

A Turbulent Middle East's Take on the SDGs: A Snapshot of the STI Perspective

MONEEF R. ZOU'BI PHD
DIRECTOR GENERAL
ISLAMIC WORLD ACADEMY OF SCIENCES (IAS)
iasworld.org
AMMAN, JORDAN.

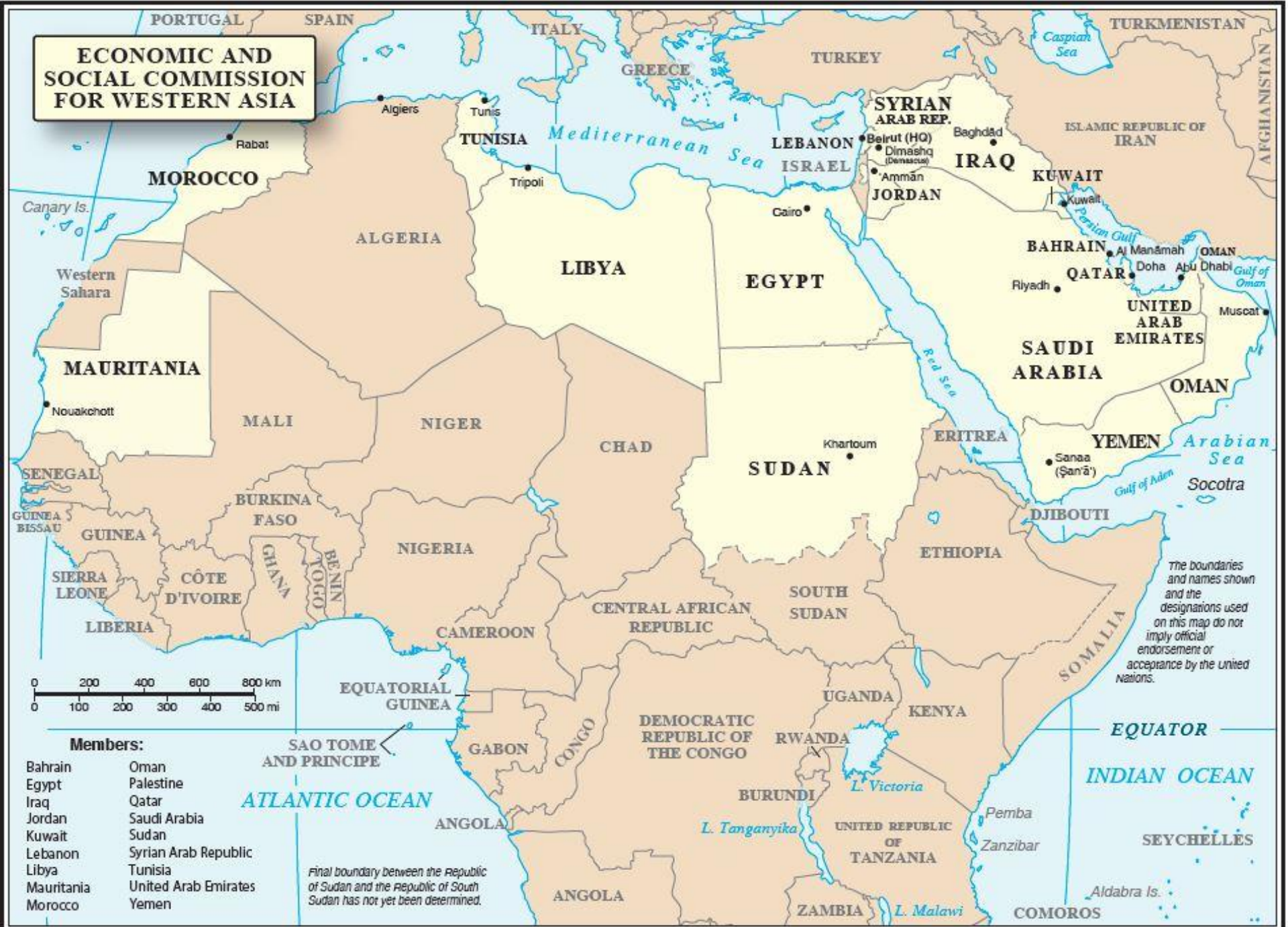
EGM ON INNOVATION AND TECHNOLOGY FOR ACHIEVING
THE 2030 DEVELOPMENT AGENDA
Beirut, 5-7 December 2017.



Quick outline

- ▶ The Middle East and the Arab Pseudo-Spring;
- ▶ The SDGs
- ▶ The WEHAB-SDG narrative;
- ▶ Where do we stand?
- ▶ STI 4 SDGs;
- ▶ The STI ecosystem: Alternative ideas;
 - ▶ The innovation phenomenon;
- ▶ Reality check!
- ▶ Next steps.

**ECONOMIC AND
SOCIAL COMMISSION
FOR WESTERN ASIA**



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

The Middle East: Strategic importance

- An area of historical importance, as it is the birthplace of the world's three Abrahamic religions;
- Contemporary strategic importance owing to its location and wealth of subterranean natural resources, essentially oil and natural gas - 32% of the world's known natural gas reserves are in the region.

The Middle East: **NOT BUSINESS AS USUAL**

The seeds of the Arab Pseudo-Spring:

Failure of

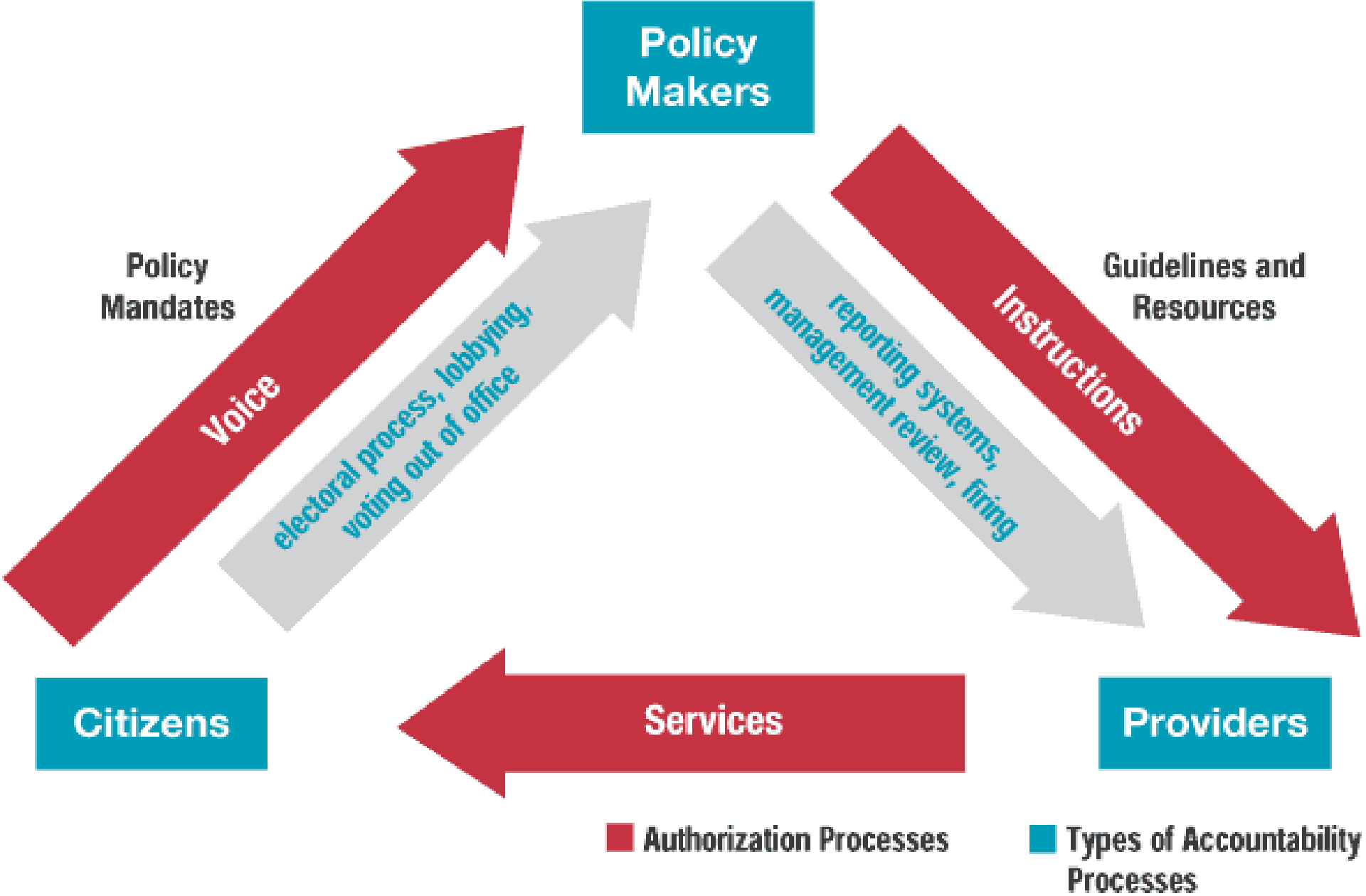
Politics and Policies

For decades, the region has witnessed continuing political upheaval and military conflict in the Gaza strip and the West Bank, Iraq, Lebanon and Sudan...

National Politics

Governance in Middle Eastern countries was in a state of turmoil. Regimes are torn between upholding national security – as they perceive it – and maintaining social order on the one hand, and generally adopting good governance policies on the other.

Badran & Zou'bi (2010). UNESCO Science Report.



Governance Chaos on the eve of the Arab Pseudo-spring!

Source: Derived from World Bank. (2003). P. 6.



1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



THE GLOBAL GOALS

For Sustainable Development

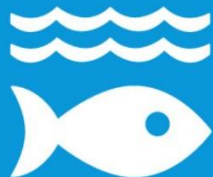
12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE AND JUSTICE STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS



2030



FOR SUSTAINABLE DEVELOPMENT

2030



FOR SUSTAINABLE DEVELOPMENT

2030 AGENDA



FOR SUSTAINABLE DEVELOPMENT

The 2030 Agenda is based on a principle of universality...every country should contribute to achieving the larger vision of global sustainable development without dispensing with the ownership of the national development agenda.

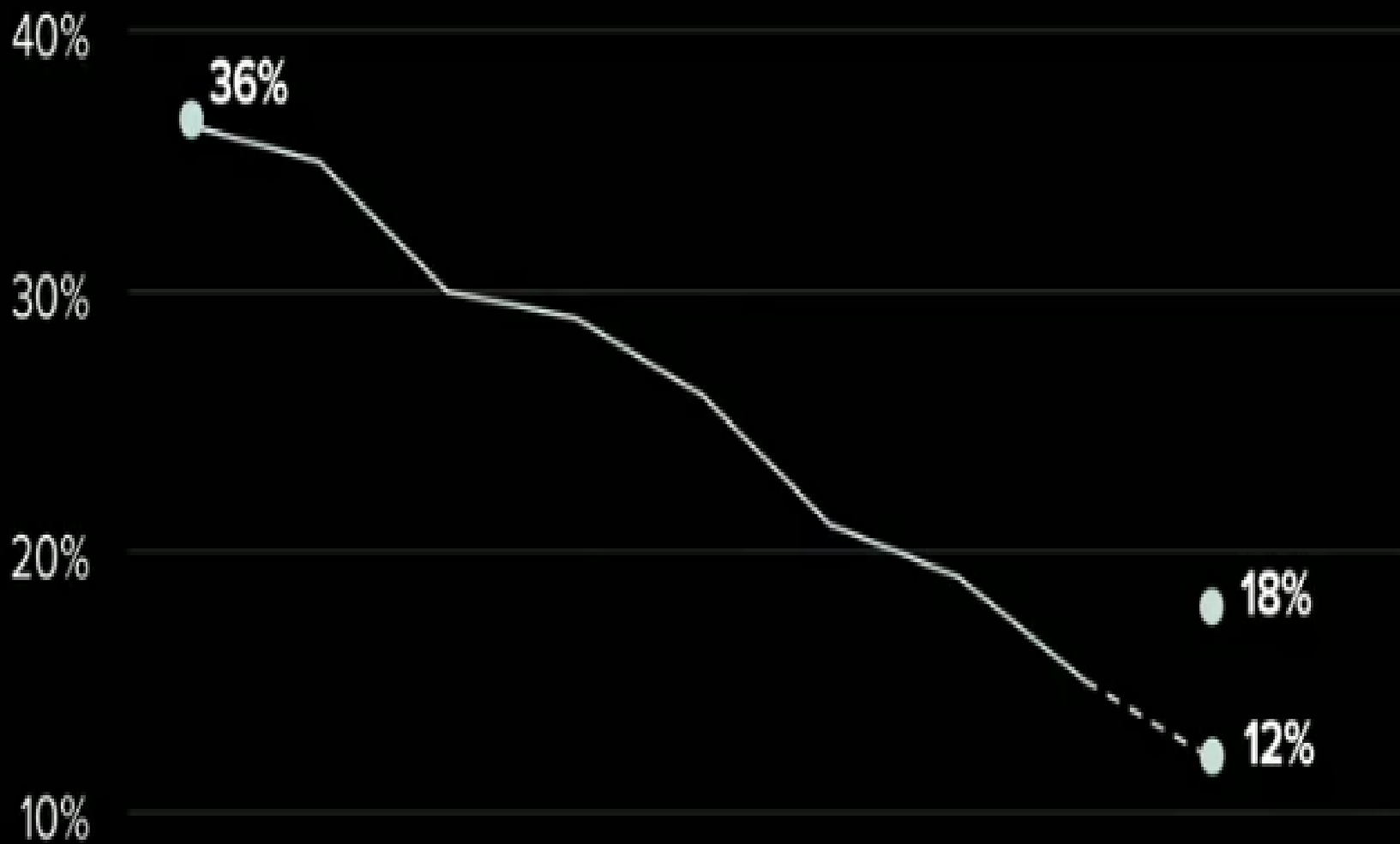
STI 4 SDGs I

- ▶ As the challenges, priorities, and options for action vary between countries, the STI community has a role in:
- ▶ Identifying what the sustainability challenges are in different contexts;
- ▶ Interpreting the SDGs and working out what the priorities are at the level of governments as well as at the level of institutions;
- ▶ Spreading the word!
- ▶ Monitoring implementation of policies and in developing models of how different targets interact.

▶ *(partly based on an article in SciDevNet , 2016).*

With the MDGs and WEHAB scientists went out of their way to develop programs to contribute to achieving the goals however they were not very successful. Despite this, the MDGs target of halving 'People in Poverty' was achieved (even exceeded) owing to good economic growth in China and India. **With the SDGs, STI is more cross-cutting (Hassan, 2015)!!**

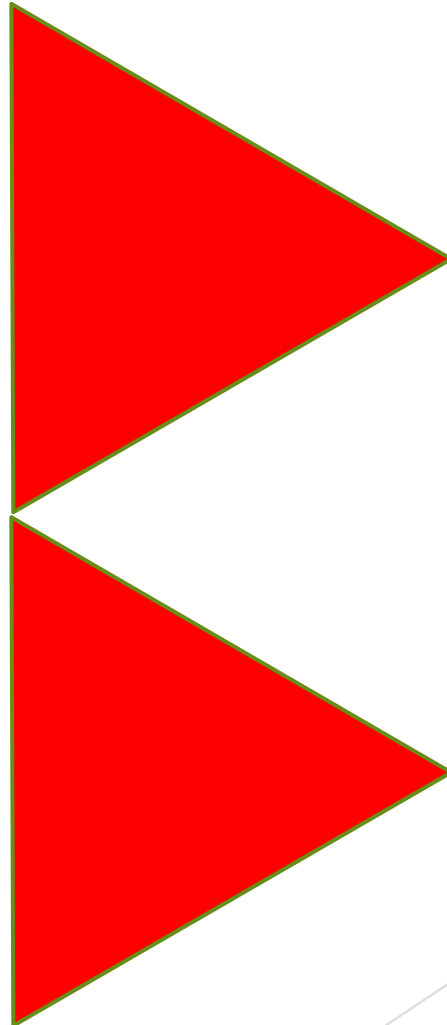
PEOPLE IN POVERTY



WEHAB S (2002-2015)

From WEHAB to SDGs

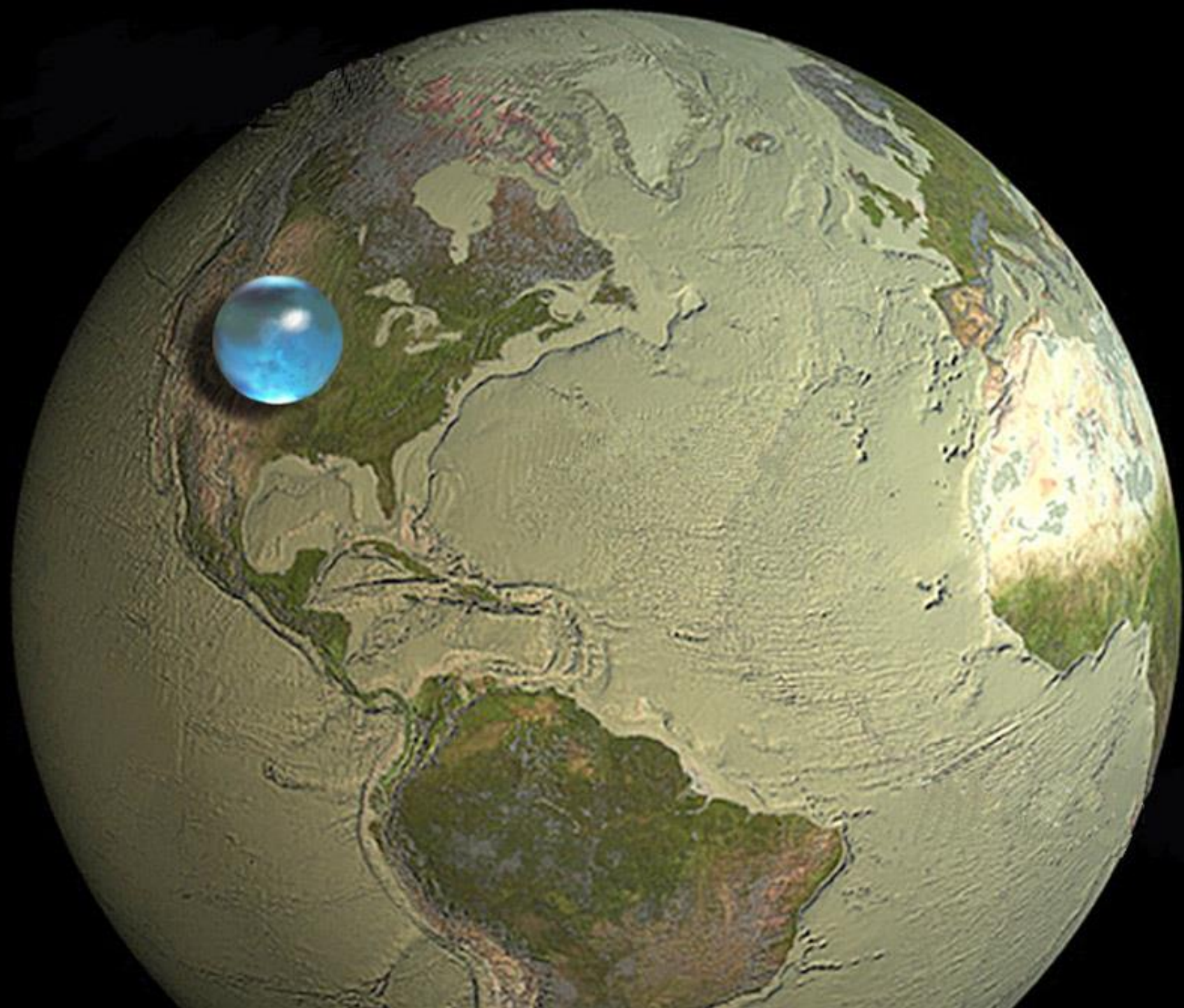
- ▶ **Water**
- ▶ **Energy**
- ▶ **Health**
- ▶ **Agriculture**
- ▶ **Biodiversity**
- ▶ **Climate Change**
- ▶ **Wealth Creation**
- ▶ **Contribution to Human Civilization**
- ▶ **Culture of Peace**



WEF NEXUS

- ▶ **Water (6)**
- ▶ **Energy(7)**
- ▶ **Food(2)**

- ▶ **Innovation (9)**







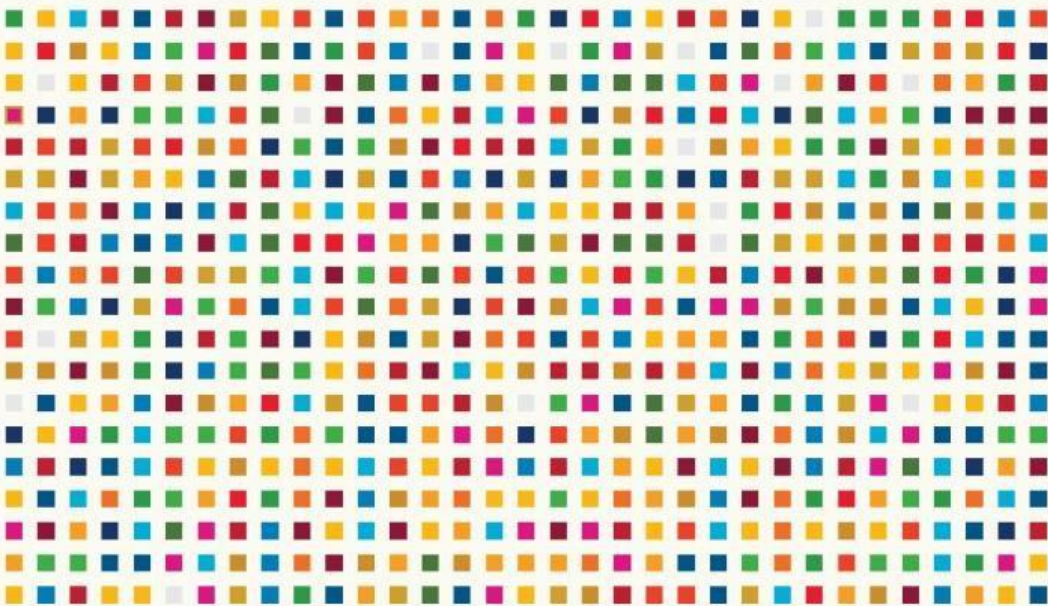


SDGs: Where do we stand?

SDG INDEX & DASHBOARDS

A GLOBAL REPORT

JULY 2016



AART DE GEUS
Chairman and CEO,
Bertelsmann Stiftung



JEFFREY D. SACHS
Director, Sustainable
Development
Solutions Network

SDG Index and Dashboards Report 2017

The SDG Index and Dashboards are based on the most comprehensive set of country-level data assembled to date for the Sustainable Development Goals (SDGs). The purpose of the SDG Index and Dashboards is to support national discussions on where each country starts with regards to achieving the SDGs and on which metrics might be useful to track progress.



REGIONAL DASHBOARDS

MENA

Country	Global Index Score (0-100)	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8	Goal 9	Goal 10	Goal 11	Goal 12	Goal 13	Goal 14	Goal 15	Goal 16	Goal 17
Algeria	68.8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Tunisia	68.7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Morocco	66.7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
United Arab Emirates	66.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Jordan	66.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Lebanon	64.9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Egypt, Arab Rep.	64.9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Bahrain	64.6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Oman	64.3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Qatar	63.1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Saudi Arabia	62.7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Kuwait	62.4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Syrian Arab Republic	58.1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Iraq	56.6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Sudan	49.9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Yemen, Rep.	49.8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Where do we stand?

The scoreboards for Arab countries show that Maghreb countries lead the way on the SDG index while (surprisingly) the UAE, Qatar, Saudi Arabia and Bahrain (which are wealthier) lead on the Global Competitiveness Index! The scoreboards show that the region faces major challenges in combatting hunger (SDG 2), health (SDG 3), education (SDG 4) and innovation (SDG9).

Social progress vs Economic progress.

(The Costa Rica and the Sri Lanka Phenomena)

STI 4 SDGs II

- ▶ The 2030 Agenda for Sustainable Development highlights possible roles for STI in specifically six different goals that comprise STI components;
- ▶ They are SDG 6: Water, SDG 7: Energy, SDG 9: Innovation, SDG 13: Climate Change, SDG 15: Biodiversity and SDG 17: Modes of Implementation and Partnerships (UN, 2015), (Schlegel, 2016);
- ▶ Explicitly, the operative paragraphs under SDG 9: Innovation, include a call to countries to enhance scientific research and upgrade the technological capabilities of industrial sectors. There is also a call to encourage innovation and substantially increase the number of R&D personnel, and increase gross expenditure on R&D (GERD) by 2030 without specifying a value.

STI 4 SDGs III

- ▶ Special attention will be paid to the role of innovation and technology in economic growth, enhancing productivity, the creation of decent jobs, and addressing societal challenges. Also, this meeting is also linked to SDG 1 (Poverty) , 3 (Health), 5 (Gender Equality), 8 (Good Jobs and Economic Growth) and 10 (Reduced Inequalities) (TOR of current EGM);
- ▶ Another area addressed in the Agenda is international cooperation as it calls in para (17.6) for enhancing North-South, South-South, and triangular regional and international cooperation on and access to STI enhancing knowledge sharing, including through improved coordination among existing mechanisms, in particular at the UN level, and through a global technology facilitation mechanism. This is a concrete proposal that comes in the form of a **'Technology Bank' proposed to be established (in Istanbul) including STI capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology.**



TECHNOLOGY BANK



Least Developed Countries



The Americas
1

1. Haiti *

Small Island Developing States are marginalized from the global economy by the combined adverse consequences of their small size, remoteness from large markets, and high economic vulnerability to economic and natural shocks beyond domestic control.

Landlocked Developing Countries face serious constraints on their social and economic development in the form of lack of territorial access to the sea, remoteness and isolation from world markets, and high transport costs.

* Also Small Island Developing States (SIDS)

Also Landlocked Developing Countries (LLDCs)



Africa
33

1. Angola
2. Benin
3. Burkina Faso #
4. Burundi #
5. Central African Republic #
6. Chad #
7. Comoros *
8. Democratic Republic of the Congo
9. Djibouti
10. Equatorial Guinea
11. Eritrea
12. Ethiopia #
13. Gambia
14. Guinea
15. Guinea-Bissau *
16. Lesotho #
17. Liberia
18. Madagascar
19. Malawi #
20. Mali #
21. Mauritania
22. Mozambique
23. Niger #
24. Rwanda #



Asia and the Pacific
15

1. Afghanistan #
2. Bangladesh
3. Bhutan #
4. Cambodia
5. Kiribati *
6. Lao People's Democratic Republic #
7. Maldives *
8. Myanmar
9. Nepal #
10. Samoa *
11. Solomon Islands *
12. Timor-Leste *
13. Tonga *
14. Vanuatu *
15. Yemen



Back to STI...

Science is too important to be left to scientists alone or to politicians alone!

SCIENCE IS THE ENGINE OF PROSPERITY...

Famed Physicist/Futurist Michio Kaku Provides Glimpse into How Science Will Pave Pathways to a New Civilization by Dale Long

And Innovation is ‘The Docking Station’

”Innovation is the result of creativity in R & D which can be in the form of new products, new services and productivity increases”.

Omar Abdul Rahman and Yew Kam Keong, 2005.

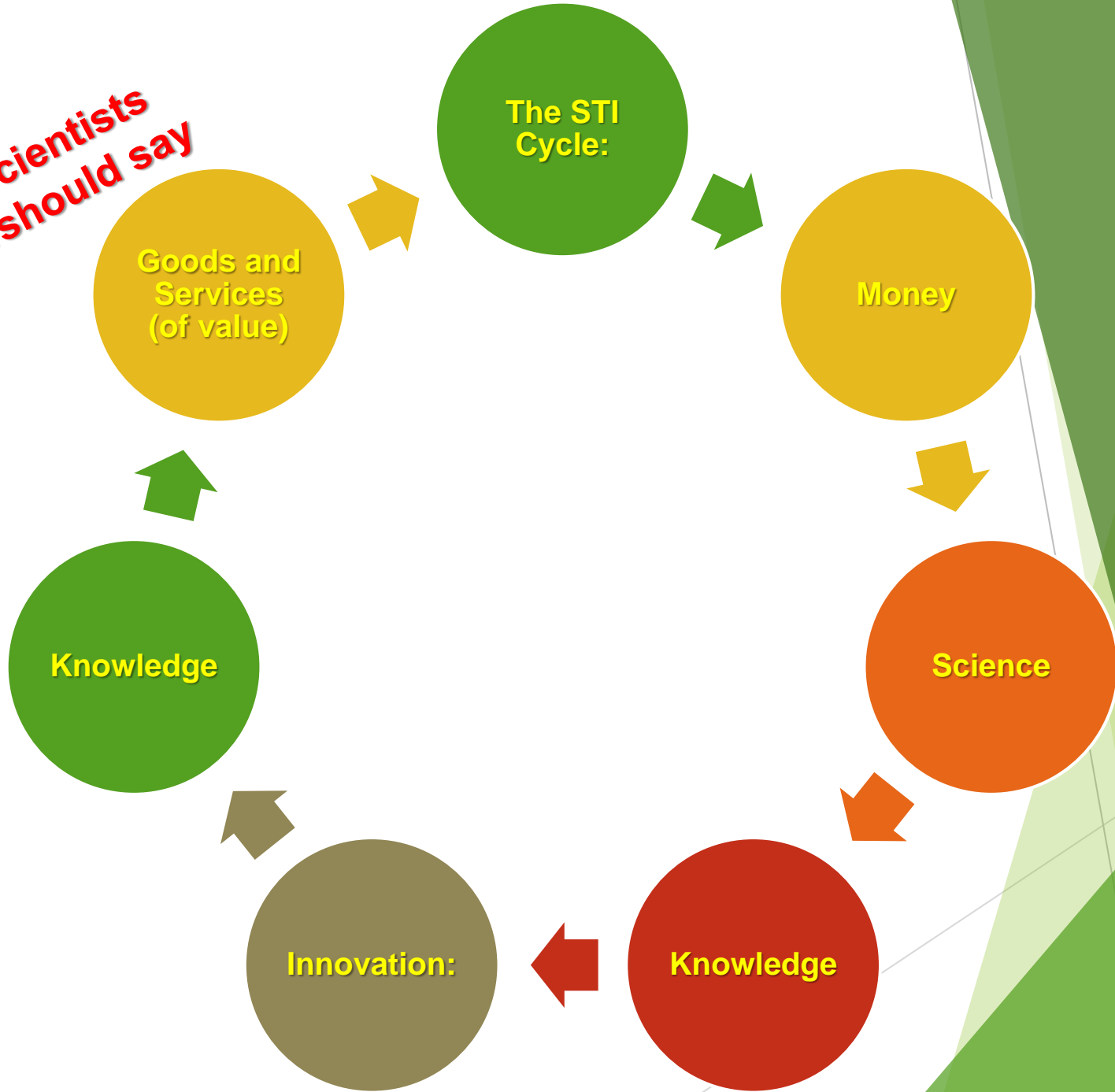
”.....the ability of individuals, companies and entire nations to continuously create their desired future. Innovation depends on harvesting knowledge from a range of disciplines besides science and technology, among them design, social science and the arts. And it is exemplified by more than just products; services, experiences and processes can be innovative as well..... Innovation flows from shifts in mind set that can generate new business models, recognize new opportunity and **weave innovations throughout the fabric of society**”.

John Kao, 2007.

Innovation is the docking station for the other 16 goals (Amina Mohammed, Deputy SG, UN). But ‘What is Innovation?’

The STI Cycle: Money  **Science**  **Knowledge and then**
Innovation: Knowledge  **Goods and Services (of value)**

**Or as scientists
would/should say**



Country (by GCI rank/137) WEF	Country capacity to retain talent (rank/137)	FDI and technology transfer (rank/137)	Capacity for innovation (rank/137)	Quality of scientific research institutions (rank/137)	Company spending on R&D (rank/137)	University-industry collaboration in R&D (rank/137)	Availability of scientists and engineers (rank/137)
UAE(17)	2	4	15	30	22	25	3
Qatar(25)	9	24	34	20	13	12	5
Saudi Arabia(30)	27	39	64	54	45	46	34
Bahrain(44)	31	36	67	73	56	45	45
Kuwait(52)	86	121	102	97	116	108	98
Oman(62)	36	87	92	104	106	51	75
Jordan(65)	67	56	60	58	64	64	13
Morocco(71)	90	52	83	111	93	105	60
Algeria(86)	123	114	111	99	104	125	83
Tunis(95)	111	85	93	96	100	106	43
Egypt(100)	103	75	123	121	103	117	55
Lebanon (105)	105	122	41	81	75	48	15
Malaysia(23)	12	13	14	24	15	11	7
Turkey(53)	83	61	74	100	69	66	49

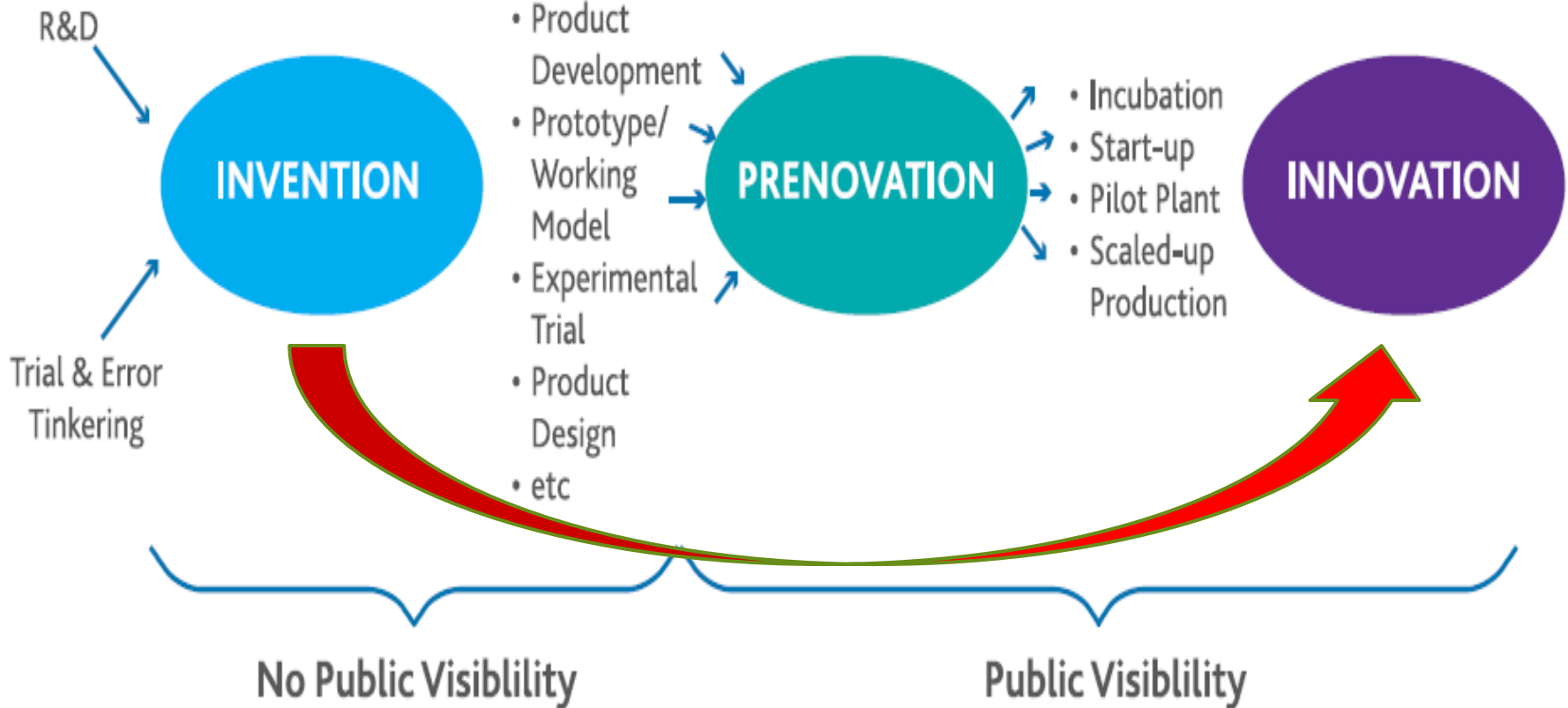
Soft Innovation/ Hard Innovation!

- ▶ Innovation for meeting basic needs such as food, water and shelter (soft);
- ▶ Innovation for quality of life, e.g. education, healthcare, stabilization of population size, environmental sustainability (soft);
- ▶ Innovation for good governance in both public and private sector (soft); and
- ▶ Innovation for wealth creation in support of economic growth and competitiveness (hard).

New Product
New Process
New services
New Algorithm

Commercialisation Ready
/ Early Prototype

Full Commercialisation or
Utilisation/ Application



Source: Omar Abdul Rahman (2013). The Essentials of Science, Technology and Innovation Policy. Amman: Jordan, Islamic World Academy of Sciences (IAS).

The 'Mjalli' Model.



TIME

THE **25 BEST INVENTIONS** OF 2017

LIFE-CHANGING PHONES,
DRONES, ICE CREAM,
FARMS, CARS, TOYS,
SHOES, BREAST PUMPS
& **JIBO, THE
PET ROBOT**

**+ HISTORY'S
GREATEST GENIUS**
BY WALTER ISAACSON,
ANN PATCHETT,
CHRISTOPHER NOLAN,
RIHANNA & MORE



TIME

THE **25 BEST INVENTIONS** OF 2017

LIFE-CHANGING PHONES,
DRONES, ICE CREAM,
FARMS, CARS, TOYS,
SHOES, BREAST PUMPS
& **JIBO, THE
PET ROBOT**

**+ HISTORY'S
GREATEST GENIUS**
BY WALTER ISAACSON,
ANN PATCHETT,
CHRISTOPHER NOLAN,
RIHANNA & MORE



TIME

THE **25 BEST INVENTIONS** OF 2017

LIFE-CHANGING PHONES,
DRONES, ICE CREAM,
FARMS, CARS, TOYS,
SHOES, BREAST PUMPS
& **JIBO, THE
PET ROBOT**

**+ HISTORY'S
GREATEST GENIUS**
BY WALTER ISAACSON,
ANN PATCHETT,
CHRISTOPHER NOLAN,
RIHANNA & MORE

NOVEMBER 27 / DECEMBER 4, 2017



Technology
Generation &
Acquisition



Technology
Utilisation &
Management

State

Institutions



Industry

Companies



► Societal Stakeholders.

Country	High-technology exports (% of manufactured exports)		
	2013	2014	2015
Bahrain	0.59	1.49	0.96
Algeria	0.19	0.16	0.15
Jordan	1.60	1.55	1.82
Lebanon	2.21	2.07	-
Kuwait	1.43	0.13	2.72
Morocco	6.55	5.31	3.54
Oman	3.41	4.33	4.13
Saudi Arabia	0.70	0.58	0.77
Qatar	0.00	0.05	3.41
UAE	3.18	8.46	-
Egypt	0.52	1.31	0.78
Turkey	1.88	1.94	2.16
Malaysia	43.57	43.87	42.80

Source: World Development Indicators, November 2017.

Let us not reinvent the wheel and piggy-back on existing High-technology exports which are products with high R&D intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery.



**REALITY
CHECK
AHEAD**

The Syrian Crisis: The (water) Fallout

- ▶ As a result of the Syrian crises, total demand for water in Jordan increased by 21%;
- ▶ Per capita share per year decreased from 147 CM to 123 CM to **70CM*** (12% of the water poverty line; per capita water availability is less than 1,000m³ per year).
- ▶ Water for agriculture decreased to 51% including 110MCM of treated waste-water;
- ▶ **Water: Jordan River Basin: Environmental Degradation**
- ▶ **Water: Euphrates-Tigris Basin: Food Security;**
- ▶ **Water: Poverty Alleviation and Energy Security!**
- ▶ ***Under-Secretary General, Ministry of Water, Jordan, WSF.**

Middle East life expectancy drops due to conflict

Wars and uprisings in the Middle East have wiped five years off local life expectancy due to high casualties and drops in healthcare standards, a study warns.

The result of the ongoing war in Syria and intermitted, violent political uprisings in Egypt, Yemen, Libya and Tunisia mean more people die in violence than before the Arab Spring, and health systems are on the brink of collapse, says the study, published in *The Lancet* on 24 August 2016.





Sustainable Development Policy & Practice

Tracking the Implementation of the
Intergovernmental Sustainable Development Agenda

[f SD P&P](#) | [RSS](#) | [ICAL](#) | [SDG](#) | [SD UPDATE](#) | [SDG NEWS](#) | [LATEST NEWS](#) | [ANNOUNCEMENTS](#)

ting SDGs in Crisis-Affected Countries

[f Like](#) [Share](#) 1

News

Officials Discuss Implementing SDGs in Crisis-Affected Countries



UNITED NATIONS
DEVELOPMENT GROUP

23 September 2016: UN officials discussed the implementation of the Sustainable Development Goals (SDGs) in crisis-affected and post-crisis countries, at a high-level event organized by the UN

Development Group (UNDG) on the sidelines of the 71st UN General Assembly (UNGA). Participants heard that: Somalia has mainstreamed the SDGs into its first national development plan in more than three decades; the g7+ group of self-identified fragile states is prioritizing peace- and state-building within SDG planning processes; and Burkina Faso integrated climate risks into its recently approved national development strategy. The event, titled 'Sustainable Development Goals Coming to Life – Envisaging a common and resilient future.' took place on 23 September 2016, in New York, US.

Bottom Line

The crises in the Middle East, particularly since 2010, has wrought havoc on national development efforts in the region's countries. Moreover, a utilitarian overlap exists between the current turmoil in the Middle East and the 2030 Agenda for Sustainable Development which explicitly discourages “spiralling conflict, violent extremism, terrorism and the associated humanitarian crises and forced displacement of people” as endangering much of the progress made in the development sector in recent decades (UN, 2015).

Bottom Line II

The current political turmoil in the Middle East cannot but delay the achievement of the SDGs.

In the short term, the international community should encourage countries to enhance cooperation by creating financial instruments that make concessional and preferential funds available to invigorate the STI 4 SDGs 'Plan of Action.' In the medium term, a regional Marshall Plan for Innovation can be a proposition.

Possible next steps nevertheless...

- ▶ Notwithstanding some serious efforts in many Arab countries to develop their STI ecosystems, systems and ‘visions, more work needs to be done;’
- ▶ To strive to achieve the SDGs, Innovation is required in both forms. A culture of innovation has to be cultivated among the rank-and-file of all stakeholders;
- ▶ Soft innovation at the national and regional levels to help realize many of the SDGs;
- ▶ Hard innovation can perhaps be achieved by focusing on the ‘High Technology Exports’ bandwagon to elevate this sector so that it can substantially contribute to national economies;
- ▶ At the operative level:
- ▶ Arab countries need to quickly adopt and if necessary adapt the ‘Arab Innovation Dashboard’ co-developed by the ESCWA Technology Centre;
- ▶ The idea of establishing an Arab Technology Bank needs to be explored;
- ▶ Innovation champions in the various Arab countries need to be identified and encouraged to lead;



Thank you.

