

FLUID THOUGHTS

Promise of the Year of the Ox



WRC CEO, Dhesigen Naidoo

We have ushered in the Year of the Ox and have said goodbye to the Year of the Rat (masked).

But, as challenging as last year was, the end of the King Rat's lunar year was definitely one of the more dramatic Januaries in recent history. The first was that it saw the conclusion of the most globally consuming transitions of power in the United States ever. The storming of the US Capitol in Washington on 6 January sent shock waves around the world.

It was an event that had huge significance in many directions. To many this was the physical expression of a desire by some to return America, and the world, to a time characterised by isolationism, racial segregation (white supremacy) and a high-carbon industrial model. It is alarming how this movement found allies all over the world, despite being punctuated by the reality bites of Black Lives Matter, the MeToo movement and a groundswell of new evidence demonstrating the negative impacts of Climate Change. But, fourteen days later US President Jo Biden was inaugurated and reminded the world that for him and Vice President, Kamala Harris the core ingredients of the recipe for the America recovery was the very opposite of these objectives.

Six days later, 26 January, saw Davos Virtual – the 2021 meeting of the World Economic Forum (WEF). There was the acknowledgement that the world has been on a destructive trajectory to date, with the climate crisis being the uppermost long-term risk in the 2021 WEF Global Risk Register. South African President, Cyril Ramaphosa, in his WEF address emphasised that “..the world is at a crossroads... These challenges – from poverty to the destruction of our environment, from conflict to inequality, from illiteracy to famine – are all the results of our action, and too often, our inaction”

WEF founder, Klaus Schwab, supported by Managing Director, Saadia Zahini, introduced the theme of the much-needed **Great Reset**. This refers to the need to right-track the global economy and how it operates in order to achieve equitable global development. The WEF showed a preference for the model of “Stakeholder Capitalism” supported by the International Business Council toolkit in the form of environmental, social and governance (ESG) metrics as the performance indicators of the new global economy.

We have already been witnessing an important shift. For example,

retail investors applying ESG principles to at least a quarter of their investment portfolios went from 48% in 2017 to 75% in 2019. In 2018, sustainable investment accounted for \$14.1 trillion in Europe and \$12 trillion in the US with the latter projected to increase to \$35 trillion by 2025. This would go a long way to achieve the banner headline goal of the meeting of the four Ps – People, Plant, Prosperity and the Principle of Governance. South Africans must be allowed a trip down nostalgia lane as we remember that the first time the first three Ps (People, Plant, Prosperity) made global headlines was at the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg.

“After a year of hardship, we can understand more than ever the significance of a (global) community with a shared vision for mankind.”

Alongside WEF in January was the Climate Adaptation Summit. It was attended by 22 Heads of State, 50 ministers and leaders in all major stakeholder groups. It set itself up as a key start toward the Climate Change Cop26 (Glasgow, November 2021). The in-between steppingstones include the Global Climate Leaders Summit (USA), the Climate and Development Forum (UK), the G7 and the G20. We have to move to a low carbon development trajectory, and we have to work as hard if not harder at adaptation as we do on mitigation.

A point led by UN Secretary General, Antonio Guterres, pushing for a shift in funding prioritisation with the goal of 50% of climate funds for adaptation and resilience by 2024. The launch of the Adaptation Action Coalition by UK's Prime Minister, Boris Johnson, added impetus to host Dutch Prime Minister Mark Rutte's introduction of the Adaptation Action Agenda at the beginning of the Summit. Additionally, the launch of the 1 000 Cities Adapt Now global programme and the Coalition for Climate Resilient Investment provide invaluable pillars to build this agenda on.

President Ramaphosa in the 2021 State of the Nation Address talked to the priorities of economic recovery with inclusive growth and job creation. As an important pointer, taking heed of the important January developments, he also announced that

the recently appointed Presidential Commission on Climate Change Coordination would have its inaugural sitting in February 2021. This may be a pivotal development in absorbing the momentum of the Great Reset.

As difficult as the Year of the (masked) Rat was, it definitely ended on a high. As President Xi emphasised in the 2021 Chinese New Year Address, the pandemic has given us much to revere, not least remembering that ... "Greatness is forged in the ordinary. Heroes come from everyday people." After relating the Chinese "stories of Spring", he went on to emphasise ... "We are not alone on the Great Way and the whole world is one family. After a year of hardship, we can understand more than ever the significance of a (global) community with a shared vision for mankind."

They say that the Ox is characterised by diligence, dependability, determination and strength. These are exactly the attributes required to build on these pillars toward a landmark year in the

quest for a low carbon green sustainable and equitable future within which we see a point of inflection toward the more rapid realisation of the Sustainable Development Goals in this Year of the Ox.



Top Risks

by likelihood

- 1 Extreme weather
- 2 Climate action failure
- 3 Human environmental damage
- 4 Infectious diseases
- 5 Biodiversity loss
- 6 Digital power concentration
- 7 Digital inequality
- 8 Interstate relations fracture
- 9 Cybersecurity failure
- 10 Livelihood crises

Top Risks

by impact

- 1 Infectious diseases
- 2 Climate action failure
- 3 Weapons of mass destruction
- 4 Biodiversity loss
- 5 Natural resource crises
- 6 Human environmental damage
- 7 Livelihood crises
- 8 Extreme weather
- 9 Debt crises
- 10 IT infrastructure breakdown

Top risks for 2021 according to the World Economic Forum Global Risks Perception Survey 2020.



SAVE THE DATE

5TH WRC SYMPOSIUM

20 SEPTEMBER - 22 SEPTEMBER 2021








NEWS

New initiative to boost use of water-smart technologies in agriculture

A multistakeholder platform which aims to boost the use of water-smart technologies by farmers in Limpopo, Free State and Mpumalanga was launched in February.

The Triple Helix (3H) initiative will provide a platform for farmers to work with local government, agri-business and research institutions towards finding joint solutions for their specific, local challenges. These solutions range from the introduction of new technologies, to the sharing of knowledge, opening networks to finance and providing skills training.

The 3H platform is the result of a collaboration between Stellenbosch University (SU) and the Maastricht School

of Management (MSM) and facilitated by Agrocolleges International. "The platform will act as a multistakeholder initiative in the domain of water-smart agriculture and horticulture. It will unite local government, local academia and researchers with farmers and agri-business. The aim is to further boost adaptation of water-smart technology in these regions," said project managers Hans Nijhoff from MSM and Manuel Jackson from SU.

The establishment of this platform is based on a labour market needs assessment, conducted by researchers from SU and MSM in 2019, to gain better insights into the skills needs of the horticultural and agricultural sector

when hiring graduates from technical and vocational education and training (TVET) colleges in South Africa. The project, 'Strengthening skills of TVET staff and students for optimising water usage and climate smart agriculture in South Africa' was funded by the Netherlands Universities Foundation for International Cooperation (NUFFIC), through the Dutch Ministry of Foreign Affairs.



Lack of service delivery impacting South Africa's children



There has been little improvement in children's access to water over the past 15 years, with close to six million children living in households with no access to clean drinking water on site.

This is according to the latest *South African Child Gauge* report, published by the University of Cape Town earlier this year in partnership with UNICEF South

Africa; the DSI-NRF Centre for Excellence in Human Development, University of the Witwatersrand; the Standard Bank Tutuwa Community Foundation; and the DG Murray Trust..

According to the report, in 2018, more than three-quarters (78%) of adults lived in households with drinking water on site – compared with only 70% of children. Provincial differences are striking as the report points out. More than 90% of children in the Gauteng and Western Cape provinces have an adequate water connection. However, access to water remains poor in KwaZulu-Natal (59%), Limpopo (51%), and the Eastern Cape (39%).

The United Nations Sustainable Development Goals define safe access to water as an improved water source that is located on premises. Lack of access to adequate water is closely related to poor sanitation and hygiene.

In addition, children may be responsible for fetching and carrying water to their homes from communal taps, rivers or streams. Carrying water is a physical burden that can lead to back problems, or injury from falls. It can also reduce time spent on education and other activities and can place children at personal risk.

In terms of sanitation, the report indicates that there has been a gradual improvement in children's access to safe sanitation in the last decade. In 2002, less than half of South African children (46%) had access to adequate sanitation compared to 79% in 2018. But 4.2 million children still use unventilated pit latrines, bucket toilets or other inadequate forms of sanitation. Over 340 000 children have no sanitation at all.

For more information, Visit: <http://www.ci.uct.ac.za/cg-2020-food-and-nutrition-security>

WEF Nexus winter school planned for July

The first water-energy-food (WEF) nexus Winter School or short course designed specifically for southern Africa will take place from 26-30 July in Pretoria.

This hybrid in-person/virtual event is organised by the University of KwaZulu-Natal's Centre for Transformative Agricultural and Food Systems in partnership with Global Water Partnership Southern Africa, UNESCO-IHE Delft, the Water Research Commission and WaterNet.

The WEF nexus, according to the Food and Agriculture Organisation of the United Nations, refers to the fact that water, energy and food security are interlinked and actions in any one particular area can often have effects in one or both of the other areas. The WEF nexus winter school has been developed as a capacity building initiative aimed at providing support to early researchers, post-graduate students, managers and practitioners in understanding WEF nexus thinking as a transformative

approach to sustainable natural resources management and socio-economic development.

The overall objective of the WEF nexus winter school is to improve evidence-based decision-making capacities towards:

- achieving simultaneous WEF securities
- sustainable natural resources management
- socio-economic developments
- understanding WEF tradeoffs and synergies
- innovating through the WEF nexus for job and wealth creation
- linking science to informing policy and decision-making in their respective countries

"As the nexus field of research is relatively new, participants will be exposed to a rapidly developing and critically important way of thinking," said Prof Tafadzwa Mabhaudi, Co-Director of the Centre for Transformative Agricultural and Food

Systems. "Participants will improve their knowledge of the WEF nexus and become acquainted with the concepts, how to facilitate discourse, and new frameworks, tools and methods for analysing the WEF nexus," he added.

According to Prof Mabhaudi, the WEF nexus winter school is set to become an annual event. "The plan is for the core content to stay the same, but there will be some variable content that will change annually to reflect the current state-of-the-art WEF nexus research and development."

The WEF nexus winter school will be held at Future Africa, University of Pretoria, Hillcrest Campus. The venue has accommodation facilities. The winter school organisers will closely monitor the COVID-19 pandemic situation and timeously communicate any changes via email.

For more information, email: waternet@waternetonline.org

SA government committed to universal access to water – Sisulu

"Water is a public good in the most practical way. However, sustainable provision of water to everyone is still a challenge facing the country. The huge disparities still remain, but our most urgent responsibility is that of providing water to everyone."

This was said by the Minister of Human Settlements, Water and Sanitation, Lindiwe Sisulu, during the State of the Nation Address debate at the National Assembly in February. Sisulu explained that the launch of the comprehensive National Water and Sanitation Master Plan in 2019 was the beginning of ensuring equal and fair provision of water to every citizen of the country. She said that various stakeholders in the water sector, including agricultural unions, provided inputs to the Master Plan and were with one voice reiterating the concept of "water for all".

"We regard our Master Plan as a transformation charter for the water and

sanitation sector. This is our attempt at addressing the disparities of our past, giving direction to where we are going and ensuring that the disadvantaged are given priority. Large sections of our people in the rural areas go without water for weeks, further entrenching the divide between those who have had, those who have and those who continue to wait", said Sisulu. She further referred to the creation of the National Water Infrastructure Agency and said it will sustain and improve the performance of all strategically important water supply systems in regions where water security is at increasing risk. The Agency will work jointly with municipalities, water boards, financial and mining institutions, and agricultural community. Another important issue mentioned by the President in his State-of-the-Nation Address, is a delay in issuing water licenses. Minister Sisulu explained that there is a programme in place to improve the systems. She said there is a commitment to finalise any new and

compliant water license applications between 70-90 days, as opposed to the three years' timeframe it used to take. She also reiterated her commitment to turn around the Department of Water and Sanitation.

A Disciplinary Committee is working hard to investigate and root out any maladministration, fraud and corruption and to look at audit findings and any other misconduct related matters. Sisulu said the Department is winning its legal cases one at a time, and has adopted a culture of zero tolerance for corruption. With regard to COVID-19 scourge, Minister Sisulu said the pandemic highlighted the challenges of access to water and sanitation in South Africa. However, in partnership with water boards and municipalities, a roll-out of water emergency water provision afforded the communities in the disadvantaged areas to have access to clean water.

Source: SA news

GLOBAL

Litigation playing increasing role in addressing climate crisis – report



Climate litigation cases have spiked in recent years, making the courtroom increasingly relevant to efforts to address climate change around the world.

A UN Environment Programme (UNEP) report released earlier this year notes that climate cases have nearly doubled over the last three years and are increasingly compelling governments and corporate actors to implement their climate commitments, as well as pursue more ambitious climate change mitigation and adaptation goals.

Summaries of significant cases appear throughout this report, and it also describes five types of climate cases that suggest where global climate change litigation may be heading in the coming years.

The report, published by UNEP in cooperation with the Sabin Centre for Climate Change Law at Columbia University, shows climate litigation has become more common and more successful worldwide. In 2017, 884 cases were brought in 24 countries; as of 2020,

cases had nearly doubled, with at least 1 550 climate change cases led in 38 countries (39 including the European Union courts). While climate litigation continues to be concentrated in high-income countries, the report's authors expect the trend to further grow in the global south – the report lists recent cases from Colombia, India, Pakistan, Peru, the Philippines and South Africa.

The background of plaintiffs is becoming increasingly diverse as well, with NGOs and political parties joined by children, senior citizens, migrants, and indigenous peoples. Just as they are particularly vulnerable to COVID-19, those groups of plaintiffs often stand at the forefront of climate change, enduring extreme weather, rising sea levels, and pollution.

"Citizens are increasingly turning to courts to access justice and exercise their right to a healthy environment," said Arnold Kreilhuber, Acting Director of UNEP's Law Division. "Judges and courts have an essential role to play in addressing the climate crisis."

Some of the recent trends in climate litigation identified by the report include:

- Violations of 'climate rights', i.e. cases are increasingly relying on fundamental human rights including the right to life, health, food, and water.
- Failures of governments to enforce their commitments on climate change mitigation and adaptation.
- 'Greenwashing' and non-disclosures, when corporate messaging contains false or misleading information about climate change impacts.

In the coming years, UNEP expects climate litigation to increase in national and international bodies, especially with respect to companies misreporting climate risks, governments failing to adapt to extreme weather events, and cases brought to enforce previous court decisions. A rise is also expected in cases concerning persons displaced by climate change impacts.

To access the report, visit: <https://www.unep.org/resources/report/global-climate-litigation-report-2020-status-review>

New sanitation management benchmark tool for Africa



The African Development Bank, the UN Environment Programme (UNEP) and GRID-Arendal have released the inaugural ***Sanitation and Wastewater Atlas of Africa***, a tool to benchmark and propel Africa's progress towards Sustainable Development Goal targets on safe sanitation and wastewater management. The Atlas aims to help policymakers accelerate change and investment in the sector.

The result of four years of collaboration, the Atlas assesses progress and highlights opportunities where investment in sanitation and wastewater management can improve health and spur economic growth. It incorporates maps, graphics and profiles of all African countries,

including analyses of their water resources and provision of basic services.

The publication also explores the links between sanitation and wastewater and ecosystem health and human health, and discusses frameworks and circular economy approaches that can lead to better infrastructure and systems. "Africa cannot have a healthy society without adequate access to safe water, sanitation and hygiene," said Wambui Gichuri, the African Development Bank's Acting Vice President for Agriculture, Human and Social Development.

"In the past 10 years, the African Development Bank has invested more than US\$6 billion in sanitation and hygiene improvements, but much more financing is needed from the private sector, development finance institutions, governments and other sources. The new Atlas can inform strategic investment going forward."

According to the report, more than half of the population in 34 out of 38 sub-Saharan African nations lacks access to basic handwashing facilities. It recommends investment in the necessary policies, infrastructure and human skills

capacities to operationalise actions towards the achievement of goals and targets in the 2030 Agenda for Sustainable Development, including those for sustainable sanitation and wastewater management.

The COVID-19 pandemic has sharpened an already existing need to upgrade Africa's water and sanitation infrastructure. The report's authors urge African governments to incorporate sanitation and wastewater programmes into their post-COVID-19 strategic planning. "As the world seeks to recover better after COVID-19, prioritising wastewater and sanitation infrastructure in Africa is critical. Sustainable Development Goal 6, which calls for making water and sanitation available to everyone, is within reach by 2030 if we commit the needed resources. ***The Sanitation and Wastewater Atlas of Africa*** provides the tools for policymakers to focus on this important challenge," said Leticia Carvalho, Head of UNEP's Marine and Freshwater Branch.

To download the atlas, visit: <https://www.unenvironment.org/resources/publication/sanitation-and-wastewater-atlas-africa>

All IWA journals now open access

All the journals in International Water Association's (IWA's) stable are now open access, including its flagship journal, ***Water Science & Technology***. IWA publishes more than 15 journals on all aspects of water.

In partnership with Knowledge Unlatched (KU), IWA Publishing (the association's publishing arm) asked libraries and institutions currently subscribing to any of the journals to renew for 2021 on a Subscribe-to-Open (S2O) basis, thus contributing to making the journals free to readers and researchers worldwide. With this move, IWA Publishing has made one of the largest flips of a publishing portfolio to date. "We are happy that this was made possible with the support of libraries as we see open access at the

core of our values and strategy," said IWA Publishing MD, Rod Cookson. "We hope that flipping our journal portfolio will shift the way our content is used by enabling everyone engaged in providing clean drinking water and good sanitation around the world to read the very latest research."

Added Cookson: "It is great to see that the combined efforts of the supporters and our partners has led to a sustainable open access solution across the portfolio, setting a great example for publications and publishers of all sizes. We hope that the S2O model will be adopted more widely as an alternative to the 'Publish and Read' Big Deals which dominate the open access landscape to the detriment of smaller-scale journals."

IWA Executive Director, Kala Vairavamoorthy, commented: "We hope that by IWA fully embracing the open access movement, it will allow for information, knowledge, and best practice to be shared with the widest possible audience from around the world. Our publications will receive greater visibility and readership, leading to a potential increase in the impact of research. Greater access to, and sharing of, knowledge also provides a boost to a range of important objectives for IWA. Notably, fairer social and economic development, broader intercultural exchanges, and increased opportunities for innovation."

For more information, Visit: www.iwapublishing.com

THE WATER WHEEL

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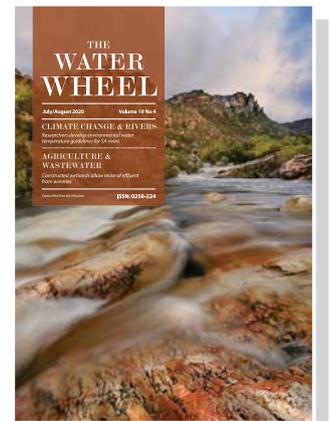
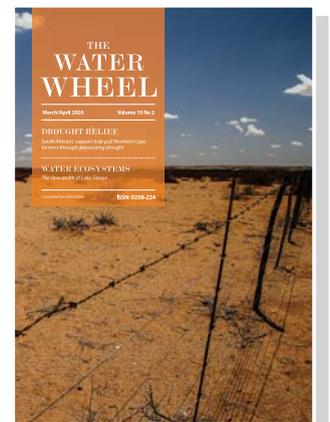
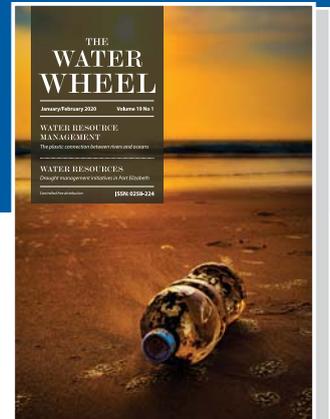
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What would you like to read more about in the Water Wheel?



The Water Wheel

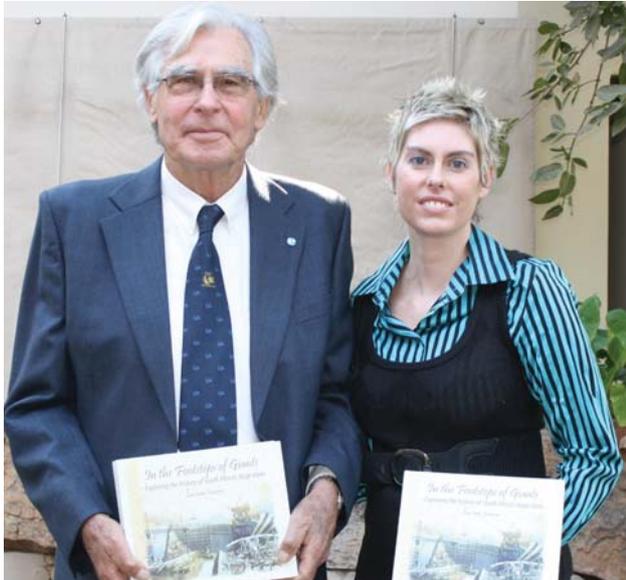
Tel: +27 (0) 12 761-9300

E-mail: laniv@wrc.org.za / www.wrc.org.za

Physical address: Lynnwood Bridge Office Park, Bloukrans Building, 4 Daventry Street, Lynnwood Manor

Postal address: Private Bag X03, Gezina, 0031

WATER SECTOR MOURNS THE LOSS OF SOUTH AFRICAN DOYEN



*Dr Theo van Robbroeck with Water Wheel Editor, Lani van Vuuren, at the launch of the book, *In the Footsteps of Giants*, which relates the history of South Africa's large dams, in 2012.*

The Water Research Commission joined the rest of the South African water sector in mourning the loss of Dr Theo van Robbroeck, at the age of 89, on 17 January due to COVID-19. His death followed closely on that of his beloved wife, Irma, who passed away on 6 January of the virus.

A former award-winning water engineer and president of the International Commission on Large Dam (ICOLD), Theo will be remembered for the major role he played in the planning, development and management of the water resources of South (and Southern) Africa in a career that spanned more than 40 years.

Born in 1931 in Belgium, Theo immigrated as a young man to South Africa and studied civil engineering at the University of Stellenbosch. He joined the Department of Water Affairs in 1957, and the first dam he worked on was Ebenezer Dam near Tzaneen. In 1960 he was transferred to the construction site of Stompdrift Dam near Oudtshoorn. Setting out the most complicated shape of the domes that make up the dam wall and their intersections with the buttresses was a major problem because of the severe overhang of the arches. These complex calculations were hand-calculated with an electric calculator as no electronic computer was available at that time. Theo was the official in 1964 to arrange for DWA's first computer which was an IBM 1130.

After a short stint with Hydroconsult, Theo rejoined the department where he was placed in charge of the earth and rockfill dam division of the Design Office where he and his team

were involved with the design of a large number of dams. Theo and his team became involved in a re-planning of the Tugela-Vaal Transfer Project and made a proposal in May 1970 which incorporated the Sterkfontein Dam, Woodstock Dam and various diversion canals and weirs. The proposal was accepted by the decision makers. The Tugela-Vaal Transfer Scheme transferred water from the Tugela to the urban-industrial heartland of South Africa in the current Gauteng. Additional water transfers were then required from the Tugela to the Vaal River and Theo joined up with Escom (as it was then called) to develop a combined water transfer and peak power generation project. Because of Theo's proven planning skills, he was transferred to the Planning Division where he was responsible for the Western Part of the country.

Theo had above all a charming personality which engendered a great team spirit within his sphere of activities. He always took great pains to acknowledge the contributions and support of others. This personality trait was a tremendous advantage in his important role as a water diplomat and in international circles in ICOLD. The culmination of his career was the planning and implementation of the Lesotho Highlands Water Project where he played a pivotal role. This international mega-water project benefits both Lesotho and South Africa in various ways and required a highly complex Treaty which was negotiated during very strained political times. Throughout this period, Theo was supported by his charming wife Irma, who was also a wonderful ambassador for South Africa at the various international events. Theo published extensively in addition to giving various talks and presentations. He was a regular contributor to magazines and journals, including the *Water Wheel*.

Theo was active in several engineering institutions in South Africa, including the South African Institution of Civil Engineering, South African Academy of Engineering, and he served as president of ICOLD between 1994 and 1997.

Theo was presented with the AD Lewis Gold Medallion in 1991 when he left the then Department of Water Affairs and Forestry on promotion to become the DG of the Department of Public Works. Theo received a number of other awards over his career, including an honorary doctorate in engineering from the University of Stellenbosch in 1994.

Dr Theo van Robbroeck has left behind a wonderful legacy for South Africa and the international water engineering fraternity of a highly dedicated and innovative person who worked for the good of humanity in providing an assured supply of water for all.