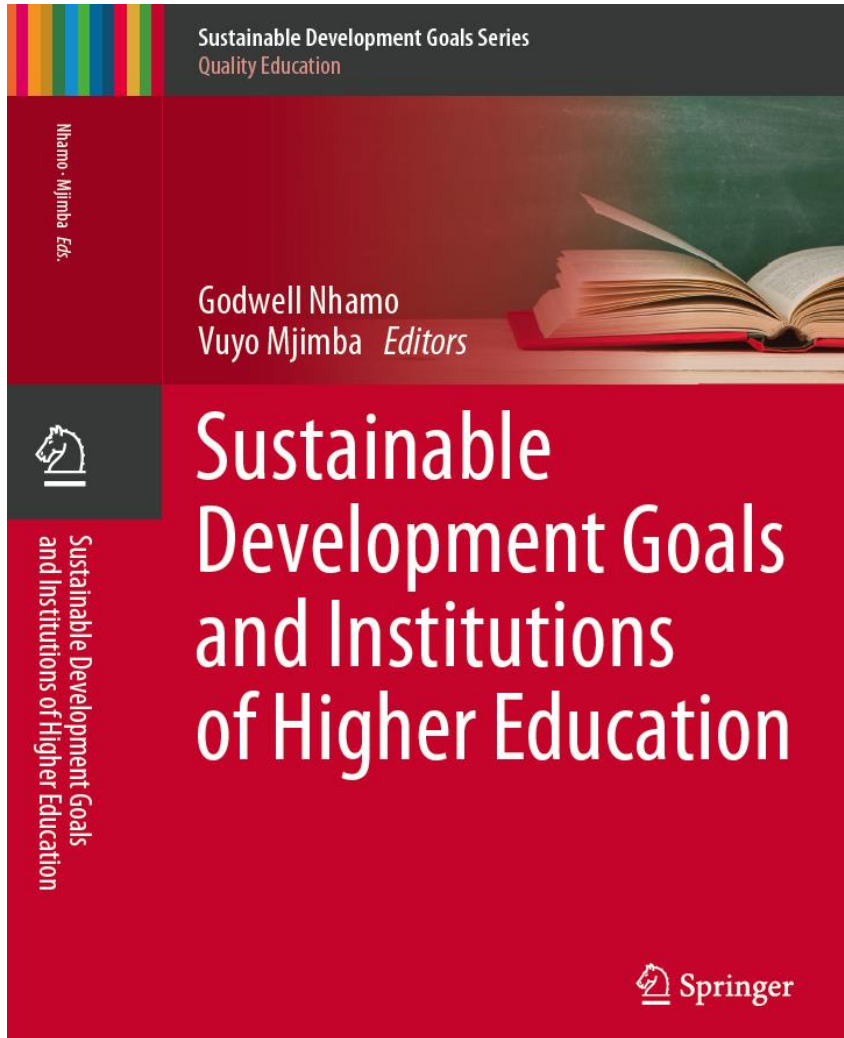
- Conclusions and recommendations

Background noise

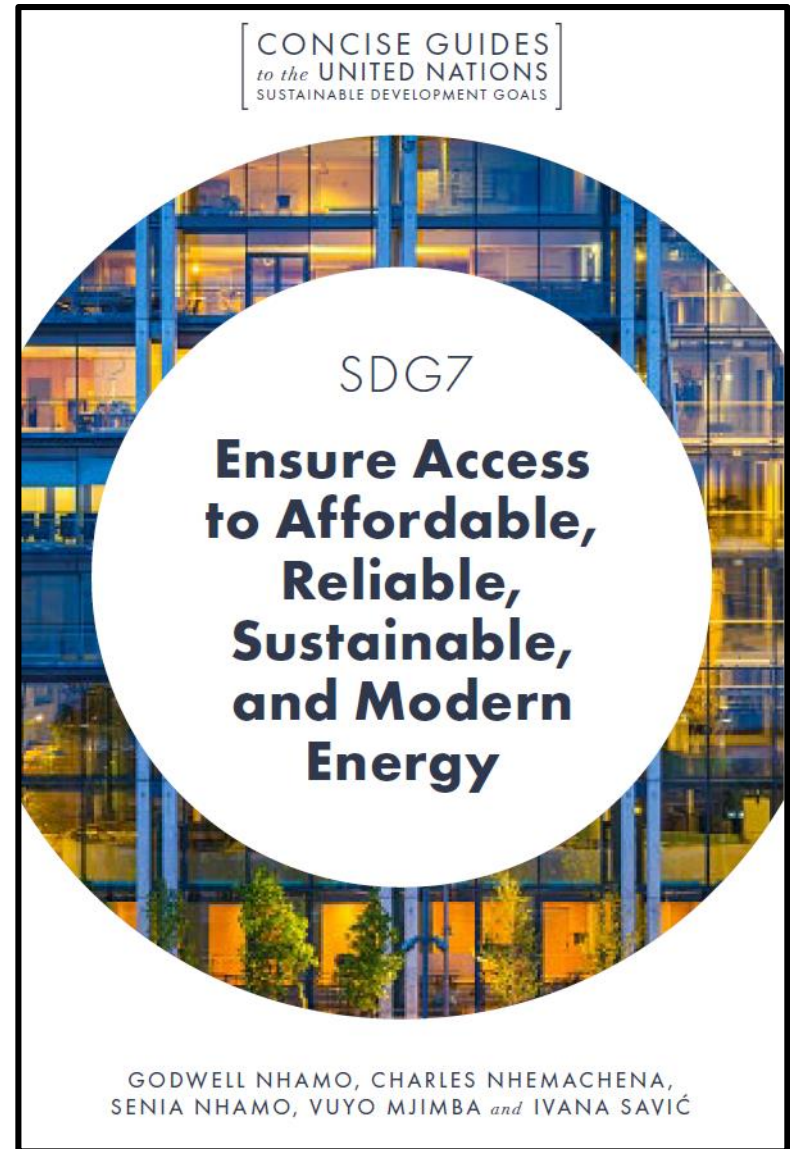
Books from the Exxaro Chair (2009-2019)



Books from the Exxaro Chair (2009-2019)



Books from the Exxaro Chair (2009-2019)



Books under preparation 2020+



1. Sustainable Development Goals for Society (Chapter call open till 31 October 2019)
2. Four Volumes (9 Editors) on **Cyclones, Floods and SDGs in Southern Africa** (Chapter call closed and fieldwork has commenced with over 120 authors mainly from the four affected countries).

Books under preparation 2020+: The four (4) Volumes and some of can come in



1. **Tropical Cyclones and floods in southern Africa Vol 1: Foundational and Fundamental Topics**
2. **Tropical Cyclones and floods in southern Africa Vol 2: Implications for SDGs 1-6**
3. **Tropical Cyclones and floods in southern Africa Vol 3: Implications for SDGs 7-13**
4. **Tropical Cyclones and floods in southern Africa Vol 4: Implications for SDGs 14-17**

NB: Allocation of SDGs specific volumes to be finalised as the abstracts are allocated

Promotion – SDGs4S Portal

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This subject guide provides access to the Library's key resources relevant to the field of Sustainable Development Goals for Society (SDGs4S). Explore the different resources and contact [your personal librarian](#) if you need any assistance.

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- Cyclones, Floods and SDGs in Southern Africa
- Sustainable Development Goals for Society

Subject Guides

UNISA | Environmental Sciences: Plant

Please note the book chapter calls here

Available @ <https://libguides.unisa.ac.za/SDGs4S> or just search SDGs4S in Google and it will pop up.

5 Key policy pointers to take home

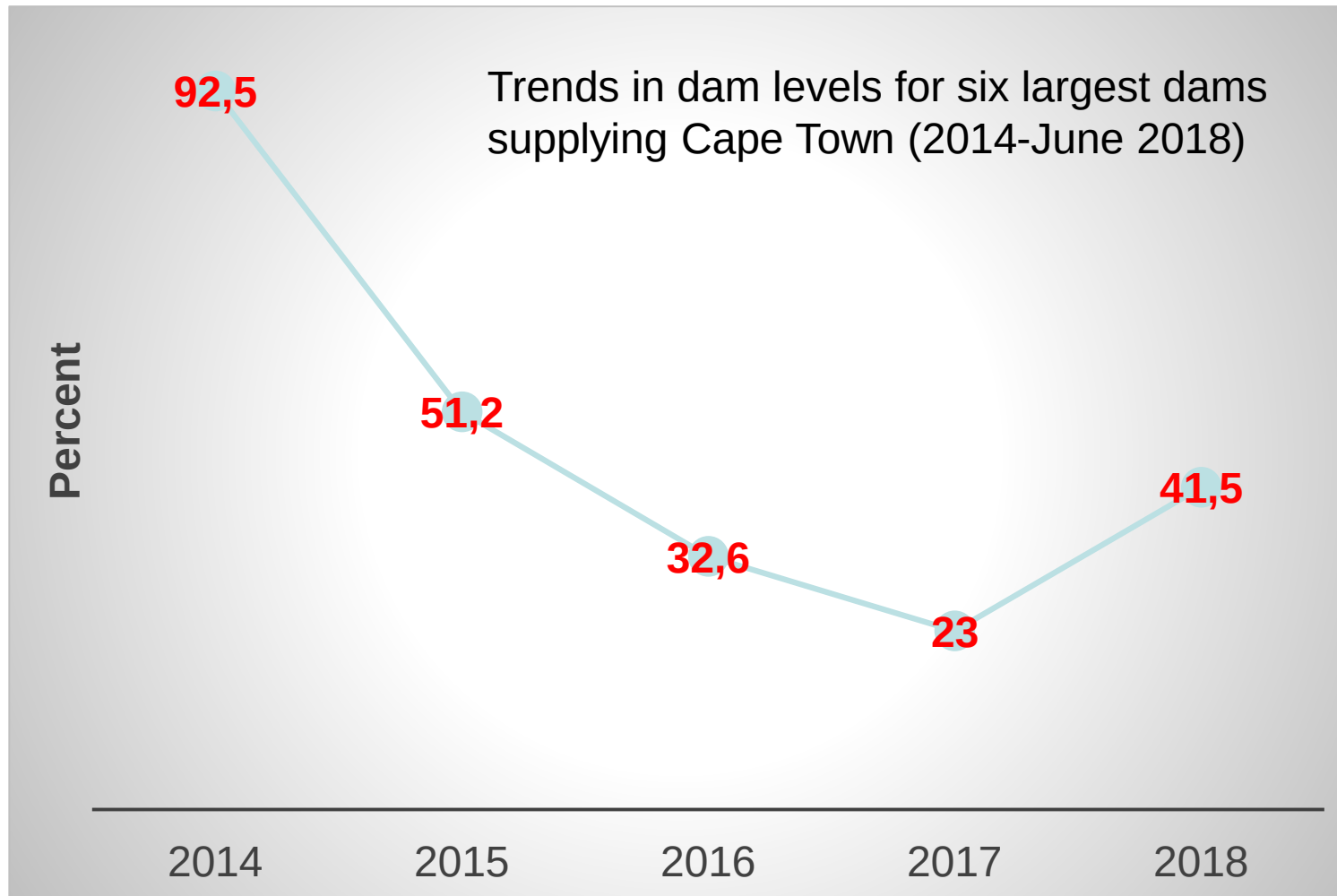
1. The **harsh realities** of CC have both direct and indirect impacts on the Sustainable Development Goals (SDGs)
2. To be effective, we must re-think DRR institutional set-ups **(What are the e villages and wards roles in times like Idai?)**
3. The battle cry to 2030 is: **LET NO ONE BE LEFT BEHIND**, and already, many in Africa have been left behind.
4. Industry 4.0 (Fourth Industrial Revolution - 4IR) **is hear to stay** and Africa must be part of this global science-based transition.
5. To be able to address the **complex** global challenges in the context of CC, SDGs, & 4IR, Africa requires hybrid individuals who ask **difficult research questions & find simple** solutions.

Take heed: **The Games in Town**

- 2003: The Comprehensive Africa Agriculture Development Program (CAADP)
 - 2012: Rio+20
 - 2014: Africa Agenda 2063
 - 2014: UNESCO GAP
 - **2014: Industry 4.0**
 - 2015: Sendai Framework
 - Addis Ababa Action Agenda (Means of Implementation)
- 2015: 2030 Agenda for Sustainable Development (including the 17 SDGs and 169 targets)
- 2015: Paris Agreement**
- 2016: Nairobi Pact
- 2016: Habitat III – New Urban Agenda
- Know your country's development plans e.g. Zimbabwe's National Vision 2030**

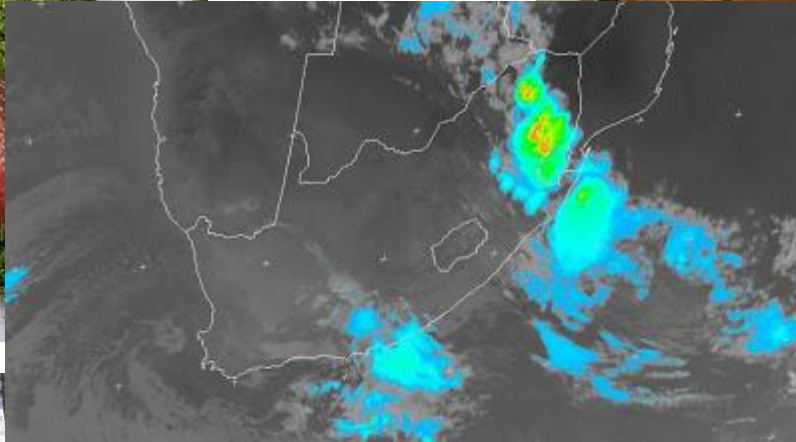
Harsh Realities of CC and Extreme Weather Events

Impact of CC: Day Zero & Dam Levels



Source: Nhamo and Agyapong 2019

Hail storms **like hell** in SA municipalities



Shongwe Hospital,
Nkomazi, Mpumalanga



Hail in JHB 21 September 2014; 28 November 2013; 20 Oct 2012; 3 Dec 2010.

Climate change related floods and tidal waves

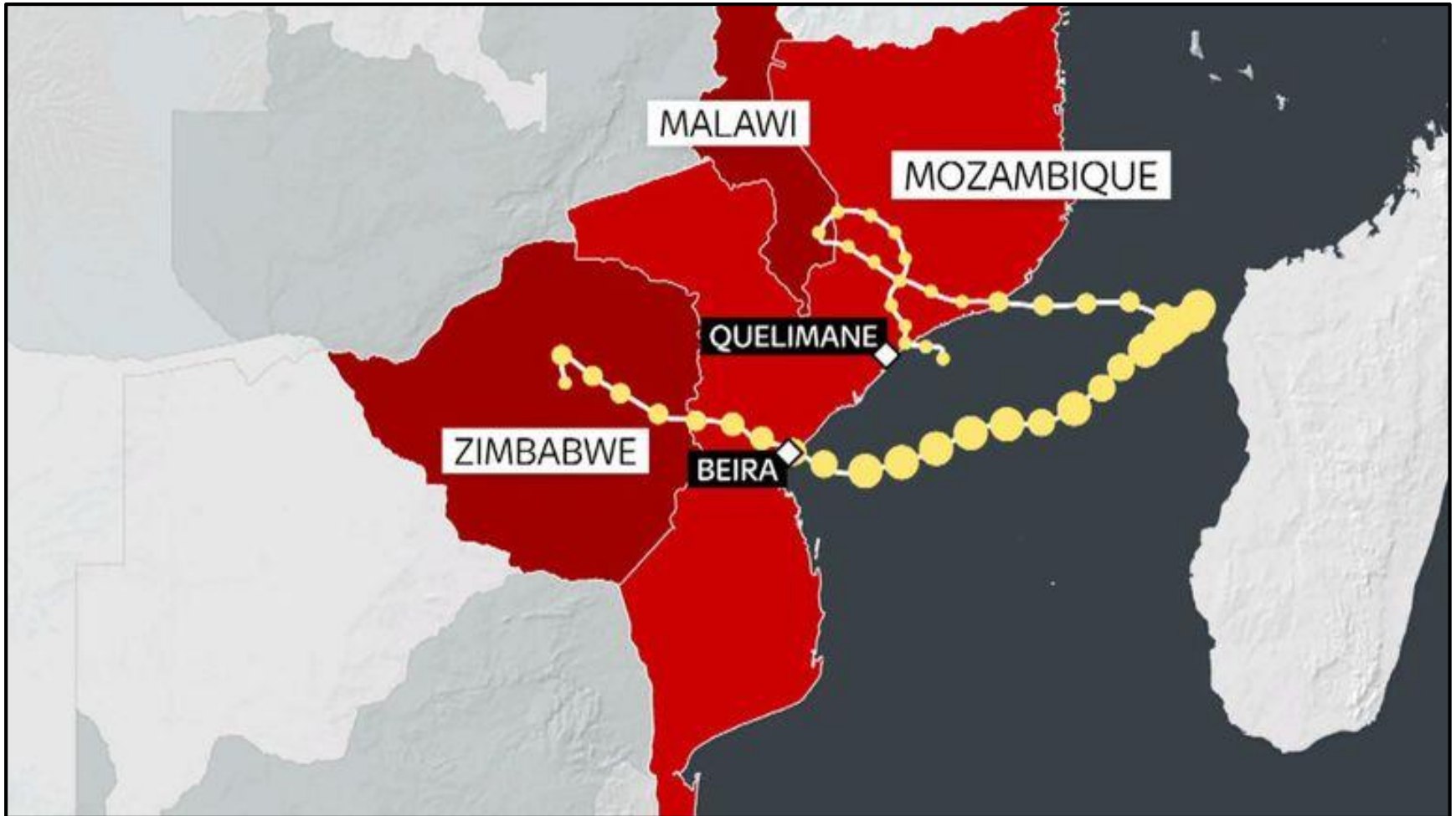


Climate Change: **Extreme frost along N3 & road closed for 3 days**



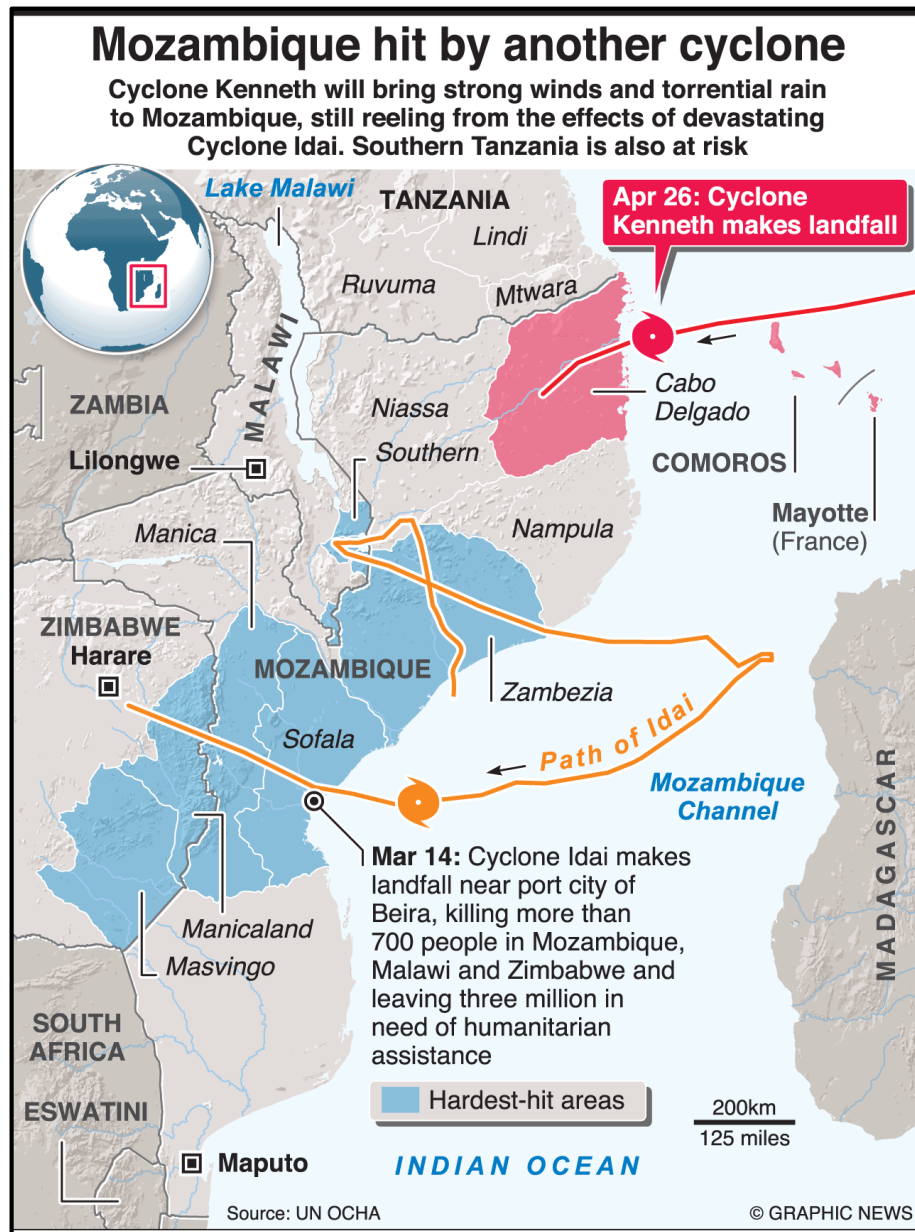
What if your
product was
on its way to
China, EU etc

Cyclone Idai



https://www.google.co.za/search?q=Cyclone+Idai+and+Kenneth+Map&source=lnms&tbn=isch&sa=X&ved=0ahUKEwjWg5SU1t3kAhWWURUIHQO8AMEQ_AUIESgB&biw=1536&bih=714#imgdii=e0Ph8tgiGula2M:&imgsrc=zxsy7KAAluPKFM:&spf=1568923147561

Add on top Cyclone Kenneth

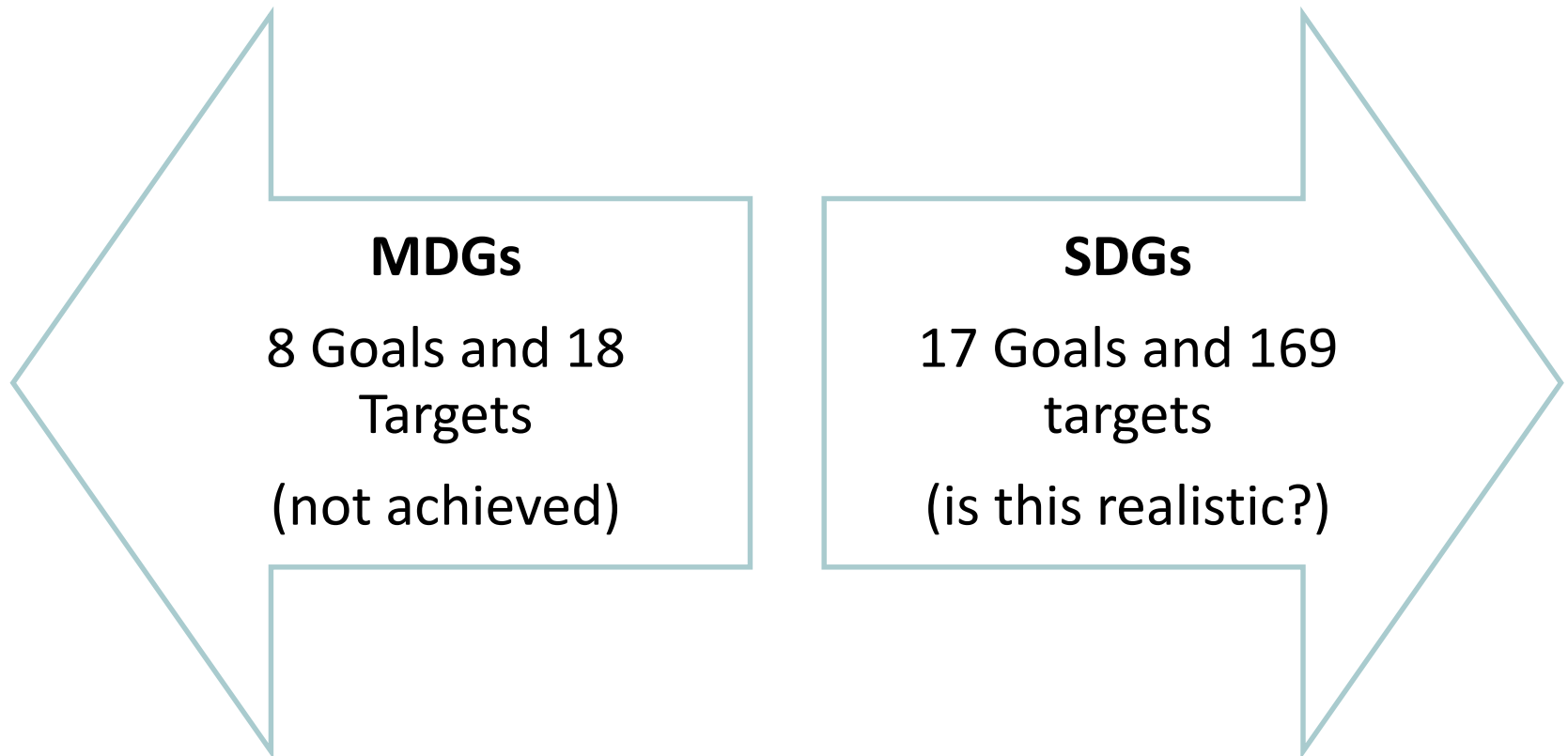


How much water & damage did Idai bring?



From MDGs (2000-2015) to SDGs (2016-2030)

From MDGs to SDGs: A bigger challenge



Africa Agenda 2063 & the 7 aspirations

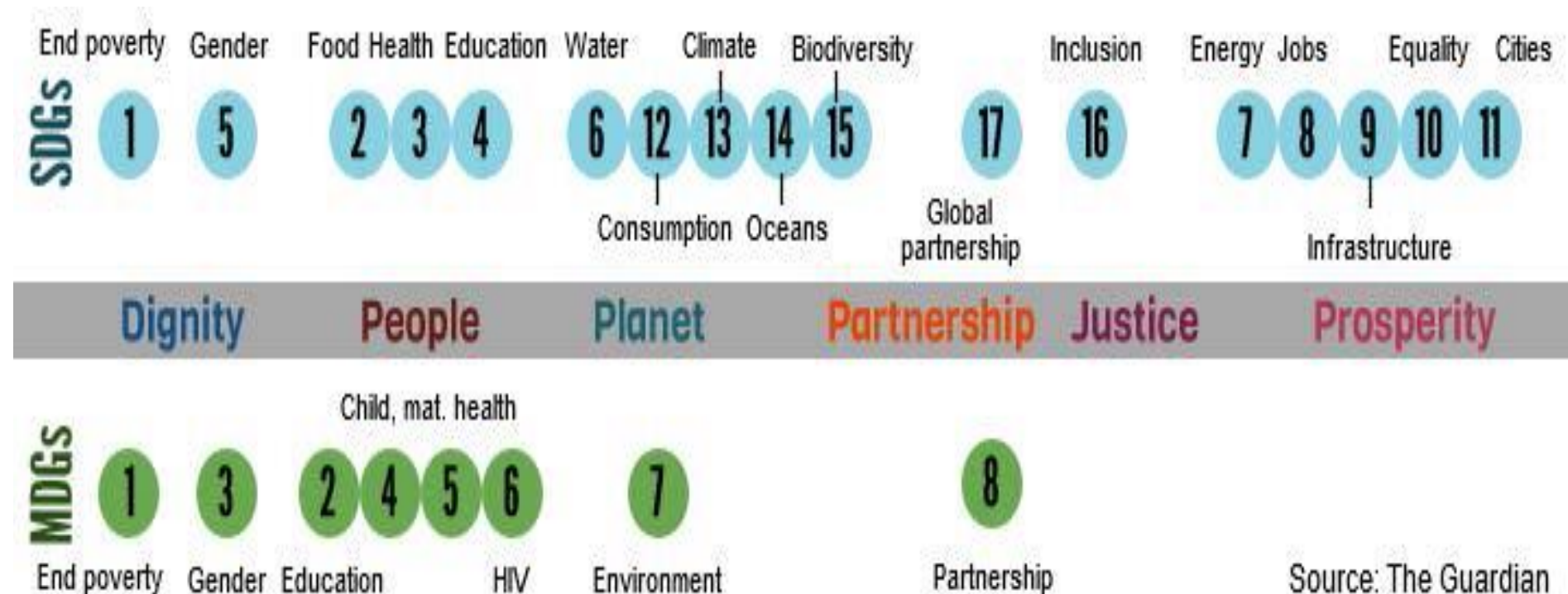


5 Fundamentals of Sustainable Development



Source: UN
2015

Continuity and new approaches from the unfinished business of **MDGs to SDGs**



SDGs D&L: The UNDG's Approach

MAPS

MAINSTREAMING

Landing the SDGs into national, sub-national and local plans for development, and shaping budget allocations

ACCELERATION

Targeting resources at priority areas, paying attention to synergies & trade-offs, bottlenecks, partnerships, measurement

POLICY SUPPORT

Ensuring that skills and expertise of the UN Development System are available in an efficient and timely way

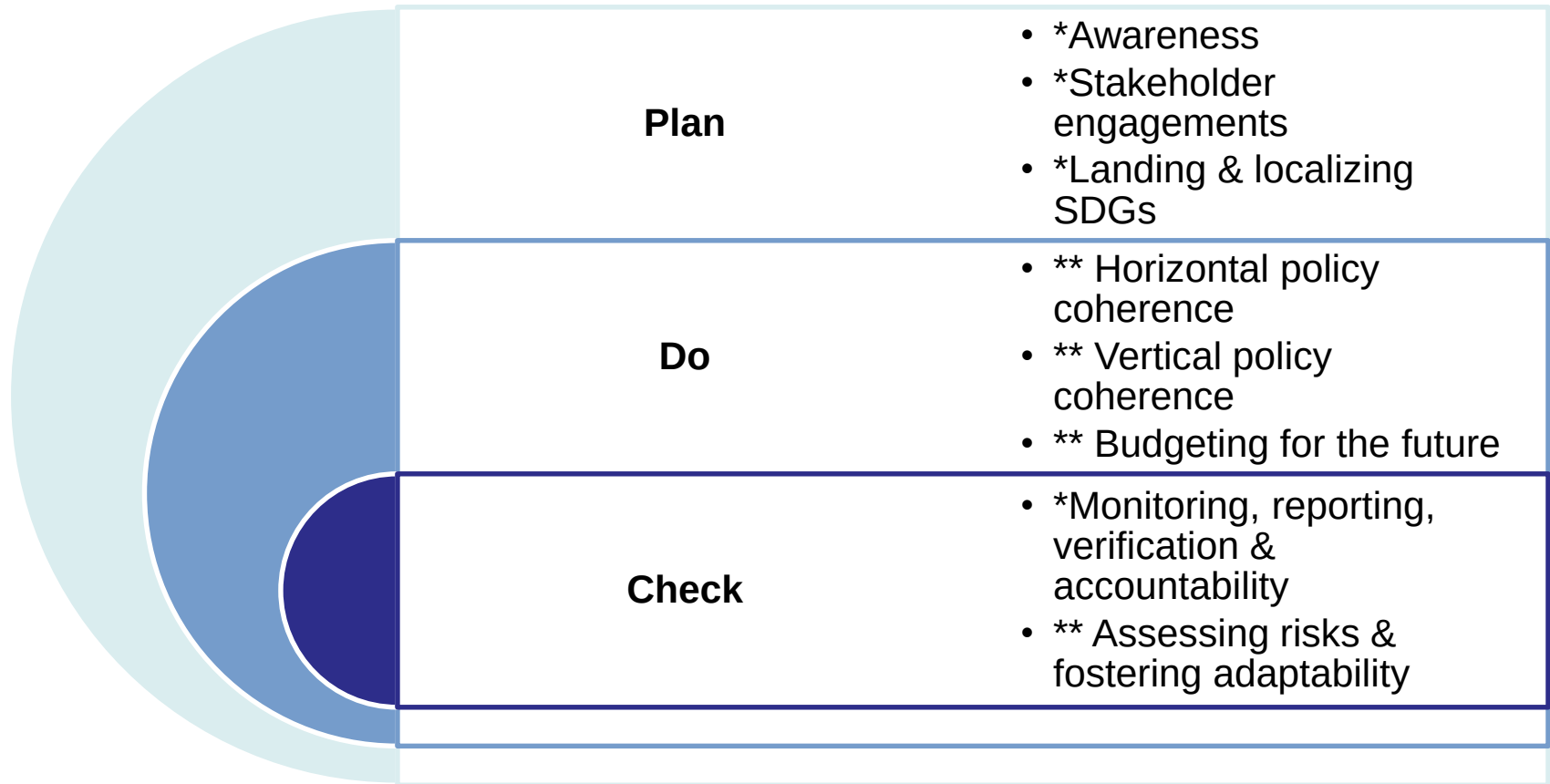


PARTNERSHIP DEVELOPMENT: Channel additional support for national level partnership development activities, including for parliaments, NGOs, faith-based groups, private sector, and the media.

ACCOUNTABILITY: Establishing monitoring and review frameworks to hold decision-makers and the UN to account.

DATA: Contributing to the data revolution by helping strengthen national capacities to collect and analyze information to monitor progress on the 2030 Agenda and SDGs.

SDGs D&L: Plan-Do-check Model



Key: * Initiate Now; ** Initiate Over Time

Source: Author, After UNDG, 2016: 13

SDGs indicators D&L: **Global classification**



3

- The indicators presented were agreed on as of **April 2019**
- Work is done under the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs) custodianship
- The SDGs indicators come in **3 tiers**
- Tier classification of many indicators will change in coming years as methodologies are developed and data availability increases

SDGs indicators D&L: Tier Definitions



Indicator conceptually clear,
established methodology and
standards available and data
regularly produced by countries

Source: IAEG-SDGs, 2017

SDGs indicators D&L: Tier Definitions



Indicator conceptually clear, established methodology and standards available; but data are not regularly produced by countries

Source: IAEG-SDGs, 2017

SDGs indicators D&L: Tier Definitions



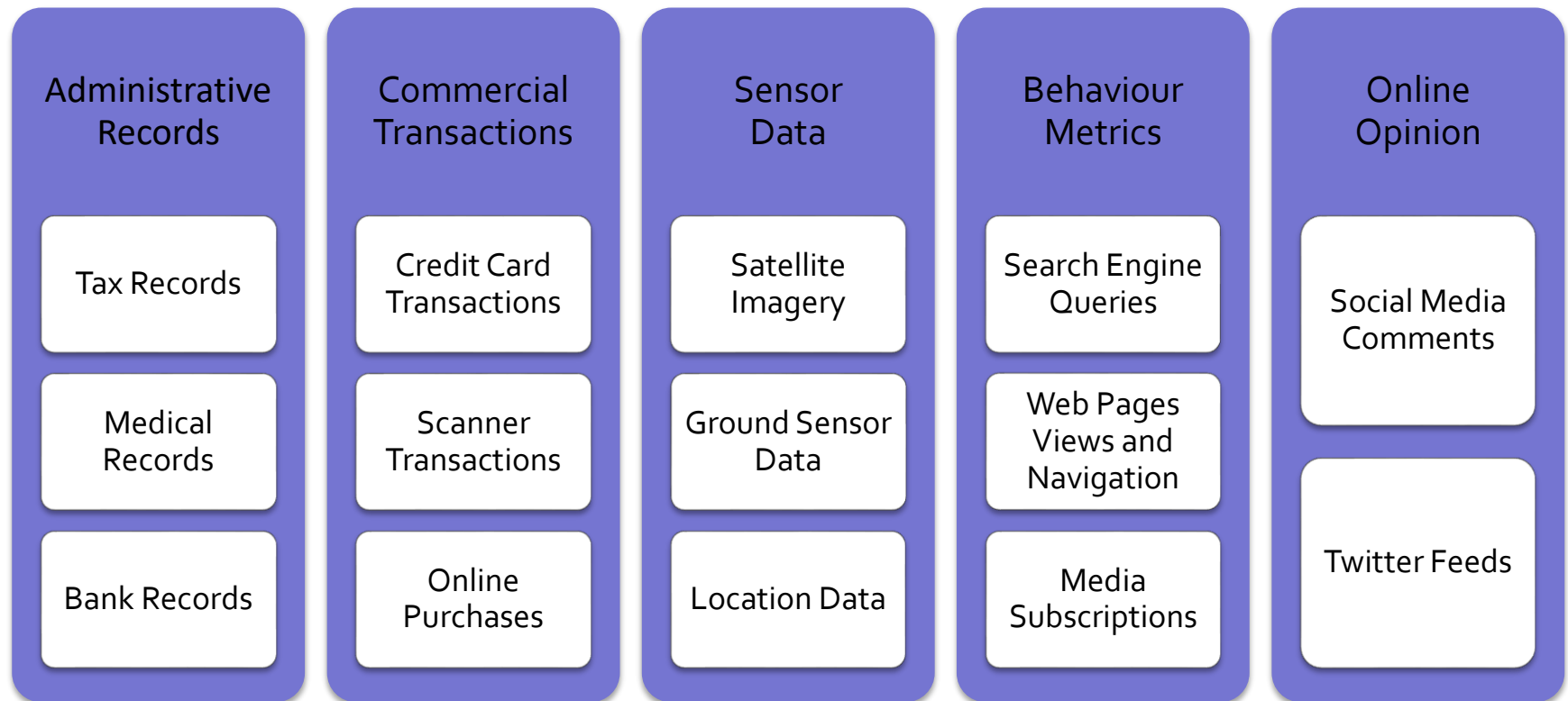
Indicator for which there are no established methodology and standards or methodology/standards are being developed/tested

Source: IAEg-SDGs, 2017

Big Data presents an exciting
opportunity for the SDGs and the
future



- **Big Data** are the increasingly available digital trails from the ubiquitous information gathering technologies



Source: Stats-SA, 2015

Big Data



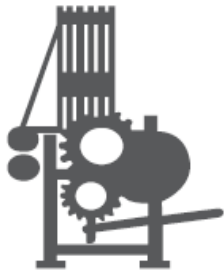
However, access; privacy and public trust; methodological soundness; technological feasibility and data acquisition still pose considerable challenges

Highlights on Industry 4.0

From Industry 1.0 to Industry 4.0

First Industrial Revolution

based on the introduction of mechanical production equipment driven by water and steam power



First mechanical loom, 1784

Second Industrial Revolution

based on mass production achieved by division of labour concept and the use of electrical energy



First conveyor belt, Cincinnati slaughterhouse, 1870

Third Industrial Revolution

based on the use of electronics and IT to further automate production



First programmable logic controller (PLC) Modicon 084, 1969

Fourth Industrial Revolution

based on the use of cyber-physical systems



Degree of complexity



1800

1900

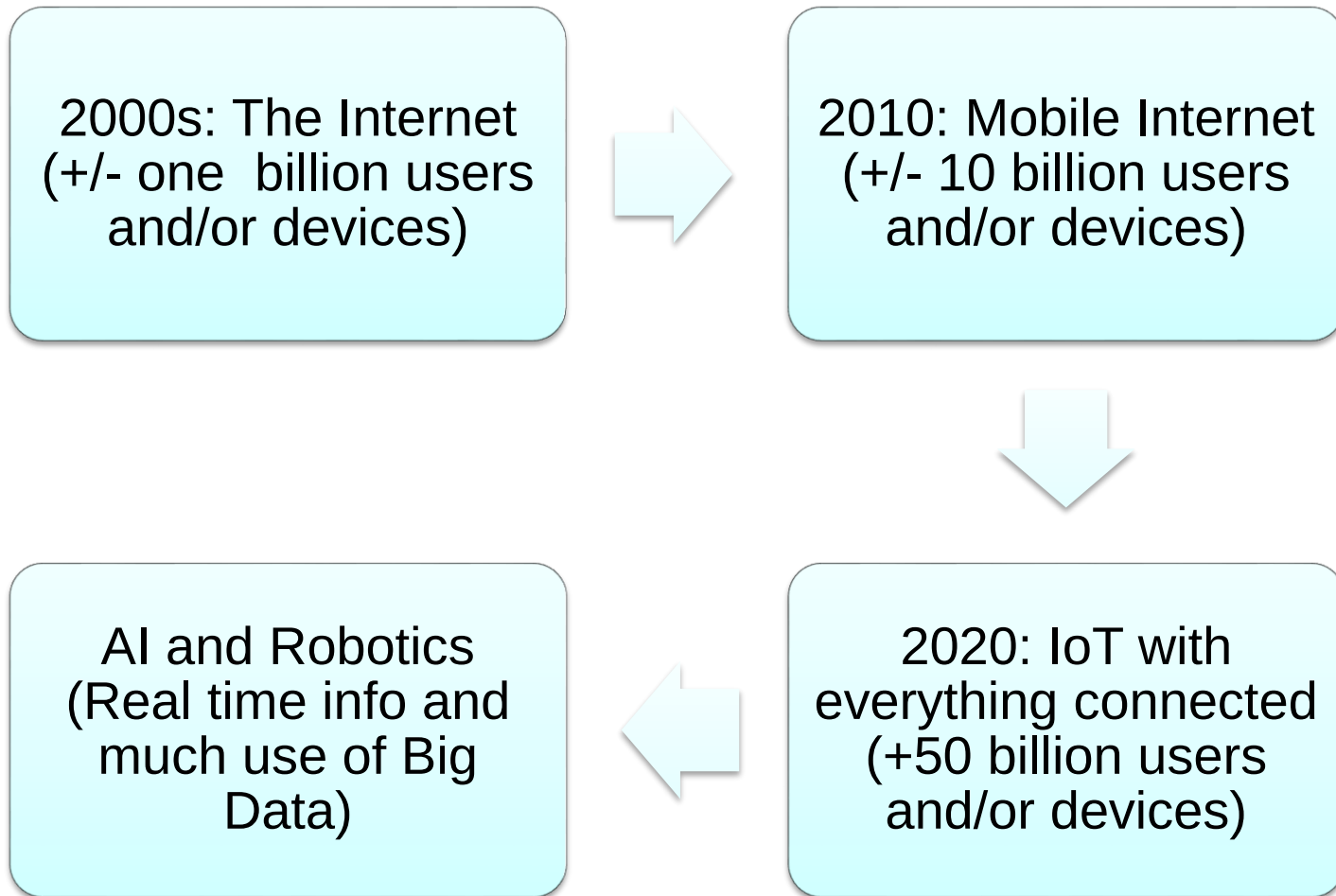
2000

Today

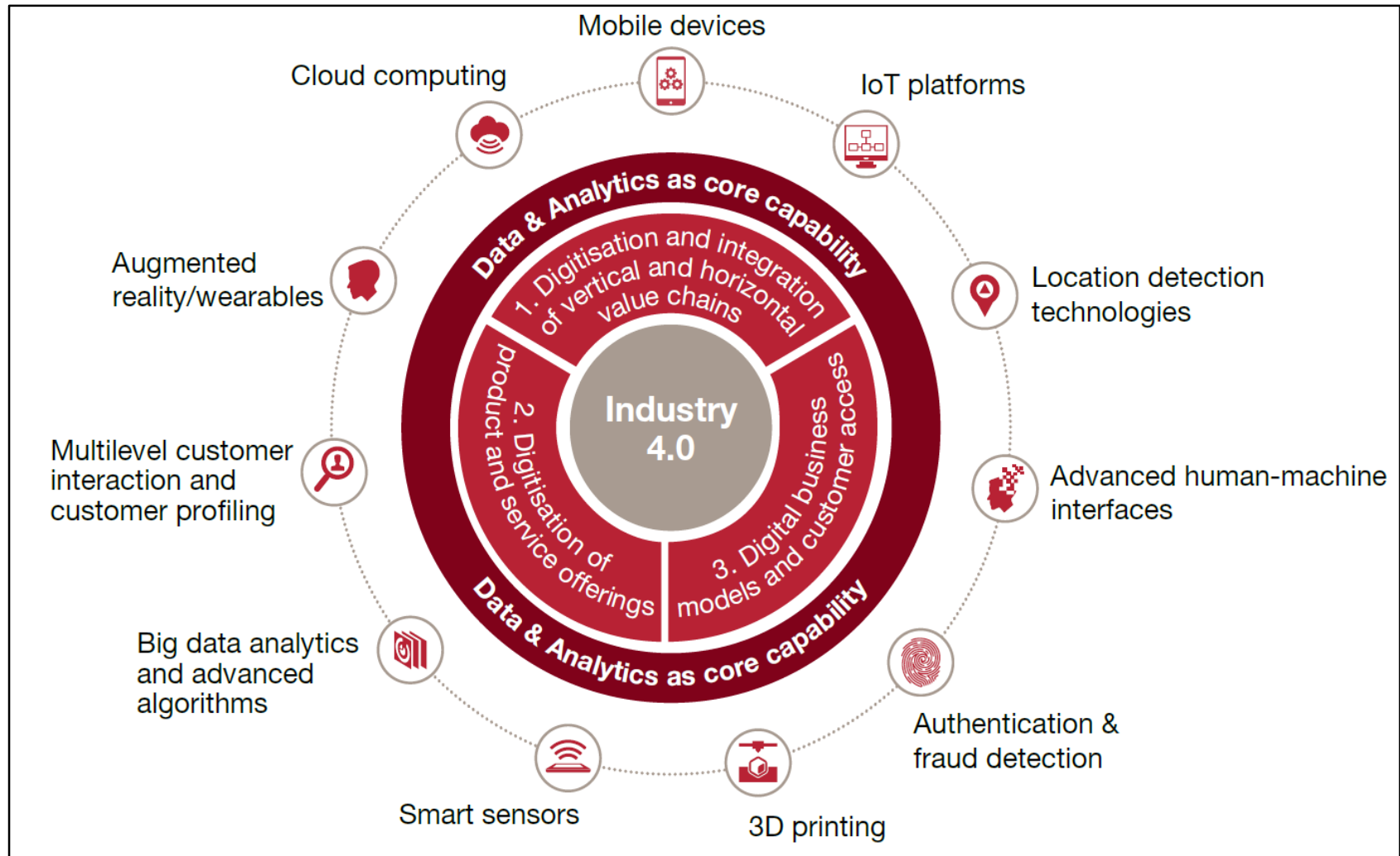
Time

Source: dti 2019

The Digital Waves & Connectivity

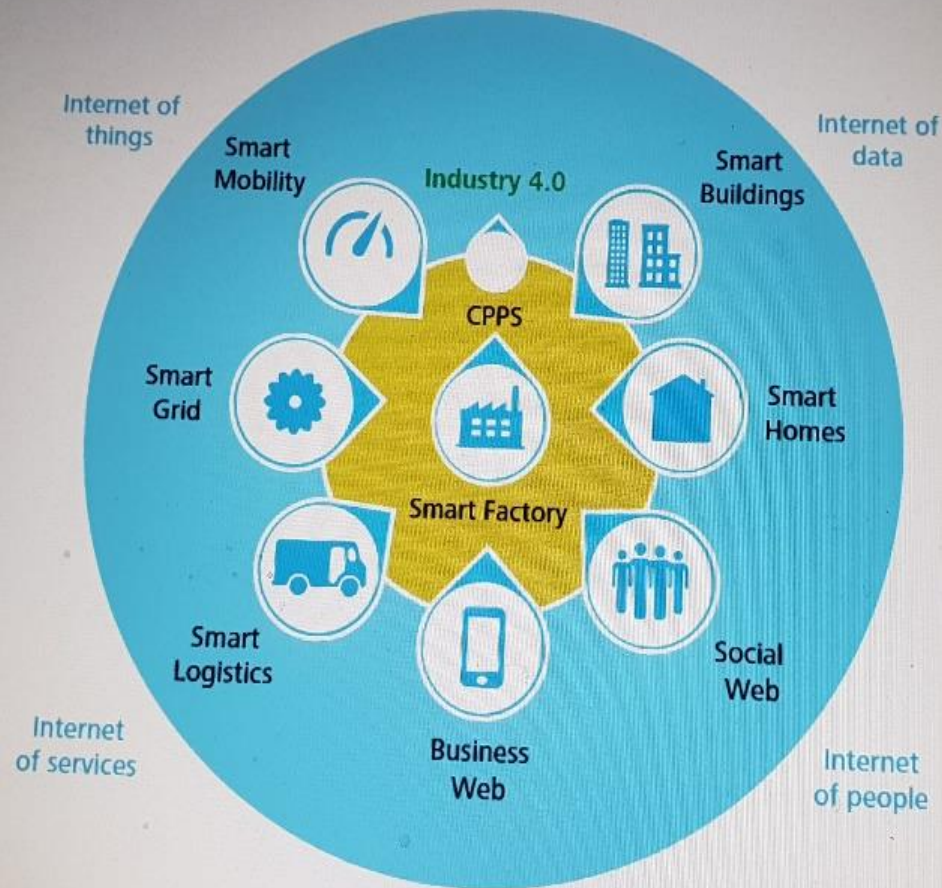


About Industry 4.0



Source: PWC 2016: 6

About Industry 4.0



Source: Deloitte (2015: 4)

About Industry 4.0: **House printing**

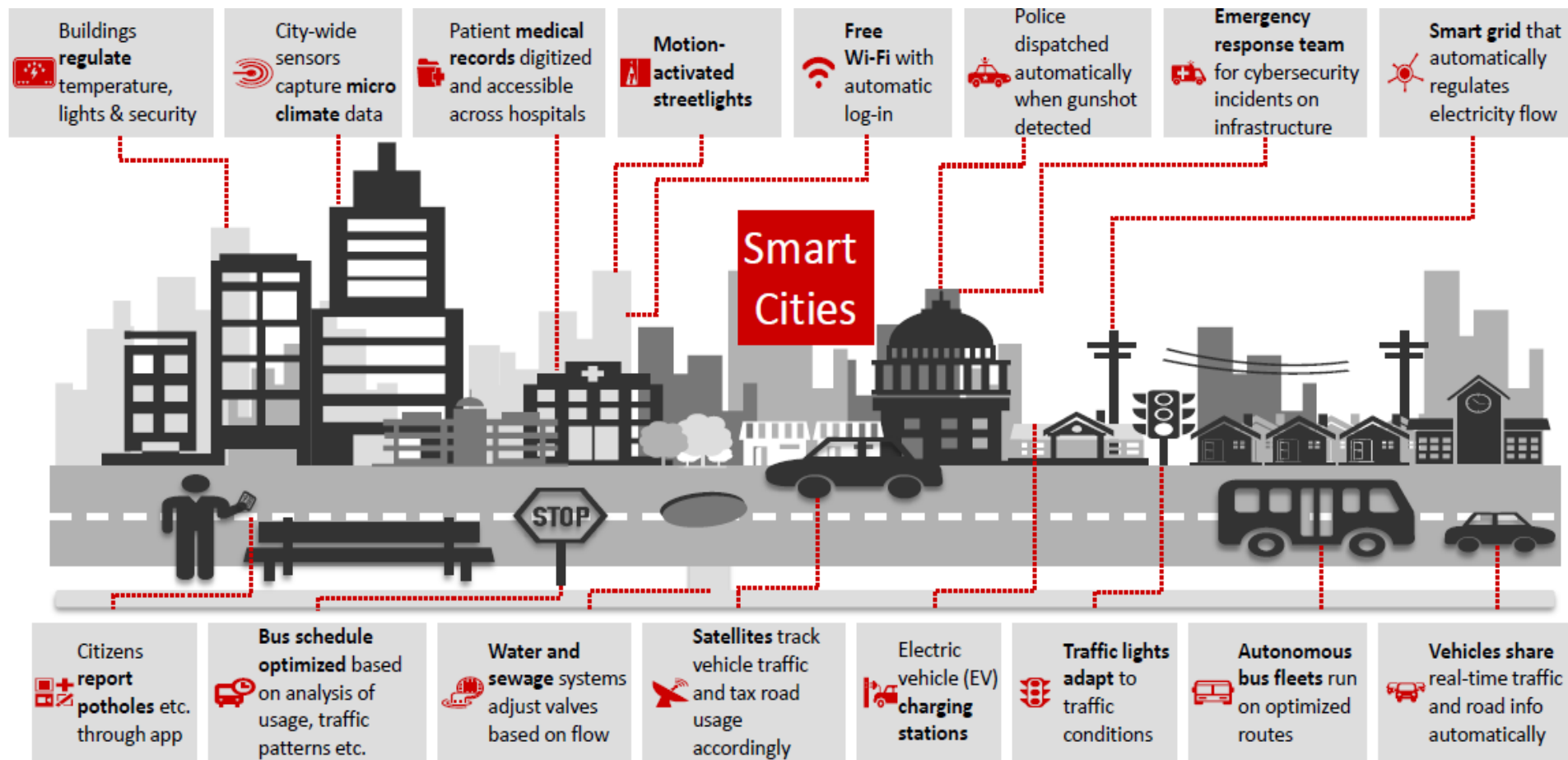


Hi-tech machines as laborers – Four roomed House in 24 hrs !!!

About 4IR: Drones, AI and Robots in DRR



The 4IR Smart City



Source: Telkom 2019

"Farm of the Future"

Data is collected in a central repository and on the cloud, where it can be accessed for analysis

Farmers have access to their data from their home control center, or from online portals offered by precision agriculture companies

Analysis of livestock data allows farmers to identify sick or in-heat animals

Drones survey field plots and identify weeds, yield, and soil quality

Variable-rate seeders and applicator are able to apply optimal amount of inputs to each plot based on the prescription

Analysis of machine data allows farmers to predict and prevent maintenance issues, increasing uptime of equipment

Analysis of yield map allows farmers to determine optimal seed and input prescriptions for each plot

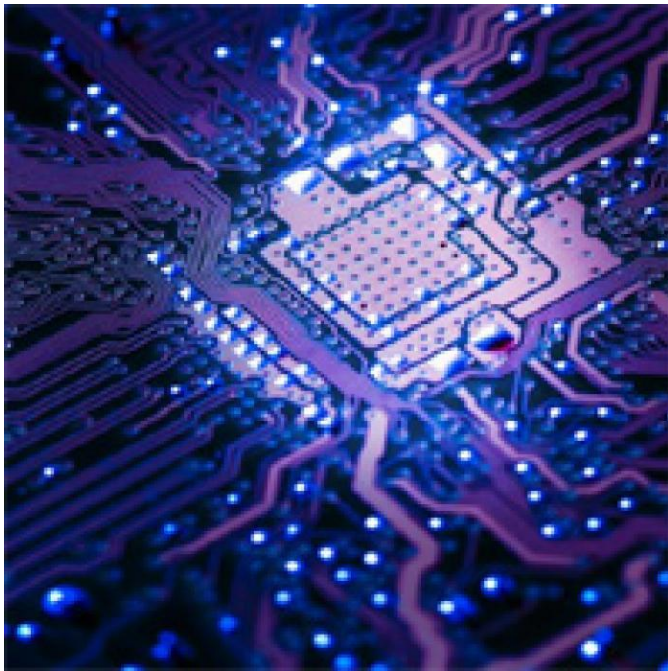
Field sensors collect data on nutrient quality, moisture, weather, and other factors that impact yield

Farmers can input data, view analysis, and make decisions from mobile devices in the field

Autonomous equipment navigates field with limited or no oversight

Source: Telkom 2019

About 4IR: Hats off to our government on Coding in Schools



Thursday, August 1, 2019 by Ulrike Rivett

South Africa is training a group of teachers [to learn how to code and how to teach coding](#).

The subject will be piloted at [1000 schools](#) across five provinces, starting in the 2020 academic year.

Announcement resulted in debates around the [country's ability](#) to deliver on such a commitment, particularly when considering the low literacy and numeracy skills of learners.

**Interesting things have and are
happening**

Launch of SDGs sub-regional centre in Zambia

negative impact on consumers, and are in direct violation of Visa international operating regulations and MasterCard. Acquirers and merchants must

transactions”.

“Carrying around large amounts of cash poses a risk to the individual. With a debit or credit card, you can pay for goods and services

merchant discontinues the non-compliance practice immediately,” Beukes noted.

Email: lazarus@namibian.com.
naTwitter: @Lazarus_A

Zambia, Rwanda to launch SDGs sub-regional centre

ZAMBIAN president Edgar Lungu and his Rwandan counterpart, Paul Kagame, will launch the sustainable development goals (SDGs) sub-regional centre for southern Africa this week, a government official said yesterday.

Alexander Chiteme, minister of national development planning, said the two leaders will launch the centre tomorrow in Lusaka, the Zambian capital.

The launch will bring together

over 200 government officials, international organisations, development financing institutions and experts to discuss issues concerning implementing SDGs in southern Africa.

It follows the signing of a country agreement in September 2018 between the Zambian government and the SDG Centre for Africa.

“The SDG sub-regional centre is an international not-for-profit institution, which, once launched,

will provide technical support, neutral advice and expertise to national governments, the private sector, civil society and academic institutions in order to accelerate the implementation of the SDG agenda,” Chiteme said in a release.

The sub-regional centre will assist southern African countries to unlock bottlenecks which hinder the smooth implementation of the SDGs, and help achieve the goals.

– Nampa-Xinhua

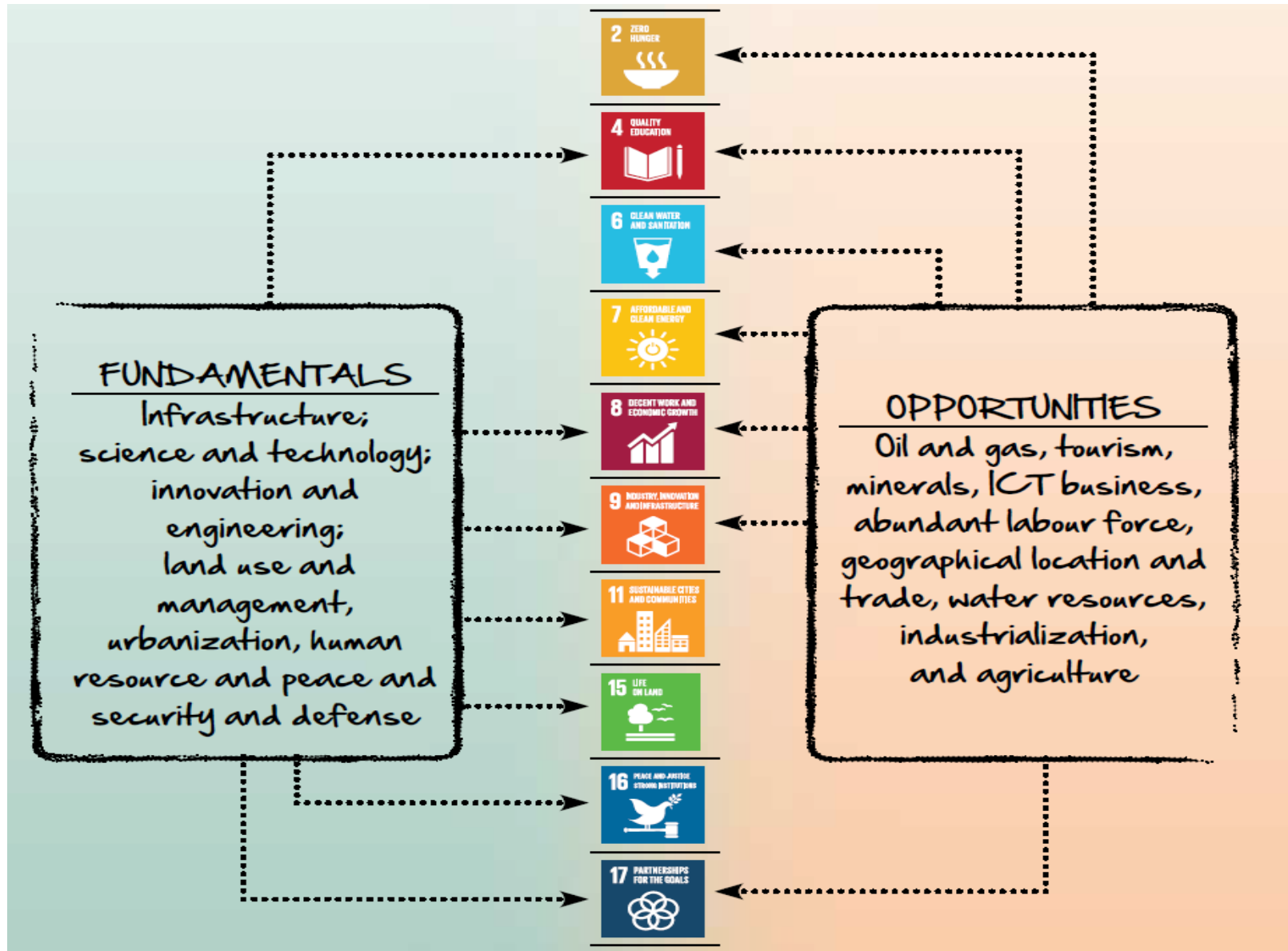
Xinhua

SDGs D&L: Uganda Experience

Uganda's Constitution and Sustainable Development

National Objectives and Directive Principles	Sustainable Development Goals
The right to development	
Food security and nutrition	
Medical services Recreation and sports	
Educational objectives Cultural objectives Protection of the family	
Recognition of the role of women in society	
Clean and safe water	
Preservation of public property and heritage	
Recognition of dignity of persons with disabilities	 
Protection of the aged	   
Balanced and equitable development	  
General social and economic objectives	     
Protection of natural resources The environment Natural disasters	   
Democratic principles. (e.g. rule of law, regular fair elections) National unity and stability National sovereignty, independence and territorial integrity Fundamental and other human rights and freedoms Gender balance and fair representation of marginalised groups	
Provision of adequate resources for organs of Government Role of People in Development Role of the state in development Foreign Policy Objectives Duties of a Citizen	

SDGs D&L: Uganda Experience (Vision 2040)



SDGs D&L: Uganda Experience (National Anthem)



SDGs D&L: In Kinyarwanda

Uburumbuke

Twiyemeje gukora ku buryo buri kiremwa muntu kigira imibereho myiza kandi itunganye no guharanira ko iterambere mu bukungu, mu mibereho myiza n'ikoranabuhanga ritabangamira ibindi bintu bisanzwe biri ku isi.

Amahoro

Twiyemeje guharanira ko abatuye isi babaho mu miryango yuje amahoro, izira akarengane n'ihaza itarangwamo ubwoba n'ihohoterwa. Iterambere rirambye ntiyagerwaho nta mahoro kandi amahoro na yo ntiyagerwaho hatabayeho iterambere rirambye.

Ubufatanye

Twiyemeje gushakisha ibikenewe byose kugira ngo iyi Gahunda ishyirwe mu bikorwa twifashishije uburyo bwo kongera guha ingufu ubufatanye hagati y'abatuye isi hagamijwe (iterambere rirambye kandi tunashingiye ku gushyira hamwe guhamye mu batuye isi hitabwa cyane cyane ku byo abakene cyane se abatishoboye kurusha abandi bakeneye kandi ibyo bikagerwaho ari uko buri gihugu, buri mufatanyabikorwa na buri muturage babigizemo uruhare.

Kuba Intego z'iterambere rirambye, zuzuzanya kandi zikaba ziteye ku buryo nta we zihaza bizatuma intego y'iyi Gahunda nshya igerwaho. Nituramuka dushoboye kugera ku ntego zose bikubiye muri iyi Gahunda, imibereho ya bose yazarushaho kuba myiza cyane kandi isi yacu ishobore guhinduka irushaho kuba nziza.



For more information:
<https://sustainabledevelopment.un.org>



THE GLOBAL GOALS
 For Sustainable Development

**Gahunda y'Intego z'Iterambere
 Rirambye zigamijwe kugerwaho
 mu mwaka w' 2030**



SDGs D&L: In Kinyarwanda ...

Intego 17 z'Iterambere Rirambye :

1. Kurandura ubukene burundu mu buryo bugaragamo bwose no mu duce twose tw'isi.

2. Kurandura burundu inzara, kugera ku kwihaza mu biribwa, kugira imirire iboneye kandi ihagije no guteza imbere ubuhinzi burambye.

3. Guteza imbere ubuzima buzira umuze n'imibereho myiza kuri bose hatitawe ku kigero cy'imyaka barimo.

4. Guharanira uburezi bufite ireme budaheza kandi busaranganyije kuri bose no guha abantu bose amahirwe yo guhora bunguka ubumenyi mu buzima bwabo bwose.

5. Kwimakaza uburinganire hagati y'abagabo n'abagore no kongerera ubushobozi abagore n'abana b'abakobwa.

6. Kugeza amazi meza kuri bose ndetse no kubungabunga ku buryo burambye ibikorwa by'amazi n'isukura kuri bose.

7. Guharanira ko haboneka ingufu z'amashyamba zihendutse, zizewe, zirambye kandi zigazweho kuri bose.

8. Guharanira izamuka ry'ubukungu rihamye, ridaheza kandi rirambye kuri bose no guharanira ko abantu bose babona akazi kabahamya umusaruro no gukora umurimo ubanyamye.

9. Kubaka ibikorwa remezo bihamye, guteza imbere ikwirakwizwa ry'inganda ku nyungu za bose kandi zirambye no guteza imbere umuco wo guhanga udushya.

10. Kugabanya ubusumbane hagati y'abatuye imbere mu bihugu no hagati y'ibihugu ubwabyo.

11. Gutunganya imijyi n'insiro bitagira uwo biheza, bidafite ingaruka mbi ku buzima, bihamye kandi birambye.

12. Guharanira ko abatuye isi bashakira ibibungabunga batubungamye ibikorwa bisanzwe birimo n'urusobe rw'ibinyabuzima muri rusange.

13. Gufata ingamba zihutirwa mu rwego rwo kurwanya imihindagurikire y'ikirere n'ingaruka zayo.

14. Kubungabunga no gukoresha inyanja, ibiyaga, inzuzi, imigezi n'urusobe rw'ibinyabuzima biba mu mazi ku buryo burambye hagamijwe iterambere rirambye.

15. Kurengera, gusana no gusubiranya indiri y'urusobe rw'ibinyabuzima byo ku butaka no guteza imbere imikorere y'urwo rusobe, gucunga amashyamba, kurwanya ubutayu, guhagarika no gusubiza inyuma ibyanga ry'ubutaka ndetse no guhagarika igabanyuka ry'urusobe rw'ibinyabuzima.

16. Guharanira ko abatuye isi babona mu miryango yuje amahoro kandi idahera hagamijwe iterambere rirambye, guharanira

ubutabera kuri bose no kubaka inzego zihamye, zikora neza kandi zitagira uwo ziheza.

17. Gushimangira ubufatanye mu batuye isi mu gushyira mu bikorwa iyi migambi no kongera guha imbaraga ubwo bufatanye hagamijwe amajyambere arambye.

Izi ntego n'ibikorwa binini bizishamikiyeho bizaba umusemburo w'ibigomba kuzakorwa mu myaka cumi n'itanu iri imbere mu nzego zifitiye akamaro kanini isi n'abayituye.

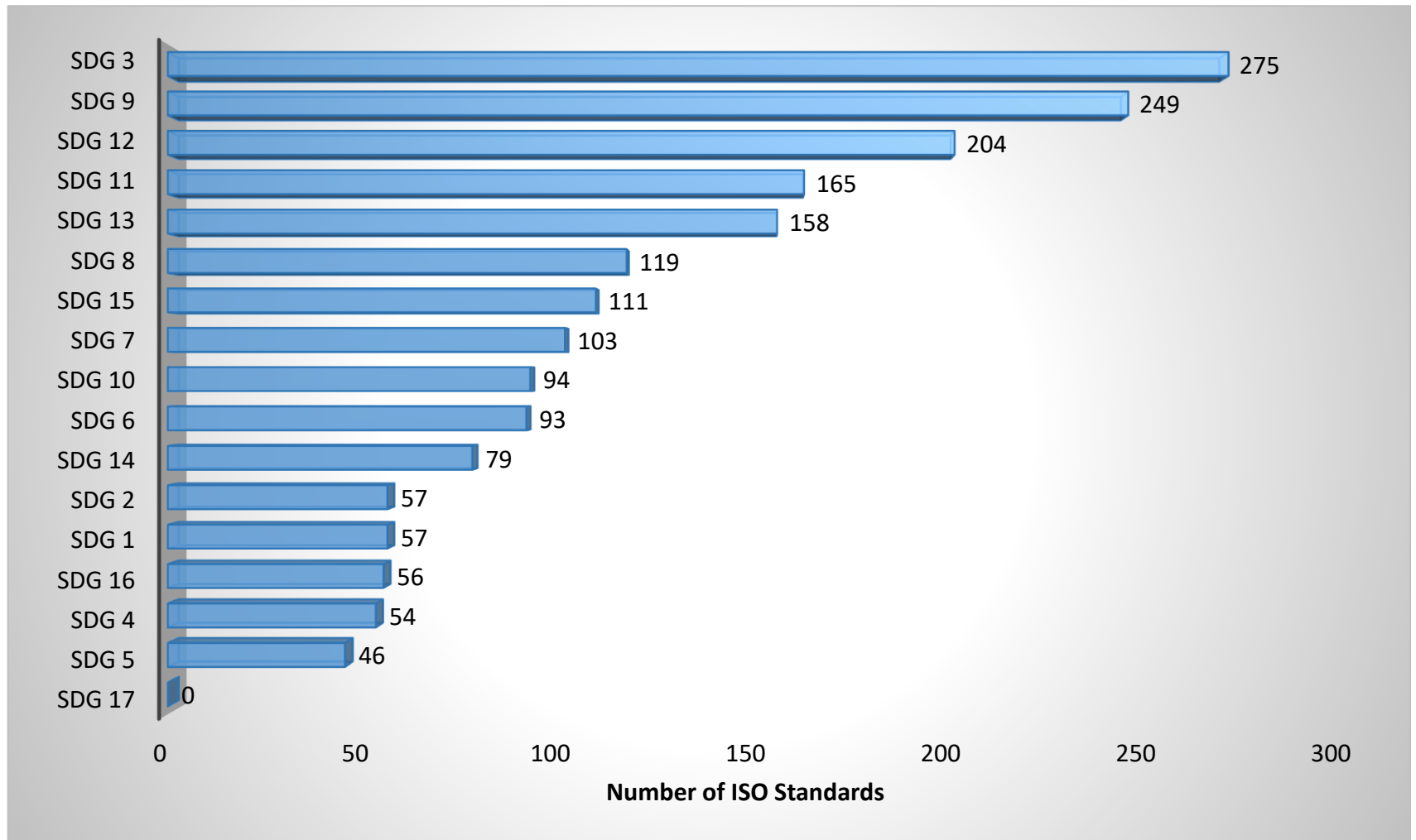
Abatuye Isi

Twiyemeje guca burundu ubukene n'inzara mu buryo bigaragariramo bwose n'uko byaba bimeze kose no gukora ku buryo buri wese mu batuye isi ashobora kugera ku kintu cyose kiri mu bushobozi bwe kandi akubahwa, agahabwa agaciro n'amahirwe angana n'ay'abandi mu isi izira icyahungabanya ubuzima bwe.

Isi

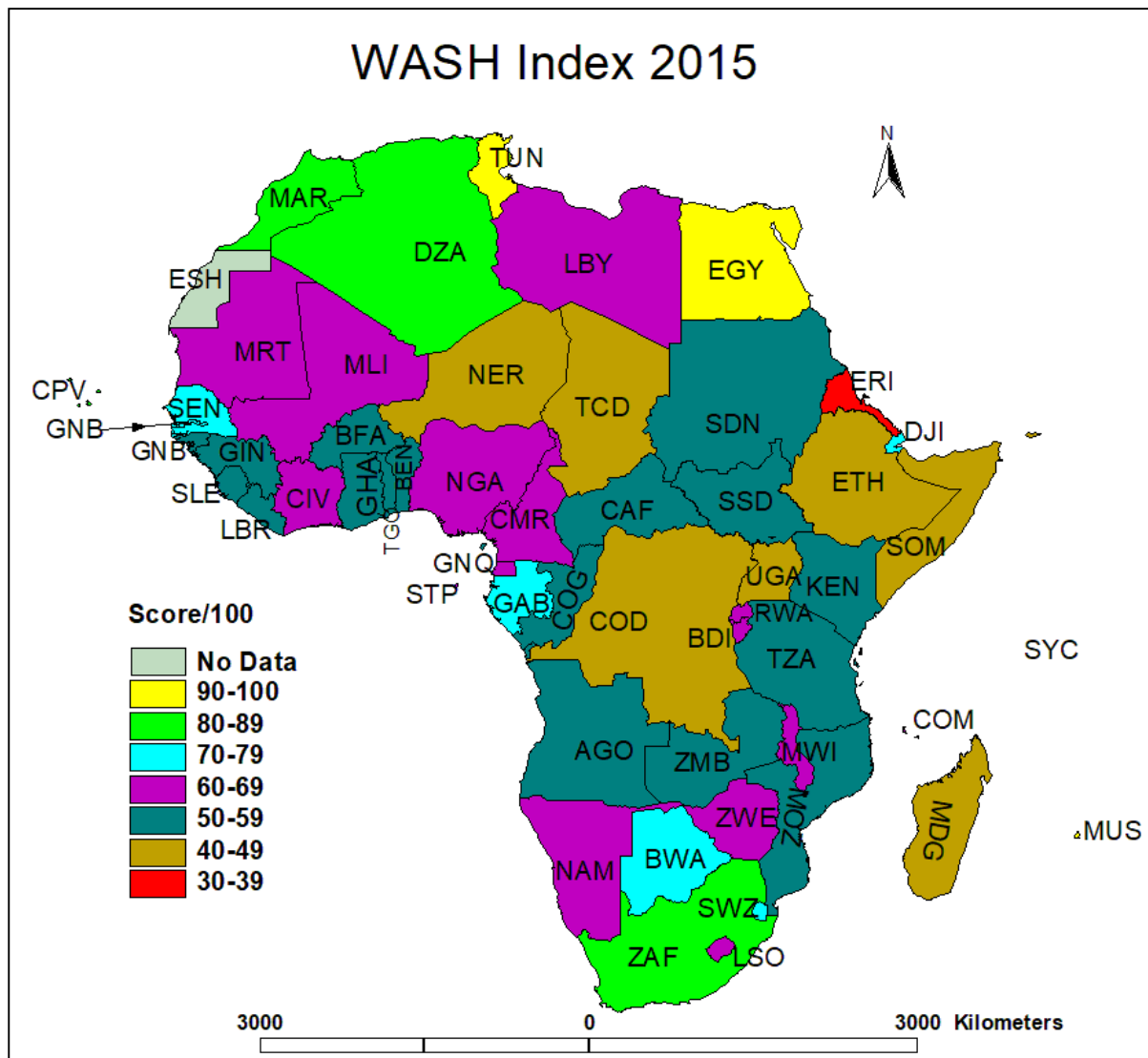
Twiyemeje gukumira ikintu cyose cyakwangiza isi dutuye tunakora ku buryo abayituye batunganya ibintu na serivisi bakeneye batayibangamiye kandi birinda gusesagura no kwangiza umutungo kamere uyirimo kandi hakanafatwa ingamba zihutirwa zo kurwanya imihindagurikire y'ikirere kugira ngo isi ifashe abayirimo n'abazabakomokaho gukomeza kubona ibyo bakeneye kugira ngo babeho muri iki gihe ndetse no mu gihe kiri imbere ku buryo burambye.

ISO and the SDGs



Source: Nhamo et al., In press

Emerging SDG 6 baseline



Source: Nhamo et al., In press

Conclusion and recommendations

Key Recommendations: Improving DDR

- Build potential for CC, SDGs and 4IR readiness by focusing on the following readiness pillars:
 1. High level political buy-in and championing
 2. Put in place the right policy and regulatory frameworks and implement them, especially by-laws and Spatial Development Plans
 3. Finance the transition
 4. Build and re-orient institutional set-ups
 5. Develop individual capacity
 6. Institute pilot programmes and projects on the ground
 7. Promote research, innovation and development
 8. Education and awareness raising
 9. Monitor, Report and Verify (MRV) progress

Key Recommendations: Examples of Projects

- Work towards a fully flagged e-government
- Development of fully flagged, e-complaint Climate Services Units or systems, including pilot projects on the use of drone and other technologies in DRR
- Networking to learn from peers and good practices across the world (Mozambique, USA, India etc.)
- Working together with line departments, especially Education to harness the potential of introducing Coding in schools

SDGs localisation bird is in your hands



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Thank you !