

World Federation of Engineering Organizations

*Capacity Building Committee
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Stabilization Conference*

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Building a capacity building manual

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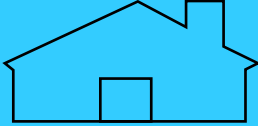
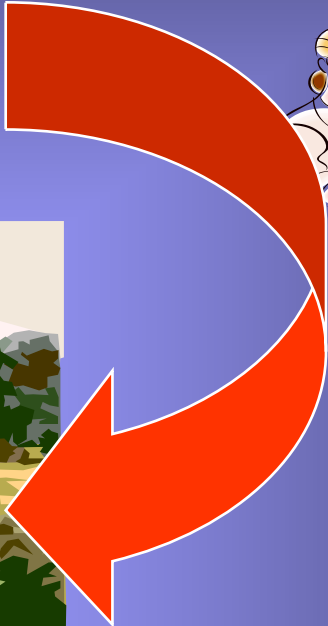
Kevin Wall, South Africa, Editor

Or..... a world

without engineers

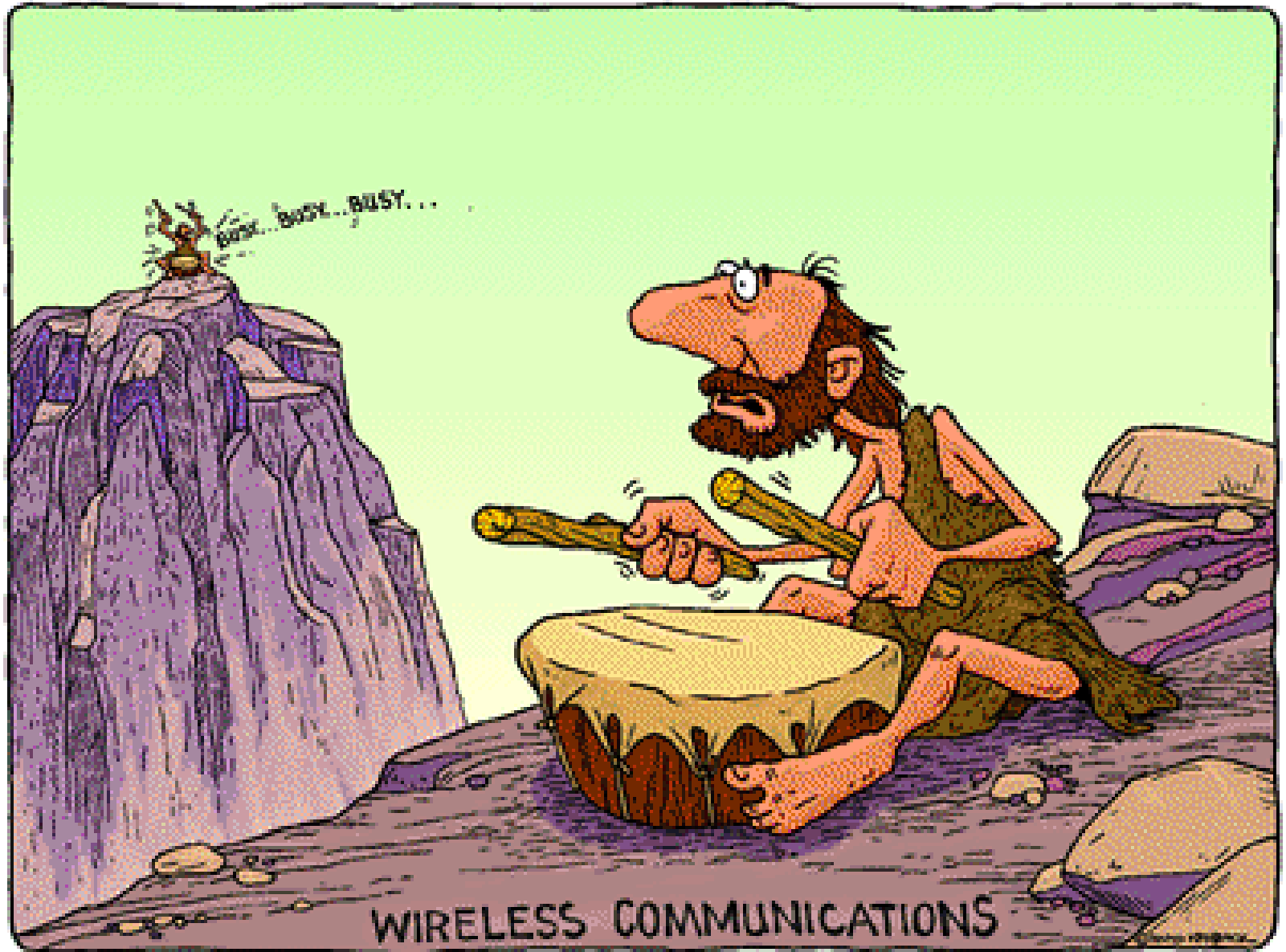
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The engineering team provides infrastructure and services for quality of life



Sanitation
Potable water





WIRELESS COMMUNICATIONS

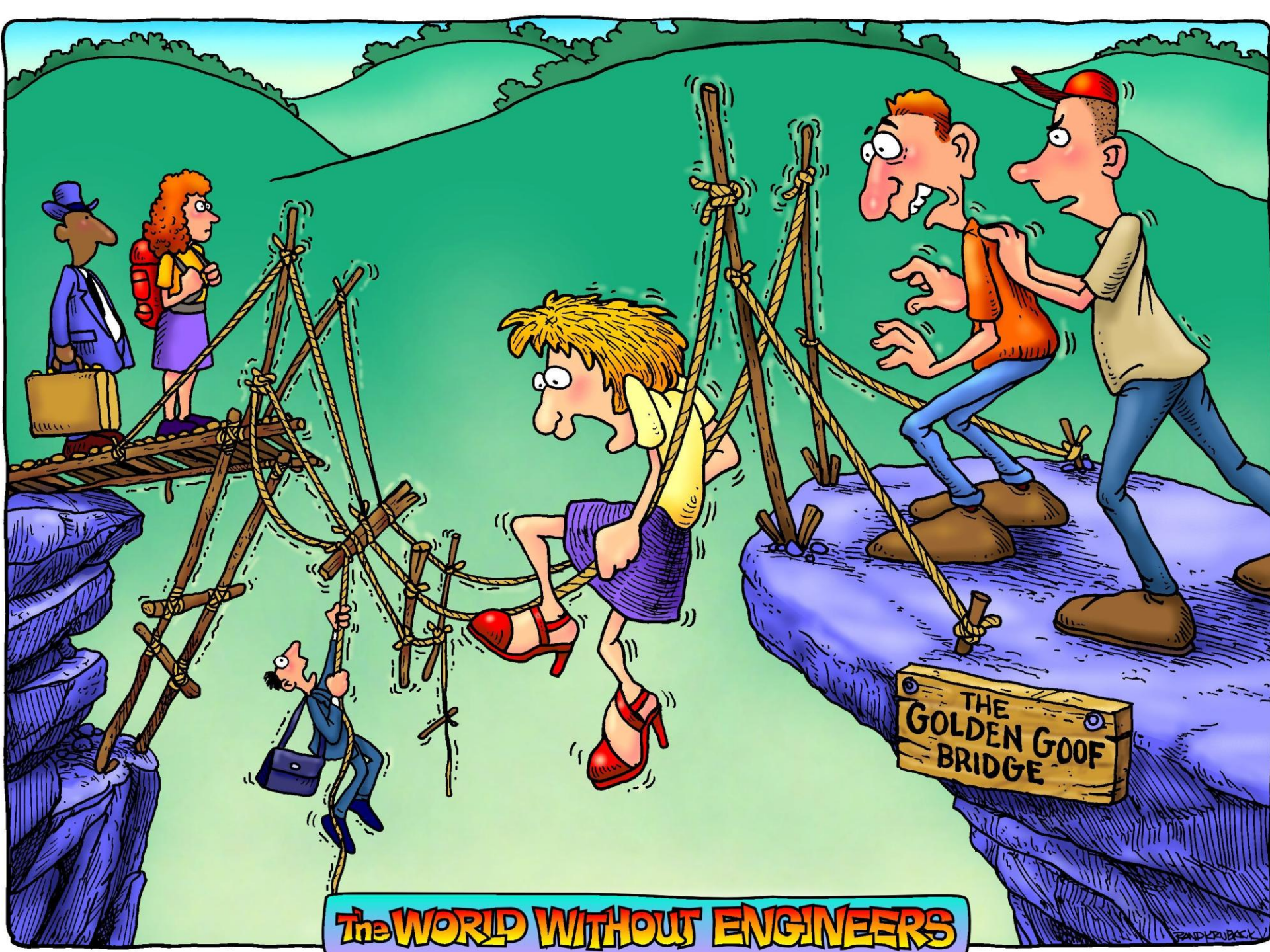


The WORLD WITHOUT ENGINEERS



Agilent Technologies

<http://www.educatorscorner.com>



The WORLD WITHOUT ENGINEERS

Engineering professionals are the custodians of infrastructure and has taken upon themselves:

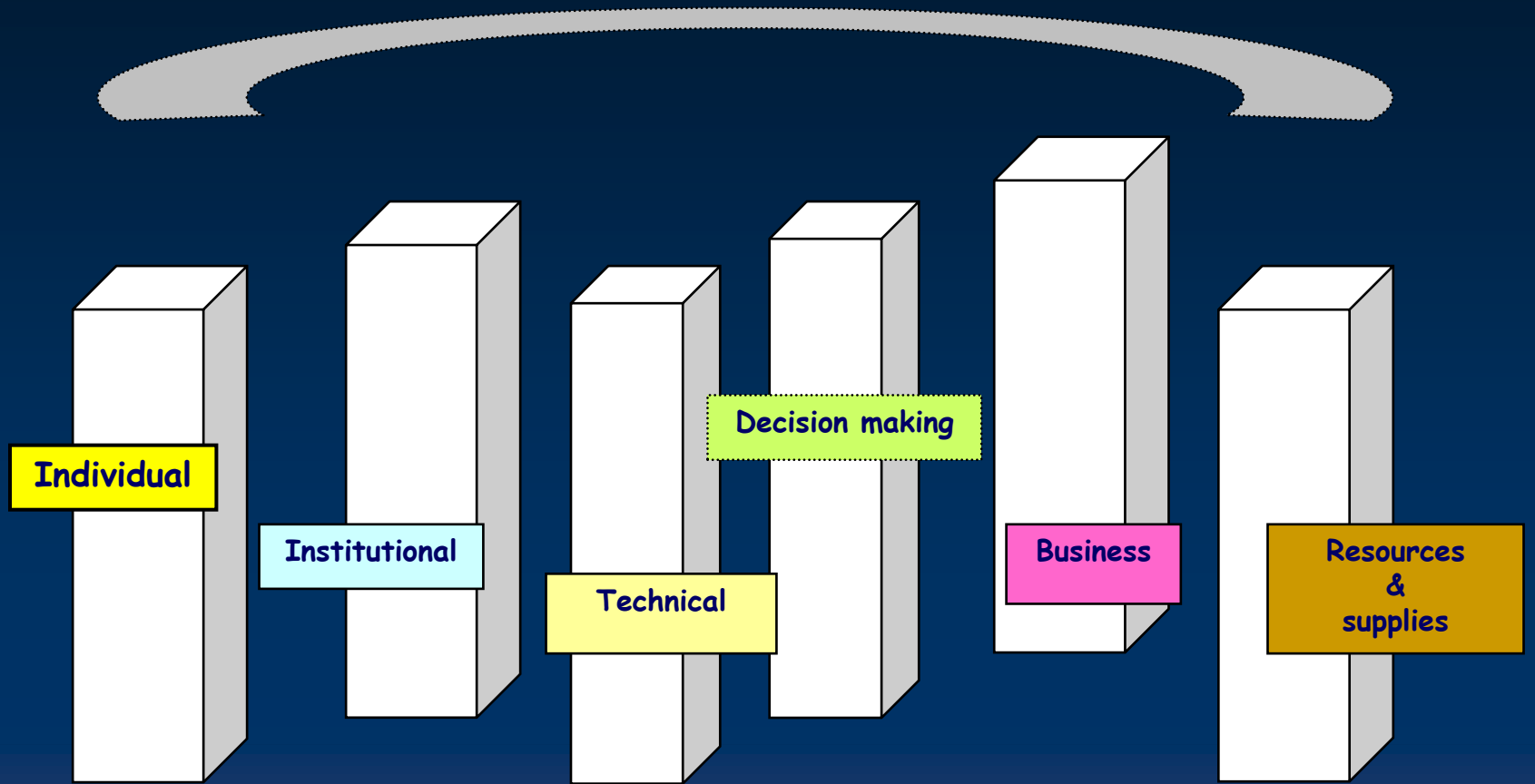
to facilitate and enhance the knowledge of not only themselves to deal with the challenges of our times,

*but also to assist **decision makers** from all levels of society, from the small children to the leaders of countries to ensure a sustainable world for all.*



Sustainable engineering infrastructure and services are the basic cornerstones of life, civilization and economic wellbeing of communities.

*Across the world, there is a huge deficiency in **capacity** to understand the need for, how to develop, deliver, maintain and care for infrastructure and services.*



**The six pillars of CAPACITY and
SUSTAINABLE ENGINEERING**

The Six Necessary Pillars

- *Individual – the needs of the technical practitioner are met*
- *Institutional – stable institutions are in place*
- *Technical – standards and codes are operationalised*
- *Decision-making – is informed at all levels from Government down to ordinary citizens*
- *Business – business structures support technical development – financial, legal, commercial*
- *Resources – the materials required can be sourced*

*What is capacity **building**?*

*It is the building of
human,
institutional,
infrastructural capacity
to help societies develop
safe, secure, stable
and sustainable economies, governments and
other institutions*

*What is capacity **building**?*

Or capacity building can be

assisting people to develop the technical skills to address their own needs for improving the living standards and prosperity of their own people and building an environmentally sustainable society



Development and Renewal

*Capacity building is relevant and important for **all nations***

- *Capacity building in **developing** nations – establishment phase*
- *Capacity building in **developed** nations – renewal stage*

HOW can capacity be developed and maintained?

Through mentoring , training, education, physical projects, the infusion of financial and other resources and more importantly

the motivation and inspiration of people to improve”



Top-Down vs Bottom-Up approaches

- *Success most likely if there are the right **public policies or top-down** approaches in place*
- *Implementation of public policies are more likely to succeed if the public policy identifies and uses non-governmental institutions e.g. professional societies and their programmes*
- *Success from bottom-up is possible without public policies in place, but impact would be lower*

Why a guide book or manual

- *Lessons learned in one nation can be shared with others*
- *Many who are undertaking capacity building activities are isolated from support systems and a guide book can provide advice and prevent re-invention of the wheel*

Why a guide book or manual

- *A guide book will record success and commentary to act as a guide to others*
- *Under the WFEO and UNESCO brands a guide book will provide credibility with governments, funding and aid agencies*

The time has come to develop

*an integrated,
generic,
appropriate,
effective
&
comprehensive*



*set of engineering related guidelines related to
Capacity Building Programmes that can be promoted and
implemented*

without delay

*The manual will also be useful
for*

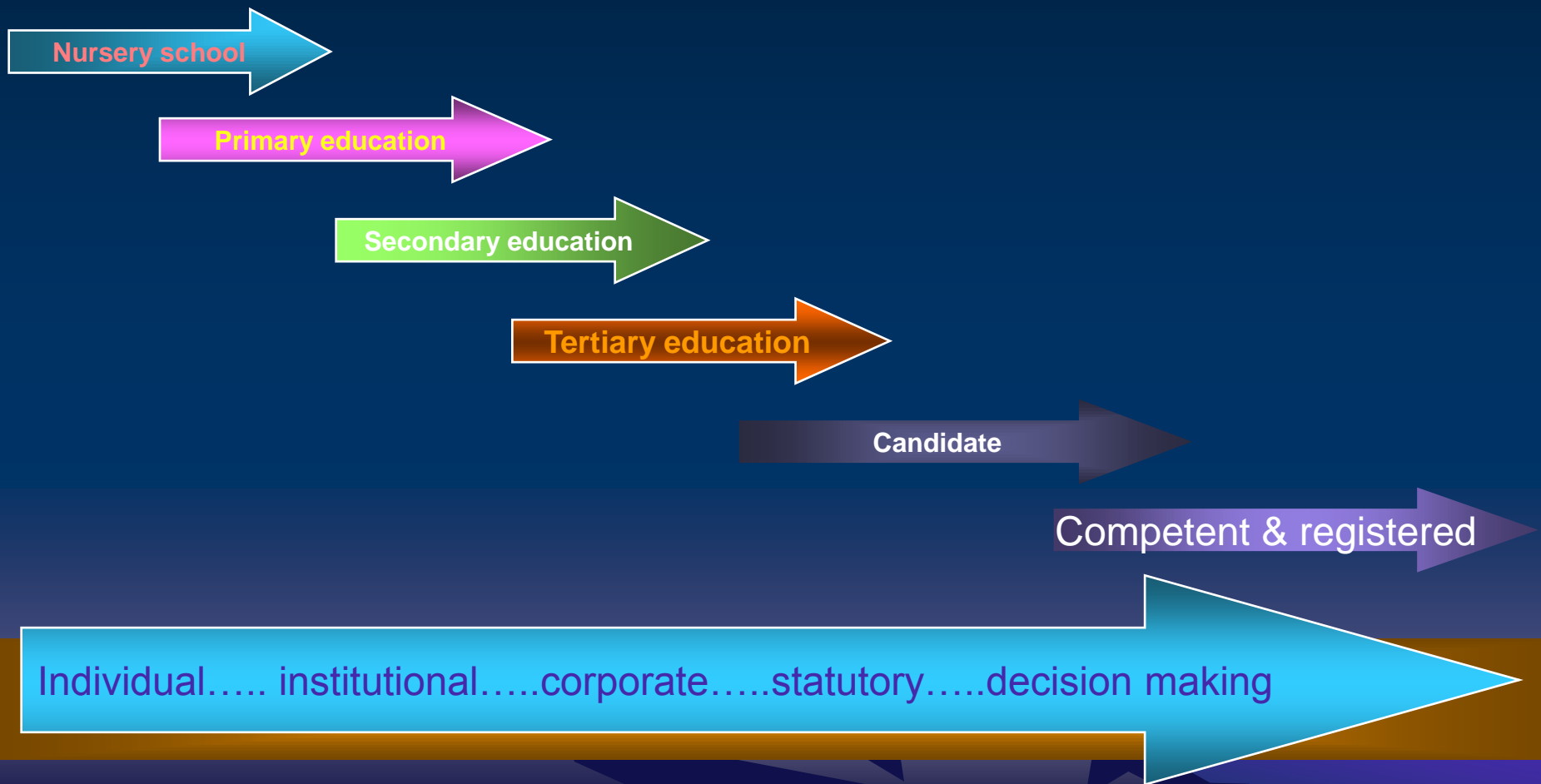
aligning our efforts which could facilitate

COMMON understanding among decision makers of

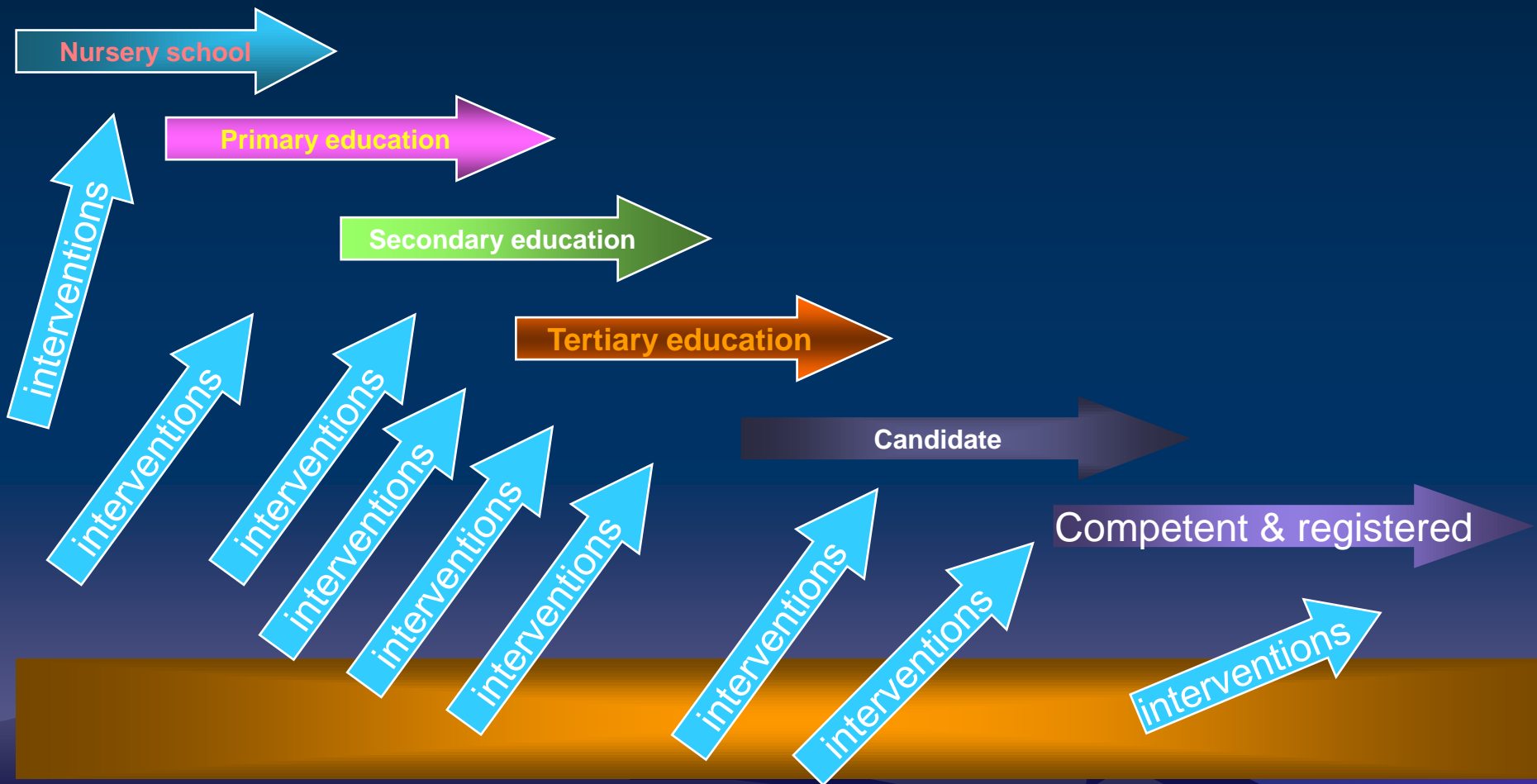
WHERE & HOW & WHAT

*is needed to satisfy
the capacity building requirements through out
the entire pipeline*

Aligning our efforts



Aligning our efforts



However.....

Capacity building is more difficult than it seems – well intended programmes can fail despite the best intentions and efforts of those involved.

The best practice “manual” will assemble and distill the experiences of many people to assist those developing new programmes to minimize the risk of future failure.

The manual will also help all of us

*to assemble **packaged solutions** and programmes*

*to serve as a **template** to custom fit to the needs of
a specific country*

*to **reduce risks** for and **enhance trust & credibility**
with funding organizations and other decision
makers*


The 12 Guide Book Chapters

- 1. Principles of capacity building***
- 2. Defining needs and desires in nations***
- 3. Influencing and defining public policy***
- 4. Establishing education and skill development programmes***
- 5. Achieving participation in education and skill development***
- 6. Support networks and systems for technical professionals***

The 12 Guide Book Chapters

- 7. Education, training and developing skills***
- 8. Participation – attracting citizens into engineering education***
- 9. Networks and support systems***
- 10. Technical & Business Standards***
- 11. Project Execution with a capacity development element***
- 12. Funding for Capacity Development Programs***

Progress achieved by the capacity building committee to date

- ***Lead authors defined for all twelve chapters***
 - ***Contents key success factors and examples identified and discussed***
 - ***Start made with listing programmes which will form an annex or compendium of good and best practice examples***
- 

***Examples of what
the compendium of programmes
and examples
may address or contain***

Pre school

Cartoons

Mad professor party shows

Primary and secondary school

Bridge building

Water competition

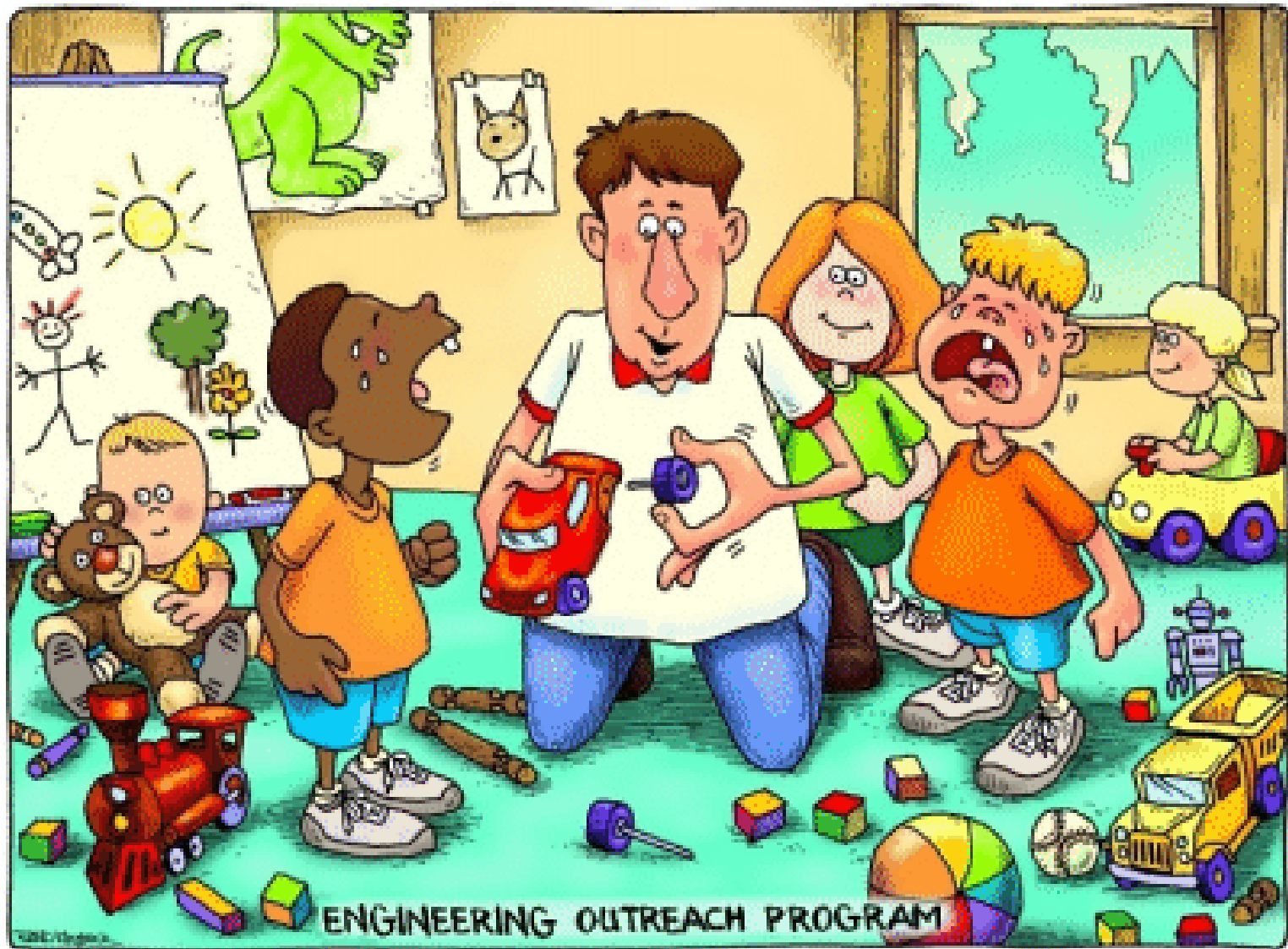
Pin game

Beyond 2000 careers

TV programmes – MMG Engineers

Built environment cartoon

Careers DVD



Primary and secondary school

Brochures

Science centres

Science expo

Maths and science programmes

Youth in construction

Structural Pin game

TRAC RSA and USA

Engenius

Laduma numeracy

Youth service

World without engineers cartoons

Training handbooks for learners and teachers

Technical Handbook – Civil Engineering education

Tertiary level

*University curricula
Coaches and mentors*

Facilities

EXCeeD

Remuneration of Academics

Experiential training

Outreach to Students

Students chapters

Young members forum

Post graduate before registration as professional

Training programmes

Mentors

Mentor guidelines

Experiential training

Energys

CPD

Institutional

Congresses and conventions

Code of ethics

Code of conduct

Promotional items

Magazine

Technical Journal of refereed papers

News letters

email alert and news systems

Strategic Planning – ASCE Vision 2025

Body of Knowledge

Agreements of cooperation

International Round Table

Africa Engineers Forum

The World according to SAICE

Decision making and outreach

Public awareness and community interaction

Media awareness

Talking engagements, TV appearances

Public advice service

Local Authority orientation

Engaging government – Parliament

Anti corruption

Leadership programmes

History and heritage

Key contact programme

Senior lobbyists

Disaster resilience guidelines

Statutory regulation

International reciprocity

Report cards

Technical

Contract documents

Mediators, arbitrators and adjudicators

Specifications

Best practice guidelines

Codes of practice

Bookshops

Practice Manuals

CIDB Brochure construction

Procurement

CPD

Congresses

*Statutory structures like councils for research, construction industry
developments boards, standards organizations*

NUMBERS & NEEDS

Addressing imbalances in the
civil engineering profession



Research documents

Allyson Lawless

country	number of people per registered engineer	number of people per registered Medical doctor
Norway	122	308
Swaziland	12 300	9 100
UK	311	492
South Africa	3 166	1 493
Argentina	453	354
Ghana	12 800	2 500

country	number of people per registered engineer	number of people per registered medical doctor
Japan	303	476
Brazil	227	379
India	157	2 320
South Africa	3 166	1 493
China	130	593
???	???	???

Progress achieved by the capacity building committee to date

- *There is an attempt to get first drafts completed at the end of February 2010*
- *Peer review of the contents will be by email and teleconference meetings in the first half 2010*
- *A launch is planned at the WFEO event in Buenos Aires in October 2010*

What the guide book is not

- *It is not a document that will be fixed at a point in time – but will rather be a living compendium*
- *It will not be a set of recommendations – rather it identifies good practices – the user will make of it what he or she chooses*
- *It will never be complete – new experiences and ideas are always welcome*

In conclusion

*We have to bridge the gap before the chasm
becomes too wide*

*It is PRIMARILY an engineering race
a race against time*

It is now or never


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*We can now build on
foundations laid
to develop
the pillars
that underpin a
sustainable society*

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*For the sake of the communities we serve
and for the sake of our world in crisis*

*Engineering professions will have to go
beyond the call of duty and let our sun shine
through*



*The
WFEO and UNESCO
capacity building manual
for
engineering*

Thank you

***to all the participants
in the process that unfolded
over the past 16 months***