International Hydrological Advances

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Local Practice

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UNESCO IHE DELFT

International Collaboration – Background (from Michele Toucher/SAEON)

- 1850 - SA forestry enthusiasts promoted idea that tree planting would increase amount of rain in dry areas
- By 1880's – starting to question
- 1900's – still promoting & had become entrenched that forests stopped erosion & conserved water
- 1923 - Drought Investigation Commission – agreed with views
- 1935 – British Empire Forestry conference (Durban, South Africa)
  - Public & scientific criticism of forestry
  - Gathered support for research programme and establishment of Jonkershoek
- 1947 – British Empire Forestry Conference (London, UK)
  - Experimental design of Jonkershoek and Cathedral Peak research catchments presented by Christiaan Wicht
- 1967 - International Symposium on Forest Hydrology. "Are we going to put all our energy in just measuring what happens, or shall we put a little more effort in research to try to find out why things happen?" - Penman

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THE BRITISH EMPIRE FORESTRY CONFERENCE. SOUTH AFRICA, 1935.

By E. A. GARLAND, I.F.S.

THE delegates to the fourth Empire Forestry Conference assembled at Durban, Natal, and the Conference was opened on the 2nd September by Colonel the Honourable Deneys Reitz, M.P., Minister of Agriculture and Forestry, who welcomed the delegates on behalf of the Government of the Union of South Africa. Representatives responsible for administering some 2,200,000 sq. miles of forests were present from practically every part of the Empire except New Zealand and the Irish Free State. Including associate delegates and representatives of the Union of South Africa, the total number taking part in the Conference was between sixty and seventy. The first act of the Conference was to send a loyal message to His Majesty the King, to which in due course a gracious reply was received. Messages of good wishes for the success of the Conference were also received from Lord Clinton, who had been Chairman of the third Conference in Australia and New Zealand in 1928, and from Prime Minister Stevens, of New South Wales. Mr. C. G. Trevor, Inspector-General of Forests, India, extended, on behalf of the Government of India, a cordial invitation to the Conference to hold their next meeting in India in 1940. The following gentlemen were appointed officers of the Conference :

President : Colonel the Honourable Deneys Reitz, Minister of Agriculture and Forestry, Union of South Africa.

Vice-President : Dr. Viljoen, Secretary for Agriculture and Forestry, Union of South Africa.

Chairman : Sir Roy Robinson, Chairman of the British Forestry Commission.

Vice-Chairman : Mr. J. D. Keet, Chief of the Division of Forest Management, Union of South Africa.

In his opening address Col. Reitz drew attention to the great problem of erosion, which had been receiving the special attention of the Government of South Africa for some time and on which the assistance of the Conference was sought. He and Dr. Viljoen, Secretary for Agriculture and Forestry, also spoke on the question of the influence of afforestation on water supply, about which a controversy had arisen, especially with regard to the use of exotics, notably the eucalypts and to a lesser extent the pines. On this matter also the Conference

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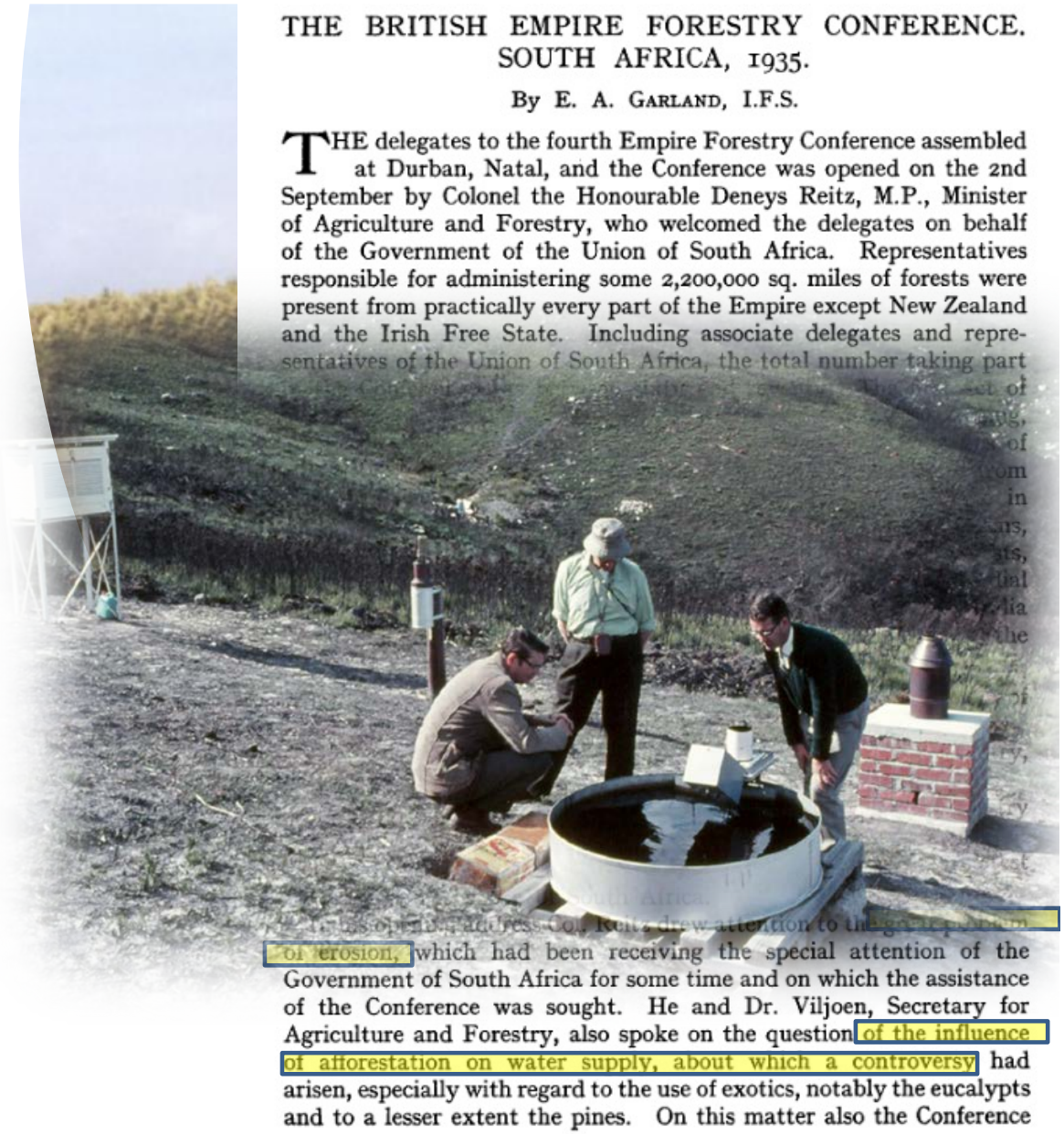

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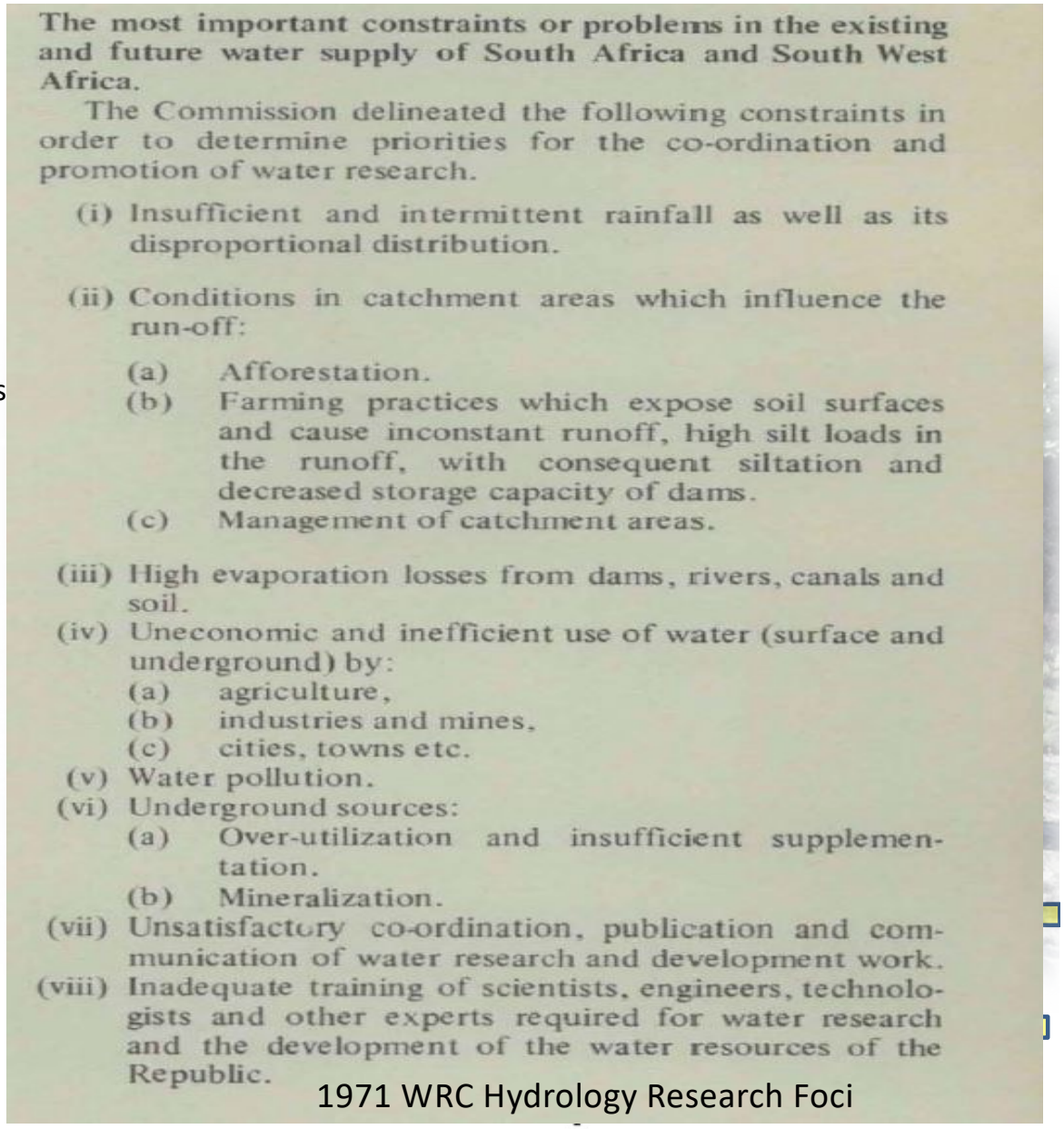


The most important constraints or problems in the existing and future water supply of South Africa and South West Africa.

The Commission delineated the following constraints in order to determine priorities for the co-ordination and promotion of water research.

(i) Insufficient and intermittent rainfall as well as its disproportional distribution.

(ii) Conditions in catchment areas which influence the run-off:
  (a) Afforestation.
  (b) Farming practices which expose soil surfaces and cause inconstant runoff, high silt loads in the runoff, with consequent siltation and decreased storage capacity of dams.
  (c) Management of catchment areas.

(iii) High evaporation losses from dams, rivers, canals and soil.

(iv) Uneconomic and inefficient use of water (surface and underground) by:
  (a) agriculture,
  (b) industries and mines,
  (c) cities, towns etc.

(v) Water pollution.

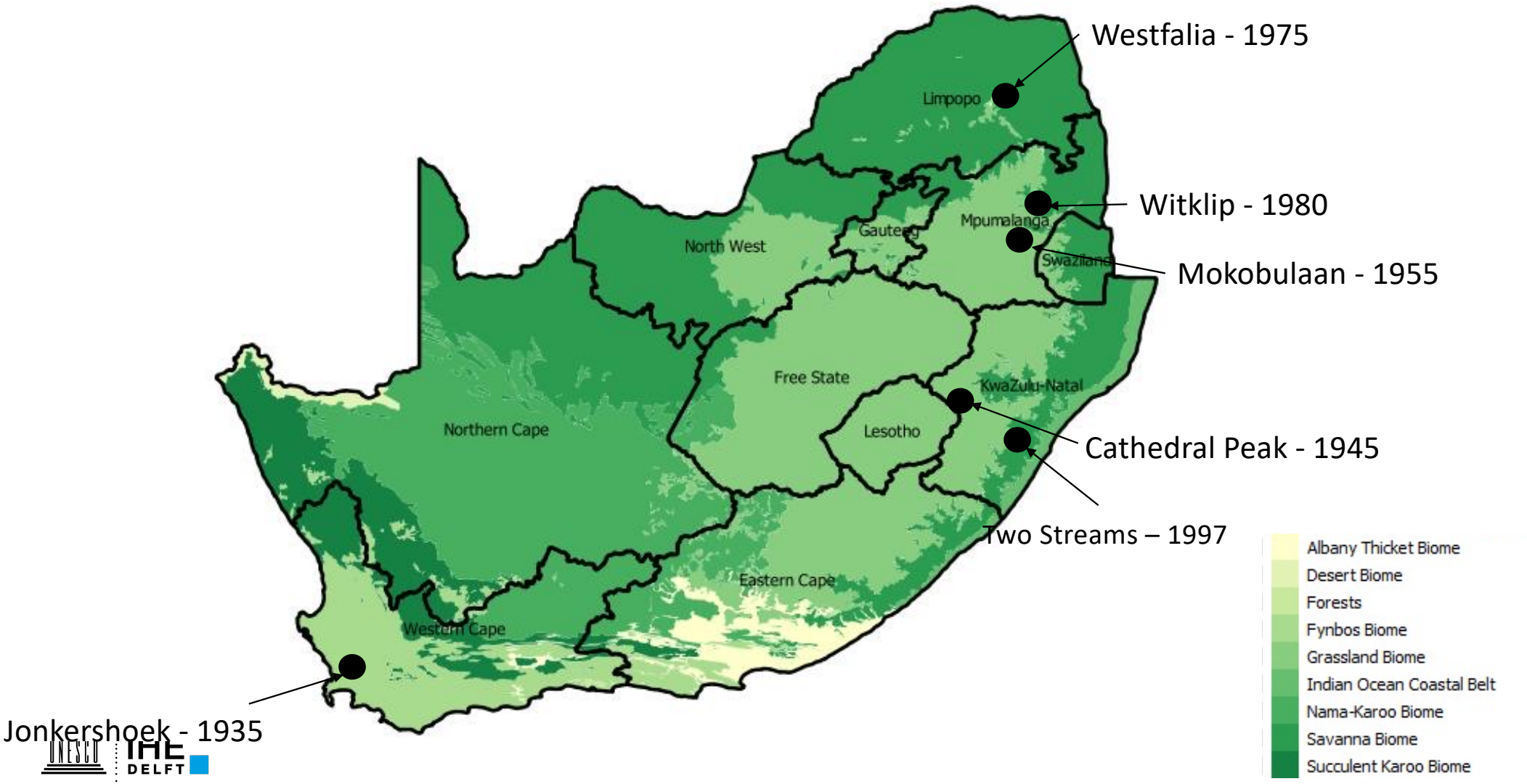
(vi) Underground sources:
  (a) Over-utilization and insufficient supplementation.
  (b) Mineralization.

(vii) Unsatisfactory co-ordination, publication and communication of water research and development work.

(viii) Inadequate training of scientists, engineers, technologists and other experts required for water research and the development of the water resources of the Republic.

1971 WRC Hydrology Research Foci

Location of Forestry Research Catchments



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Examples of SA Hydrology leading International Hydrology Practice

- Forest Hydrology (Bosch and Hewlett, 1982 Jnl of Hydrology, >3300 citations)
  - Catchment and process studies, Permit System, SFRAS and law
  - Invasive Alien Plant studies
  - Wetland delineation/Riparian Zone and management
- Environmental Flows
  - Hydrological analysis to support E-Flows
  - Implementation of the Reserve
- Rainfall Stimulation

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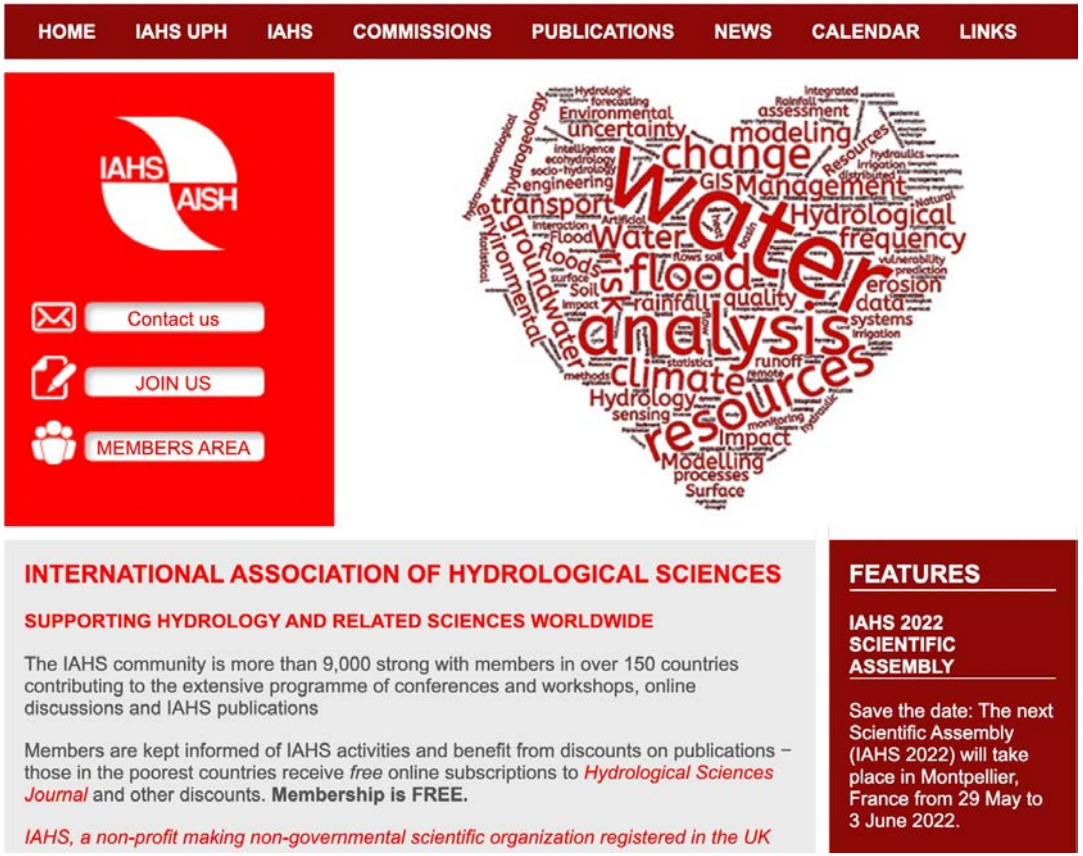
International Collaboration



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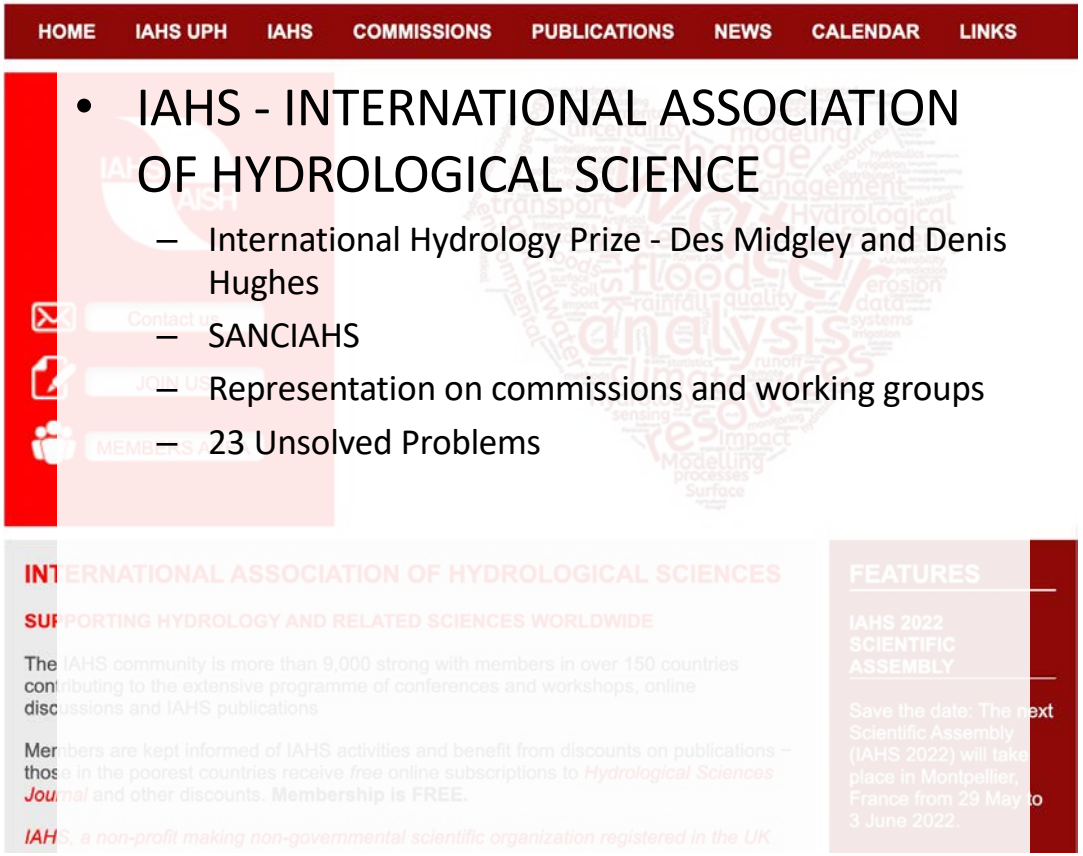
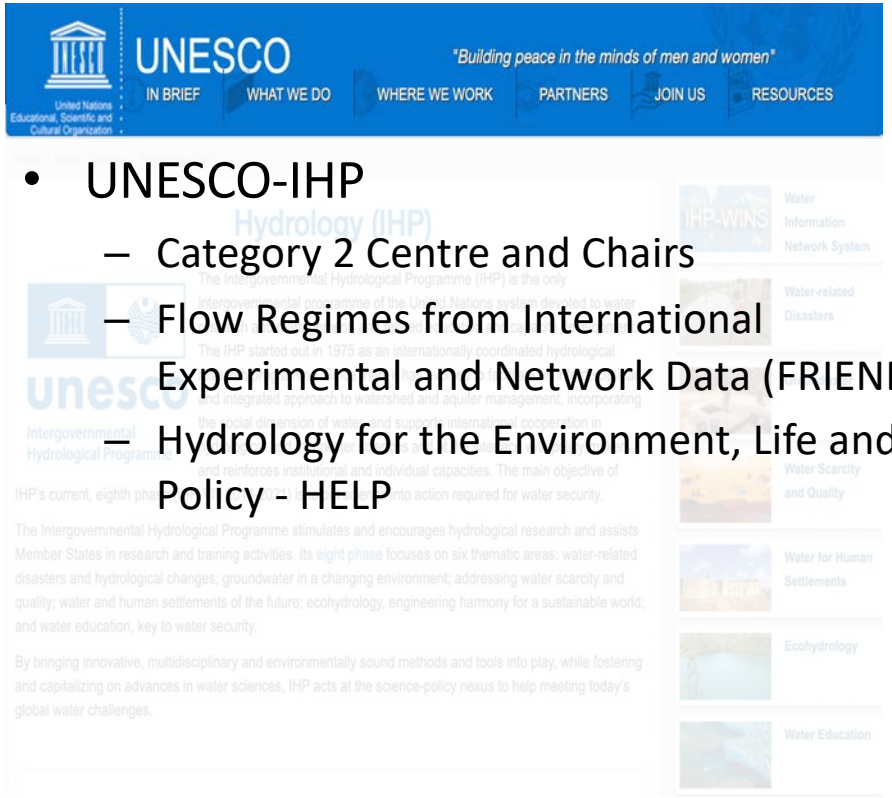


- IAHS - INTERNATIONAL ASSOCIATION OF HYDROLOGICAL SCIENCE
  - International Hydrology Prize - Des Midgley and Denis Hughes
  - SANCIAHS
  - Representation on commissions and working groups
  - 23 Unsolved Problems



- UNESCO-IHP
  - Category 2 Centre and Chairs
  - Flow Regimes from International Experimental and Network Data (FRIEND)
  - Hydrology for the Environment, Life and Policy - HELP

International Collaboration

- Project Collaboration
  - Post 1994
  - EU Framework Programmes
- International Commissions/Boards
  - IPCC
  - Journal editorial boards
  - Other networks
- Student Training and Personnel Exchange
  - International student training – especially sub saharan Africa
  - Movement and exchange of hydrologists internationally

Concluding Thoughts

- International best practice leader in some aspects
- Applied, rather than conceptual leadership
  - Socio-hydrology
- Poor journal publication record relative to research reports
- Risk of dilution of efforts

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