



GLOBAL ENVIRONMENT

UN CONVENES
IN SOUTH AFRICASummit focuses on improving plight
of poor while preserving resources

THE LARGEST EVER INTERNATIONAL meeting devoted to sustainability convenes today—Aug. 26—in Johannesburg, South Africa.

The United Nations-sponsored World Summit on Sustainable Development, a 10-year follow-up to the 1992 Earth Summit in Rio de Janeiro, focuses on five main topics: clean water and sewage treatment, energy supplies and the search for new sustainable sources, fighting killer diseases, increasing agricultural productivity, and preserving bio-

diversity and improving ecosystem management.

There are 20,000 registered participants, including more than 100 presidents and prime ministers, 50 heads of global corporations, and 60 chief justices who are interested in developing environmental law, as well as thousands of community leaders (see page 23).

Secretary of State Colin L. Powell is heading the U.S. delegation. The U.S. is the only major developed country not represented by a president or prime minister.

The aims of the U.S. and the

European Union for the meeting are quite different in some areas. Both are pushing for good governance in developing countries to help encourage private investment and ensure that foreign aid goes to the intended recipients. But they differ in their views of specific targets and timetables.

The EU wants a global commitment to halving the number of people without access to clean water and sanitation by 2015 and to increasing renewable energy generation from a current 2% to 15% of the world's primary energy sources by 2010.

The U.S., on the other hand, wants to promote on-the-ground partnerships between governments, aid groups, and private corporations. "Governments, civil society, and the private sector must work in partnership to mobilize development resources," Powell said in a speech about the summit. —BETTE HILEMAN

ACS MEETING

ENCODING
SYNTHESESDNA templates direct multistep
syntheses of small organic molecules

TEAM Gartner (from left), Liu, and Kanan use DNA to direct small-molecule synthesis.

THE BLUEPRINT OF LIFE could soon become the blueprint for small-molecule synthesis as well. Chemists at Harvard University have used

DNA to direct multistep small-molecule syntheses.

In this method, a template DNA strand encodes the final product. Complementary DNA sequences ferry reagents to the growing molecule in a role analogous to transfer RNA. The Harvard group—assistant chemistry professor David R. Liu and graduate students Zev J. Gartner and Matthew W. Kanan—synthesized a tripeptide and a branched thioether using DNA templates [*J. Am. Chem. Soc.*, 124, 10304 (2002)]. Liu presented the work in a symposium sponsored by the Division of Physical Chemistry at last week's ACS meeting in Boston.

"Developing methods of translating DNA sequences into synthetic small molecules is a requirement for applying to these synthetic compounds some of the powerful processes that nature has used to evolve proteins and nucleic acids," Liu says.

The multistep syntheses required the team to devise linker and purification strategies for separating the reagent DNA from the product, in addition to a variety of new DNA-templated synthetic reactions. Liu and coworkers are currently using these strategies to generate DNA-templated small-molecule libraries suitable for in vitro selections.

"Liu's really trying to do chemical synthesis in a totally new way," says Jon C. Clardy, a chemistry professor at Cornell University. "He's attached an element that can evolve, direct the synthesis, and then be used to amplify and read out whatever the result of the synthesis is. I think it's going to be a very powerful approach." —CELIA HENRY



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