



United Nations
Educational, Scientific and
Cultural Organization



4th UNESCO Africa Engineering Week (AEW) and 2nd Africa Engineering Conference (AEC) 2017 25th -29th September 2017

AEC Conference 2017 RESOLUTIONS

WHEREAS, the 4th UNESCO Africa Engineering Week (AEW) and 2nd Africa Engineering Conference (AEC) on “Effective Waste Management in Africa”, held in Kigali, Rwanda, from September 25 to 29, 2017 noted the need for African Governments to give sufficient support to their Engineering Communities and professionals in order to build capacity for efficient and effective integrated waste management technologies and services for reducing, reusing and recycling resources and infrastructure provision for national development;

REALISING that most African governments are yet to put in place holistic policies and strategies and institutional arrangements for Capacity-Building and technology transfer, as well as coordination mechanisms/governance structures for waste management, if this holistic approach to waste management is promoted, the level of waste management activities will be increased due to enhanced regional and international cooperation, advocacy, awareness, political will, and outreach achieved through synergized activities to avoid duplication and to promote efficiency of efforts;

OBSERVING that the SDGs have many links to chemicals and waste management, most notably in Goal 12 – (Ensure sustainable consumption and production patterns); Goal 12 aims to achieve by 2030, the environmentally sound management of chemicals and all wastes throughout their life cycle and significantly reduce their release to air, water and soil; in addition, Goal 3 – (Ensure healthy lives and promote well-being for all at all ages) – has a target to reduce substantially, by 2030, the number of deaths

and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

NOTING that the Africa Engineering Conference was the premium platform for knowledge generation, exchange and transfer to inform engineering education, policy and practice in waste management and other engineering spheres, the delegates realised the need to refocus and re-strategise our national innovation systems bearing in mind the need to embrace a STEM and innovation driven development agenda to create an African Knowledge Society;

WHEREAS, the conference delegates noted gaps and lapses in Research and Development, Design and Development and Research Prioritization as well as Commercialization of the Research findings and considering the need to effectively translate the conference outputs, outcomes and results into marketable innovations; policy instruments and advice to our Governments, Industry, Academia and Society;

WHEREAS the scarcity of resources devoted to system-wide technical and innovation activities, impacts on the innovation potential of enterprises, the conference noted that it is in the best interest of the African countries to leap-frog through optimization of resources through effective waste management and learning from best practices;

FURTHER NOTING that currently there is need for building trust between our Governments and Built Environment Professionals, the conference delegates observed that a huge opportunity cost to the fiscus needs to be plugged by recommending a host of policy interventions including anti-corruption practices like integrity pacts, professional and ethical conduct, enforcement of waste management policies, enhancing engineering education, and advocating for gender and diversity in engineering as well as encouraging more young people to study engineering;

THEREFORE, the AEW Delegates, gathered in Kigali, RESOLVED as follows:

Resolution 1: Adoption of Integrated Waste Management Systems and Policies for Africa will lead to Economic Development:

- Sustainability of the system from a technical, environmental, social (cultural), economic, financial, institutional, & political perspective must be enhanced.
- Investigations and diagnosis of the suitability of any technology before investment and importation and must be done and proper advice given.
- The waste generator must bear the cost of its management and disposal (the polluter must pay principle is recommended).
- An integrated approach will best achieve waste management goals.
- Strong legal and political frameworks are key to effectiveness and sustainability in waste management.
- New technologies will speed up the composting process and maximize treatment and recycling of inorganic waste
- A waste management philosophy to change to a resource recovery philosophy.

Resolution 2: Implementation of the SDGs for African Development is required:

- Delivering Sustainable Development Goals (SDGs) is key for Africa.
- Promotion of SDGs targets on waste management must be done.
- Promotion of investment in waste management need to establish a platform to share knowledge and promote SDGs on waste management in Africa.
- Support in policy/plan formulation and implementation for the SDGs is necessary.
- Waste management 'Trends' and 'Sustainability' must be co-opted into our policies.

Resolution 3: Building and Sustaining Capacity in Engineering for the Continent is a pre-requisite for development:

- Professional Engineering bodies are required to strengthen the profession by sharing the best practices and increasing local engineering capacity building.
- African Governments should establish career guidance and counselling

centres within schools.

- Creating the right conditions to enable Professional Engineers to operate is necessary.
- Supporting attachments for industrial experience for graduate trainees is necessary.

Resolution 4: Promotion of Young Engineers and Future Leaders in Engineering leads to increased number of the engineering workforce needed sustainable development of Africa:

- Nurturing of young people into STEM through mentorship, exposure to role models and job shadowing will enhance interest in the Engineering Profession and create a critical mass of engineers needed for sustainable development.
- Professional organizations in engineering across Africa should promote interest in science and engineering education increase the numbers of engineers to solve Africa's problems.

Resolution 5: Empowerment of Women in the Engineering Profession leads to diversity, development and prosperity in Africa.

- Empowering women and girls to study STEM subjects increases the participation of women in science and engineering education and retention in engineering workforce.
- Provision more role models, especially females for outreach programmes will encourage the uptake of the engineering profession.

Resolution 6: Building Trust through Ethics, Professionalism and Anti-corruption:

- Ethical and professional conduct (enforced by taking of professional oaths) is required and enforced through professional bodies.
- Enhanced Anti-corruption Programmes like the Transparency International Integrity Pacts, Global Infrastructure Anti-Corruption Center PACs and WFEO Anti-corruption Training must be done.
- Equity for all citizens to have access to waste management systems for public health reasons.
- Lack of professionalism should be punished.

- Financial constraints must be addressed through the business case.
- Lack of awareness and poor coordination & collaboration among different Stake holders.

Resolution 7: Green Development Pathways and Environmental Stewardship is recommended that:

- Global Warming and Climate Change pose a looming threat to our very existence.
- Engineer the most cost effective & Environmental Friendly and socially acceptable systems.
- Improve our designs to promote Green designs;
- Reduce waste during construction and/or over a building and operation lifecycle directly minimize the environmental impacts
 - reusable and reconfigurable
 - Use of quality products/materials – less chance of replacements hence less wastes
 - Waste & materials diversion: Products with minimum packaging and fewer hazardous chemicals.
- Relationship with nature and responsibility toward the common good.
- Awareness on the effects of discarded waste to the environment and human health should be created at all levels of government and the public.

Resolution 8: Promoting Innovative Partnerships like PPPs and Institutions-Industry Partnerships (IIPs) to enhance Waste management:

- Institutions-Industry Partnership (IIP) to develop research and home-grown solutions.
- Public-Private Partnership (PPP) for financing public infrastructure and projects.
- Private sector should be actively involved to partner with government bodies in sharing risks and commitments.
- Waste Management Centers should be created and can be interfaces between Industry, Academia, Government, [and the community]
- Emergence of a new model for cooperation and partnership between

education, private and extension services

- Communities should be empowered to be in charge of their own destiny and find solutions to problems in their own neighbourhood.
- Makes possible the pooling of human and financial resources from the public and private sector together.
- Partnership and collaboration between Universities & Research Institutions with private companies is very important for the materialization of concepts.
- Private sectors should be encouraged to partner with the Local Government Authority to develop a sustainable waste management system in the city.
- The government should increase the involvement of the private sector in waste management.
- Government authorities and agencies should raise public awareness and understanding on waste management.
- The public should also be encouraged to participate in clean-up campaigns.

Resolution 9: Advocating for Education, Training and Development for Waste Management:

- Advocacy and information sharing.
- Sharing of knowledge and networking.
- More research is required for effective waste management systems
- Sensitize population on waste hierarchy: Reduce, Reuse, Recycle, Recover, Dispose.
- Insufficiency research that supports innovation that improves engineering designs.
- Curriculum on recycling for children, junior youth, youth and adults must be put in place.
- Shape the conversations that children's teachers or youth animators would have with parents.
- Education in waste management is currently in very weak or inexistent in our education system

Resolution 10: Promoting of Waste Management Entrepreneurship in Africa is long overdue:

- Waste is a resource and can be used to generate new goods and services e.g. waste to energy, recycling.
- Extended Producer Responsibility (EPR) policies must be put in place.
- Create employment opportunities and more jobs in waste management.
- Developing Zero Waste Programmes and Waste-to-energy technologies improves our economies,
- Effectiveness of the waste management system to safely remove the waste.
- Efficiency of the waste management system to maximize benefits, minimize costs, & optimize the use of resources is recommended.
- Invest in the sector of waste management, make a good use of waste and generate Green Jobs (reduce, reuse, recycle).

Resolution 11: Governance and Protocol of future Africa Engineering Week and Africa Engineering Conferences:

- Promoting the efficient and inclusive Running of AEW by streamlining the Roles of the WFEO, FAEO and UNESCO Regional Offices.
- The WFEO-FAEO-UNESCO Committee set up by the President of WFEO and chaired by the Capacity Building STC is in charge of the AEW Protocols including awards to host and administration.
- Involve the Regional Economic Commissions (EAC, SADC, ECOWAS, COMESA etc) in the organisation and celebration of the AEW.
- The UNESCO Regional Offices in Africa should be an integral part of the planning and organisation of the AEW.
- The UNESCO HQ in Paris will facilitate the smooth running of the AEW in close collaboration with the Africa Regional Offices and give adequate financial support and partnership mapping assistance. This is to ensure that the lack of participation in the preparation and organisation of the AEW by UNESCO as witnessed in Rwanda is avoided.
- UNESCO should not schedule other events are relevant to the Engineering Profession during the dates of the AEW event as this disenfranchises the African Engineers who may have a stake in the other event.

For the Institution of Engineers Rwanda (IER)

Eng. Papias Kazawadi Dedeki

The President;

For the Federation of African Engineering Organizations (FAEO)

Eng. Julius Riungu

The President;

For UNESCO, Regional Office for Eastern Africa, (Nairobi)

Alice Auma Ochanda, PhD

Programme Officer – Gender and Science;

For the World Federation of Engineering Organizations (WFEO)

Eng. Martin Manuhwa

WFEO President's Representative;
