



October 2001 • Issue No. 79

Published by the United States Committee on Irrigation and Drainage

2001 Board Meeting

Burns Elected Secretary, Svendsen Appointed Advisor

Joseph I. Burns was elected Secretary of USCID during the 2001 Annual Meeting of the Board on March 21. Burns, a Sacramento, California, consulting engineer succeeds **Rick L. Gold**, Bureau of Reclamation. **Grant G. Davids**, President of Davids Engineering, Inc., Davis, California, continues as President.

The Board also approved a plan to appoint a Board Advisory Committee comprising up to three active USCID Members who represent constituencies or geographic areas not represented on the Board. The Board voted to appoint **Mark Svendsen** to serve a three-year

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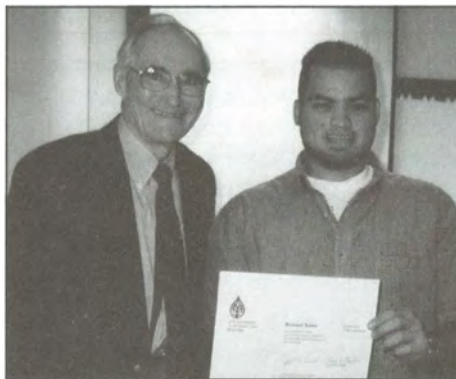
Limbaugh, McGahan and Moore Elected

In February 2001 balloting, **Mark Limbaugh**, **Joseph C. McGahan** and **Bruce C. Moore** were elected to three-year terms (2001-2003) on the USCID Board of Directors. All were elected to their first terms. The other candidates for the Board were **Charles Caruso**, **Johannes C. Guitjens** and **J. Ronald Johnston**. Retiring from the

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Salas Receives USCID/Summers Scholarship

Richard Salas, an undergraduate student at the University of Nevada, Reno, was awarded the 2000-2001 USCID/Summers Engineering Scholarship. The \$1,000 scholarship was presented to Salas on October 8 by USCID Secretary **Joseph I. Burns** in a ceremony held at the University. USCID Member **J. C. Guitjens** was academic advisor for Salas.



Salas' studies involve work on projects sponsored by the University, in conjunction with private businesses, such as monitoring of water levels and salt concentrations; water use efficiency testing of satellite activated sprinkler systems; and efficiency of water transportation to both domestic and agricultural customers.

The USCID/Summers Engineering Scholarship Fund was established in

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President's Message

Grant's Greetings

Dear USCID Members:

Last year's mission review confirmed the importance of USCID conferences — they clearly remain our most visible outreach function, and they have become an important source of operating revenue. Thanks to the efforts of your Board and the Long Range Planning Committee, chaired by **Darell Zimbelman**, USCID has a revitalized strategy for offering conferences to Members and the broader irrigation, drainage and flood control community. Let me catch you up . . .

USCID aims to host a major conference with broad national and international appeal every other year, and in alternating years, one or more conferences focusing on topics of more domestic interest. Layered over this is the intent to host occasional regional seminars, or workshops, on "hot" contemporary topics. This multi-pronged approach reflects the objective of remaining technically pertinent — the professional "place to be," as former Board member **Rick Allen** put it — and

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USCID Newsletter ©2001

ISSN: 1083-1320

President's Message (continued)

the requirement that our conferences be financially successful.

The next USCID conference will occur in San Luis Obispo, California, next summer, co-sponsored with the Environmental and Water Resources Institute of the American Society of Civil Engineers. This partnership reflects an overt effort to cooperate with other professional organizations, particularly EWRI, in delivering timely, meaningful conferences. (In fact, we're testing a relationship that could lead to cooperation with EWRI over a broader range of activities.)

In the meantime, USCID is hosting a series of one-day regional workshops on energy in irrigated agriculture — the first in Rapid City, South Dakota, a second in Las Vegas and a third in Reno. All are scheduled in conjunction with other water-oriented meetings. They are designed to help irrigation districts and farmers deal with an uncertain energy future — one of the many challenges currently facing irrigated agriculture.

I encourage you to visit the USCID web site (www.uscid.org/~uscid) to see the full complement of conferences coming your way, and to show your support by attending or participating in as many conferences as you can. If you are looking to become a more active Member of USCID, a great way is to join one of the conference planning committees, or one of our many technical or standing committees (see related article on page 5 of this Newsletter).

One last bit of news you all should know . . . in the days following September 11, I received on behalf of USCID — on your behalf — several e-mail messages from representatives of other ICID National Committees — including Canada, Hungary, India, Korea and Spain, to name a few — offering condolence and friendship. The compassion and concern expressed in these messages is perhaps the most valuable resource for us to draw on and contribute to, through USCID. Your membership in USCID, and your association with ICID, provide many opportunities in this regard, and I urge

you to get more involved. Bridging international boundaries and cultures, with purpose and compassion, is more important now than ever before.

Many thanks to our friends and colleagues throughout the ICID family!

Grant G. Davids

President, USCID

Burns Elected (continued)

term as the first member of the Board Advisory Committee. Svendsen, of Philomath, Oregon, is a consultant in water resource planning and management, specializing in water resource policy and management institutions in a wide range of U.S. and international settings. He holds graduate engineering degrees from Colorado State University and Cornell University. Prior to opening an independent consulting practice in 1994, he worked for a number of years as a Research Fellow at the International Food Policy Research Institute in Washington, DC, and, concurrently, as a researcher with the International Water Management Institute in Sri Lanka.

In other action during the Annual Meeting, the Board reviewed the 2000 Financial Statement and approved the 2001 budget, discussed upcoming USCID conferences and workshops and the work of USCID Committees, and reviewed ICID activities.

Scholarship (continued)

1989 with a contribution by USCID Life Member **Joseph B. Summers**. Many USCID Members have also contributed to the fund during the past dozen years. The scholarship is presented annually to an undergraduate university student involved in irrigation and water resources.

The 2001-2002 Scholarship will be awarded to a student at Texas A&M University.

Albertson, Kruse Honored by USCID

Maurice L. Albertson and **E. Gordon Kruse** were recognized by USCID during 2001 for their outstanding contributions to USCID and to the profession. Albertson was awarded the **USCID Service to the Profession Award** in a ceremony that took place during the USCID Transbasin Water Transfers Conference in June. Kruse was presented his award, the **USCID Merriam Improved Irrigation Award**, during a private ceremony in November.

Albertson, Professor of Civil Engineering, Colorado State University, was cited for his many years of service to USCID and to the water resources profession. He served as President of the USCID Board of Directors from 1961 to 1965. Albertson is known throughout the world for his contributions in the areas of water resources and irrigation engineering, hydropower engineering and constructed wetlands and, more recently, his work in sustainable village-based development. A feasibility study prepared by Albertson and colleagues at CSU led to the formation of the Peace Corps in the early 1960s.

Kruse was named the recipient of the Merriam Improved Irrigation Award for his innovative research in advancing the science of irrigation and drainage engineering with emphasis on irrigation water supply, control and distribution, and on improving irrigation water applications to increase efficiency and to reduce environmental problems. He was employed by the Agricultural Research Service, USDA, in Fort Collins, Colorado, from 1957 until his retirement in 1993. The Merriam Improved Irrigation Award was established in 1999 by USCID. The Award was endowed by **John L. Merriam**, Professor Emeritus, California Polytechnic State University, through the Merriam Endowment for Irrigation and Water Management Fund For Furthering Flexible Irrigation.

USCID is now accepting nominations for the 2002 Awards Program. Information was recently mailed to USCID Members. □

Donate USCID Publications to a University Library

A program was recently established to make it easy for USCID Members to donate a complete set of USCID publications to a university, college or other educational institution. USCID has published the proceedings of its regional, national and international meetings since 1986; 20 titles are now available. A complete set is available for \$395, a substantial discount from the regular price of \$480 for the 20 titles.

To participate, USCID Members are encouraged to send \$395 to USCID, and provide the name and address of the library that will receive the publications. USCID will handle the details, including shipping the books with a cover letter acknowledging the donor; the receiving library will acknowledge the tax-deductible donation to their institution. Three universities — California Polytechnic State University, University of the Incarnate Word and California State University, Sacramento — have received a set of USCID publications, thanks to the donations of supporters **Grant G. Davids**, **Joseph I. Burns**, and **Mark Van Camp**, respectively. Contact USCID if you would like to participate.

A list of the currently available USCID publications has been mailed with this issue of the *USCID Newsletter* — if you cannot purchase a complete set, select the titles should be included in your personal library, or the library of your organization, and place an order. □

ICID WatSave Nominations Sought

Each year ICID presents one or more WatSave awards to an individual or a team of individuals for outstanding contribution to water conservation/water saving for increasing the beneficial and/or efficient use of water to develop and improve the sustainable use of the critical resource. The 2002 awards will be made during the 53rd meeting of the International Executive Council, to be held on July 27 in Montreal, Canada.

Three awards will be given:

- **The ICID WatSave Technology Award**
- **The ICID WatSave Innovative Water Management Award**
- **The ICID WatSave Young Professional Award**

Each award consists of an honorarium of \$2,000 and a citation, to be presented at the 53rd IEC.

The deadline for National Committees to make nominations is April 30, 2002. Details of conditions and criteria, the evaluation process and nomination forms are available on the ICID website, www.icid.org. Please contact USCID if you have a recommendation for a nomination by USCID. □

Ideas for USCID Website Invited

USCID is in the process of reviewing its website and would like your ideas for features and content. What features do you use most on other professional websites? What features would you like to see on the USCID site? What would you find most useful — abstracts of conference papers, facts on U.S. irrigation, information on upcoming events, opportunities to interact electronically on water-related issues, links to other sites or . . . ?

Please suggest websites that are good models to examine. Return your thoughts to **Mark Svendsen** (msvendsen@compuserve.com) with a copy to **Larry Stephens** (stephens@uscid.org). □

San Luis Obispo Conference

USCID Members and other water resources professionals will not want to miss the next USCID Conference, to be held July 10-13, 2002, in San Luis Obispo, California. An excellent response to the Call for Papers has resulted in an outstanding program that will feature the presentation of more than 50 papers on the theme, *Energy, Climate, Environment and Water — Issues and Opportunities for Irrigation and Drainage*.

The Conference will be co-sponsored by the Environmental and Water Resources Institute of the American Society of Civil Engineers. Two prestigious Tipton Lectures will be delivered during the Conference. The Conference co-sponsor will be the Irrigation Training and Research Center, California Polytechnic State University, and participants will have the opportunity to tour ITRC facilities during the Conference.

A special emphasis on **applications of technology** will highlight the Conference, which will include a tabletop exhibition on Thursday, July 11. Conference participants and exhibitors will have the opportunity to have one-on-one discussions during a continental breakfast, hour-long morning and afternoon coffee breaks, a buffet lunch and a reception.

The Conference will conclude with a one-day field tour to the San Joaquin Valley.

USCID is planning a week-long **post-conference study tour**. The tour will end on July 20 in Denver, Colorado, just prior to the **18th Congress of the International Commission on Irrigation and Drainage**, to be held in Montreal, Canada, on July 21-28, 2002. U.S. and international participants attending the USCID Conference and/or the ICID Congress are encouraged to join the study tour, which will visit water projects in California, Arizona, Nevada, Utah and Colorado.

The Final Program and Registration Form, along with details on the study tour, will be available next spring. □

Phoenix, 2003

USCID to Sponsor International Conference

USCID has announced that it will sponsor the **Second International Conference on Irrigation and Drainage**, to be held during May 2003 in Phoenix, Arizona. Conference General Chairman **Albert J. Clemmens**, U.S. Water Conservation Laboratory, said, "this Conference follows the very successful USCID International Conference held during June 2000 in Fort Collins. We expect an excellent contingent of experts from the U.S. and around the world to contribute papers and attend the Conference."

The theme of the Second International Conference will be *Water for a Sustainable World — Limited Supplies and Expanding Demand*. The Conference will focus on the need for irrigated agriculture and irrigation projects to adapt to a changing environment where there likely will be less water available for agriculture, while at the same time demand for water is increasing.

Topics for the Conference are expected to include Future Trends; Urbanization; Changing Irrigation Infrastructure; Integrated Water Resources Planning; and Environmental and Water Quality Protection.

A Call for Papers will be issued in early 2002. □

Sacramento, 2002

TMDL Call for Papers Issued

USCID recently issued a Call for Papers for a **USCID Water Management Conference** to be held October 23-26, 2002, in Sacramento, California. The theme of the Conference will be *Helping Irrigated Agriculture Adjust to TMDLs*. The implementation of total maximum daily loads, or the amount of a particular pollutant that a water body can safely absorb on a daily basis, is an important issue for the irrigation industry. TMDLs will increasingly impact the operations of farmers and water districts, as farmers face increased monitoring and regulation of pesticide and nutrient applications, and efforts to assure water quality are enforced for the protection of the environment.

The Conference General Chairman is **Joseph C. McGahan**, President of Summers Engineering, Inc. in Hanford, California. "Irrigated agriculture is seeing the effects of the development and enforcement of TMDLs. This conference will help the profession understand the scientific, environmental, economic and political/social issues related to TMDLs," said McGahan. USCID Members were mailed the Call for Papers during November; it may also be viewed on the USCID website, www.uscid.org/~uscid. The deadline for receipt of abstracts is **January 15, 2002**. □

Get Involved, Join a USCID Committee

An important aspect of the USCID mission is accomplished through its standing and working committees. Standing committees assist the Board of Directors with the ongoing business of the society. Working committees specialize in a variety of technical areas and prepare research and reports related to those areas. Most working committees have a counterpart in the International Commission on Irrigation and Drainage and much of their work is related to the ICID committee activities.

USCID Members are encouraged to join standing or working committees. For more information, or to join a committee, contact the committee chairs by e-mail. Contact Larry Stephens at stephens@uscid.org to volunteer for one of the vacant committee chairs.

Standing Committees and Chairs

Membership — Arnold K. Dimmitt, adimmitt@mwdh2o.com

Technical Activities — Joseph I. Burns, jiburns@worldnet.att.com

Publications — Bryan P. Thoreson, bryant@de-water.com

Research and Special Studies — John A. Replogle, jreplogle@uswcl.ars.ag.gov

Long Range Planning — Darell D. Zimbelman, dzimbelman@newcd.org

Working Committees and Chairs

Competing Interests in Water Resources — Herbert W. Greydanus, herbert_greydanus@rmiinc.com

Integrated Land and Water Resources Management — William A. Price, wmaprice@aol.com

Sustainable Use of Natural Resources for Crop Production — Travis P. Teegarden, travisteegarden@bia.gov

Irrigation and Drainage Performance — David J. Molden, d.molden@cgnet.com

On-Farm Irrigation Systems — Dale A. Bucks, dab@ars.usda.gov

Comprehensive Approaches to Flood Management — Bruce C. Moore, bmoore@lc.usbr.gov

Development and Management of Irrigation Systems — Thomas E. Mitchell, tmitchell@do.usbr.gov

Drainage — William R. Johnston, agengr6@aol.com

Environmental Impacts of Irrigation, Drainage and Flood Control — Wayne O. Deason, wdeason@do.usbr.gov

History of Irrigation, Drainage and Flood Control — George H. Hargreaves, iic@cc.usu.edu

Capacity Building, Training and Education — Vacant

Use of Poor Quality Water for Irrigation — Vacant

Irrigated Agriculture Under Drought and Water Scarcity — Robert H. Edwards, redwards@mp.usbr.gov

Socio-Economic Impacts and Policy Issues — Anisa J. Divine, ajdivine@iid.com

Urban Irrigation and Recycled Water — Vacant

Application of GIS in Irrigation Projects — Guy Fipps, g-fipps@tamu.edu

ICID Seoul Meeting

The **52nd International Executive Council Meeting** was held September 16-21, 2001, in Seoul, Korea. As a result of the events of September 11, the U.S. contingent was smaller than usual. Executive Vice President **Larry D. Stephens**, who had been attending the ICOLD Annual Meeting in Dresden, Germany, immediately prior to the ICID Meeting, headed the U.S. delegation.

Six hundred participants from 45 countries and 12 international organizations participated in the week's events. Three new ICID Vice Presidents were elected during the IEC Meeting — Shigetaka Taniyama (Japan), Manuel Contijoch Escontria (Mexico) and Saeed Nairizi (Iran). Estonia was admitted to ICID as the newest National Committee.

In other actions, the IEC established a Task Force on Development through Dams and a Working Group on Sustainable Development of Tidal Swamps and Estuaries. ICID also agreed to join in the "Dialogue on Water, Food & Environment" promoted by the International Water Management Institute and nine other international organizations.

The First Asian Regional Conference was held in conjunction with the IEC Meeting. The theme of the Conference was *Agriculture, Water and Environment*. Meetings of ICID committees and working groups, two workshops and various study tours completed the activities of the meeting. □

Summary and Synthesis

Transbasin Transfers Conference a Success

More than 100 people from the U.S. and ten other countries attended the USCID Conference, **Transbasin Water Transfers**, held June 27-30, 2001, in Denver, Colorado. The Conference began with a special session on the Mahaweli Project in Sri Lanka. Five Technical Sessions and a Poster Session provided a forum for the discussion of a range of issues relating to transbasin water transfers. The Conference concluded with a study tour to Dillon Dam and Reservoir and facilities of the Colorado-Big Thompson Project. The 497-page Proceedings are available from the USCID Denver office. The price is \$32 for Members; \$64 for non-members and includes book rate postage within the U.S.

David M. Freeman, Colorado State University, moderated a summary session following the technical presentations and prepared a final report. The following is his **Summary and Synthesis**.

Introduction

When people construct water works in any society they perform much more than a technical act. Transbasin water transfers for irrigated agriculture, for cities and industry, and to sustain portions of the biotic web are inherently social because they enable humans to make new communities under new conditions; they are inherently political because some groups gain assets while others lose; they are inherently environmental because habitat is shifted away from what some living things in the biotic web require and toward what will make other competing plants and animals flourish. When we look at a stream of water we see ourselves — what we have been, what we are becoming, how we view our relationships with each other and to other living things. What do we think of ourselves when, on the one hand, a large casino in Las Vegas delights customers with huge volumes of brightly lit dancing streams of water evaporating away into scorching desert air and, on

the other hand, the same city's water cops cite householders for misdirecting a lawn sprinkler?

The range of papers, most of them case studies, presented at this year's USCID Conference addressed many of the issues associated with social, technical, political and environmental aspects of transbasin water diversions that serve irrigated agriculture around the world and associated municipal-industrial-environmental uses. Participants contemplated case studies of some of the most important transbasin water transfer projects on the planet — most already constructed, some under way, and a few in their earliest stages. Participants benefitted from well

The transbasin projects represented an admirable diversity of places, histories and cultures.

constructed essays providing excellent overviews of complex projects — e.g., California's Bay-Delta system, the Truckee-Carson, India's Godavari-Krishna plans, Brazil's proposed diversions in its Northeast region, the Central Utah and Colorado-Big Thompson Projects — to name just a few. The transbasin projects presented represented an admirable diversity of places, histories and cultures. They ranged from:

- the Mahaweli transfers supporting new irrigation colonies in the dry zone of Sri Lanka, to the retirement of the Daniel facilities in Utah where the current challenge is to interpret to tourists the meaning of a now extinct irrigation community;
- from the complex re-regulation of waters associated with the Dolores river in Colorado and the CalFed Bay-Delta program, to the more straightforward expansion of irrigated acreage in Chile and the not-so-straightforward strident politics of transfer among

conflicting states in northeastern Brazil and India;

- from Colorado West Slope resistance to transfers to the East Slope such as represented by the Colorado-Big Thompson Project, to Devils Lake, where North Dakota project authorities want to push water onto a highly reluctant Manitoba — keepers of the upper Hudson Bay drainage.

Each case must be read on its own merits and the messages are much too complex, subtle and diverse to be properly captured in any summary, but at least four related themes emerge from the material.

First, uncertainty and the struggle to reduce it or shift it onto others ran through the deliberations. Who will bear the burdens of uncertainty? Who will gain or lose latitude for coping with uncertainties that inevitably arise? Traditional irrigation projects were designed to reduce the uncertainties that ride with inadequate and sporadic rainfall. However, they simultaneously introduced new orders of uncertainties. As we have learned better to cope with our delivery, soil-crop-water and economic uncertainties, we have introduced new domains of uncertainty associated with adding new competing and conflicting water uses — power generation, recreation, urban and environmental. We have added to our traditional uncertainties the new ones that ride with restoring native habitat, with exporting water from one basin to another, with the mobilization of new stakeholders pursuing agendas at odds with traditional irrigated agriculture. How will the costs of re-regulating water for habitat restoration play out on human communities and the encompassing biotic web? Will river restoration efforts achieve objectives sought? Will sacrifices of agricultural users pay out in better habitat for threatened and endangered species? All parties are attempting to preserve their freedom of action to cope with the uncertainties as they see them.

One major way to cope with uncertainty of supply and demand is to store water underground. Widespread diffusion of the turbine pump and effective well-drilling technology around the landscapes of the planet in the last half

of the 20th century, have led to substantially increased reliance upon groundwater. The conference addressed recent developments in groundwater storage and aquifer recharge for municipal consumption in Arizona and for a complex combination of uses in CALFED Bay-Delta, all made feasible by water banking arrangements.

Central state agencies that construct transbasin diversion works tend to have crowded agendas that can give only limited attention to the site specific circumstances of local users and other stakeholders. For example, in the western United States, the Bureau of Reclamation agenda is always crowded and vexed — it must work within state

manner, a priority not fostered in most other transbasin diversions around the world.

On the other hand, in many places there is no comparable organizational interface — either because no such organization has been created (Sri Lanka, Melamchi Basin in Nepal) or because the interface organization is unable to secure social and political space to insure autonomy of the local organizations (Godavari/Krishna Basins in India; Teno-Chimbarongo in Chile). In Nepal there is a traditionally evolved sense of water rights embedded in local organizations sharing the same canal supply, but there tends not to be much of a system for allocating water from headgate to headgate on the river. Some organizations in the interface provide social-political space so dominated by central agency agendas that local users do not find them allies in the need to make on-going rapid adaptation in ways not anticipated by, nor approved by, the central agency. This appears to be the case in Sri Lanka and in Nepal's Melamchi Basin. Lack of organizational capacity places an important constraint, not only on existing water management activities, but also any viable water transfers.

Third, conference cases demonstrated the need for expansion of interdisciplinary teamwork and construction of more effective linkages to stakeholders. Many of the cases demonstrated that transbasin diversions — along with much other water work — require two kinds of collaboration: 1) collaboration among many disciplines; and 2) systematic linkage of the analytical work to stakeholders, especially local people and organizations. It is a truism that competence in any given water related discipline — however necessary — is far from sufficient to comprehend the many dimensions of transbasin diversions. It is also becoming common knowledge in the water community that possession of solid science, engineering and competence in the relevant water law is far from adequate. Specialized analytically processed knowledge that can be accessed in books and technical manuals must be systematically linked to local site specific knowledge that is

The relationship between central agencies . . . and local irrigators . . . has everything to do with water productivity, distributional justice and environmental sustainability.

Another uncertainty mitigation measure is the sharing of information, most especially information about opportunities for water transfers within the context of organized water banking. To this end, a website "On-Tap" has been constructed with the collaboration of several California agencies that provides the citizen with transaction guides, access to a database, gaming opportunities to explore feasibility of potential transfers and a forum for exchange of information.

Second, after small scale irrigation was developed to its limits by local irrigation communities — in locales such as Utah, Colorado, India, Sri Lanka, Chile and Brazil — there was need for large scale works far beyond the capacity of local organizations to construct. There was need for the resources of the central treasury, teams of technical talent that could not be found in the local irrigation communities. The issue became: on what terms will the local community link to the central government agency? The big variable in these cases is how that organizational linkage was constructed. The working out of the relationship between central agencies which constructed the transbasin facilities and local irrigators — raising issues of mutual autonomy and accountability — has everything to do with water productivity, distributional justice and environmental sustainability.

compacts, state priorities, Indian water issues and conflicts among states and with other Federal agencies — e.g., the U.S. Fish and Wildlife Service.

Local irrigator organizations — on the one hand desiring the benefits of transbasin diversions, but on the other hand fearing the intrusion of powerful distant bureaucracies and their agendas — have established a range of relationships and linkages. Conference cases reveal something of these. Local irrigator organizations in several nations struggle for autonomy and management control with agencies hostile to locally creative adaptation. In Colorado, the Northern Colorado Water Conservancy District was a creation of local farmer organizations called mutual companies on the front range. NCWCD was created to serve in the interface between local organizations and the central agency — i.e., the Bureau of Reclamation. It was, if you will, a shock absorber — a contracting agency that could take responsibility for the repayment contract and insure compliance with Reclamation law and regulations. Simultaneously, it could serve to preserve the autonomy of the local mutual companies and irrigation districts. NCWCD cushioned the relationship and was controlled by a Board designed to serve interests of farmers. As one indication of that control, NCWCD is mandated to give priority in its supplemental water allocations to agriculture while serving hydropower demands in a subordinate

carried by local people who may, or may not, have had advanced educations in specialized fields but who command experience with local land and water circumstances.

Fourth, conference case studies shared a common thread in that they all revealed a need to integrate new agendas — especially distributional social justice and environmental — within older management traditions.

The meaning of any given transbasin water transfer depends who/what gains and who/what loses. Most papers addressing issues in the U.S. West may be read for instruction on many aspects of these issues. The paper describing the Colorado River Water Conservation District's desire to see re-operation of the Colorado-Big Thompson Project, which sends water to Colorado's East Slope is an excellent example. The traditional method for evaluating a transfer has focused on technical feasibility, legal, and economic considerations — i.e., can we do it, can we do it without being stopped by our adversaries, and can we make more money with it than without it? In the last 30 years, new agendas have come into play: 1) can the transfer be economically justified given market price considerations; 2) is welfare being transferred from have-nots to haves in unacceptable ways; and 3) will the project undercut the operation of the biotic web to which we are closely tethered? If the transmountain diversion is legal, if it improves the productivity of our assets, if it transfers welfare in desirable directions, and if the organizations that people create to operate them are democratic, participatory and rapidly adaptive to new conditions, we see them as success stories. If, on the other hand, we make transbasin diversions that create rancorous litigation, represent unproductive economic investments, distribute the bulk of the gains to those at the top of the income and wealth pyramids, and destroy important parts of the biotic web, we despair. Either way, transbasin diversions reflect our collective sense of what constitutes a "good society" however adequate or inadequate our collective vision of social development.

The Central Utah Project, Denver Water Board's efforts in the upper Colorado River watershed, and the efforts on the Trinity River, on the Klamath, and San Juan-Chama are stories of incorporation of new environmental and social agendas that emerged along the Wasatch Front, on the Colorado River, on the Middle Rio Grande, and in Oregon and Northern California; they are stories of difficult negotiations, delays, induced re-design and unanticipated extra expense. But they are also stories of how we are slowly, haltingly groping our way to operating within constraints of habitat preservation and restoration. The cases especially point out in their ways that restoration of riverine habitat for fish and wildlife is not simply a matter of increasing quantity of water flows, but has everything to do with timing, frequency and the creation of short "pulses" that potentially can restore traditional river dynamics and associated habitats.

... we find grounds for optimism as we work to continuously adapt to new requirements in a world where our knowledge is modest and our uncertainties great.

Conclusion

Transbasin diversions have always introduced important uncertainties that have challenged each generation of political leaders, managers, farmers and other stakeholders.

The uncertainties that associate with large scale transbasin water projects keep us humble.

If we create organizations that are better at absorbing scarce resources than producing them, if we find ourselves caught in bitter rancorous conflict that resist negotiation, if we lock ourselves into organizational forms that simply pass the money and other benefits around to fortunate members of the winning political coalition, if we are unable to adapt to new needs and

agendas, if we mindlessly create central bureaucracies that cannot learn from and be responsive to local peoples, if we carelessly obliterate essential components of the biotic web, then our transbasin efforts carry the seeds of disaster. If, on the other hand, we can question and learn, if we can arrange exchanges between agriculture, municipalities, and environmental uses that sustain blends of production agriculture, environmental integrity, and distributional social justice, if we avoid excessive litigation and invest in problem solving, then we find grounds for optimism as we work to continuously adapt to new requirements in a world where our knowledge is modest and our uncertainties great. □

ICID Journal Papers Requested

Irrigation and Drainage, the Journal of the International Commission on Irrigation and Drainage, is published by John Wiley & Sons Inc. under the editorial control of ICID. **Bryan Thoreson**, Davids Engineering, Inc., Davis, California, is an Associate Editor of the Journal.

Published four times a year, the Journal is a prestigious peer-reviewed publication and enables ICID to accomplish its objectives of publishing original papers on scientific, engineering and socio-economic issues associated with irrigation and drainage.

USCID Members are encouraged to submit papers for publication in the Journal. Instructions on how to submit papers may be found on the Journal website at www.wiley.co.uk/irrigation.

USCID Members are also reminded that they receive a substantial discount on the subscription price of the Journal through their membership in USCID. The annual subscription for USCID Members is \$50 (compared to \$185) — you may subscribe when you renew your dues, or contact the USCID Denver office. □

Turkish Program Trains U.S.-Style Irrigation Managers

by Mark Svendsen, Consultant,
Philomath, Oregon

Dams

Turkey, along with China and India, is among the handful of countries presently engaged in major water resource development efforts. Turkey has more than 100 major dams under construction, with 100 more designed or under design. The centerpiece of construction activity is the \$32 billion Southeast Anatolia Project (GAP is the Turkish acronym) on the Tigris and Euphrates Rivers. This project, under way for the past 25 years, comprises 22 major dams and will include 7,500 MW of generation capacity and 1.7 million hectares of irrigation development. The anchor of GAP is the rockfill Ataturk Dam on the Euphrates, completed in 1992. Ataturk stores of 48 billion m³ (39 million acre-feet) of water and will irrigate more than 800,000 hectares. At present, however, only about 11 percent of the potential GAP irrigated area has been completed.

Irrigation

The largest portion of the presently irrigated area in GAP lies in the 150,000 hectare Sanliurfa-Harran Plain System south of Ataturk Dam near the border with Syria. The 118,000 hectares of gravity irrigation within this command has been divided into 15 hydrologically-based operating units by DSI, the government water resource agency. Each unit is managed by an Irrigation Union (IU), governed by a 7-member Management Committee made up of

farmers and local town and village mayors. The Management Committee of each IU hires an agricultural engineering graduate to serve as General Secretary and manage the day-to-day operations of the IU. The General Secretary then hires a staff to carry out field operations and maintenance. This set-up is very similar to that of many U.S. irrigation districts.

Training

While most of the Unions are functioning reasonably well, some of the management processes and practices required by such a system are unfamiliar to many general secretaries and management committees. In response, the U.S. NGO HasNa has undertaken a program to train general secretaries and others in principles of modern management. The program begins with intensive training in English, which is seen as the key to the remainder of the training and to making fresh ideas and outside resources available to the managers on a continuing basis. This is followed by training in principles of conflict resolution, modern management practices, computer applications in irrigation and marketing.

The training is conducted in both Turkey and the United States, with initial English language instruction in Turkey, followed by a month of intensive language training at Georgetown University and a second month of training on technical and management topics in Washington, DC, and in the Western U.S. The first group of ten trainees came to the U.S. last fall and the participants are completing their first post-training irrigation season at home. Their activities and their impacts were followed and assessed through a participatory monitoring and evaluation program over the course of the irrigation season and conclusions drawn at the close of the season. The lessons learned will guide the design of the second training program which is scheduled to take place this fall and winter.

Mentorship Program

One promising innovation anticipated for the second training program will be a mentorship program, in which a pair of trainees will be placed with a U.S. irrigation district manager who will

serve as their mentor for a period of one to two weeks. The U.S. manager will describe the operation of his District to his two trainees, and they will accompany him in his daily work routine. The program will also provide an interesting opportunity for U.S. managers to hear about irrigation practices and cotton production in Turkey. For further information, contact Mark Svendsen at telephone 541-929-4855, e-mail msvendsen@compuserve.com. □

Macedonia to Host International Workshop

The 2nd International Workshop on Research on Irrigation and Drainage will be held in Skopje, Macedonia, on March 19, 2002.

The Workshop will focus on the following topics:

- Geologic Investigations for Agricultural Planning
- Soil Science
- Agricultural Physics
- Development in the Analysis of Groundwater Flow Systems
- Integrated Water Resources Development
- Crop-Water Simulation
- Irrigation and Drainage Engineering
- Management of Irrigation Systems
- Farmer Participation and Irrigation Organizations
- Hydrotechnics in Environmental Engineering

For more information, contact Vukeli Zvonimir, e-mail vukelic@stobi.ga.ukim.edu.mk. □



The author at Ataturk Dam.

2001 Photo Highlights



USCID President Grant Davids congratulates newly elected Secretary Joe Burns.



USCID Member Ken Tanji enjoys a visit to a Korean water project with Costantino Fasso, Italy (left), and Shin-ichi Hirose, Japan (right).



ICID President Bart Schultz, The Netherlands, visits with Grant Davids (right) during the Transbasin Water Transfers Conference.



Don Ament, Colorado Commissioner of Agriculture, speaks during the Denver Conference dinner.



Steve Macaulay, California Department of Water Resources, visits with Rodrigo Gomez, Chile (right), during the Denver Conference.



Mike Roluti, Director of the Denver Technical Service Center, Bureau of Reclamation, gives keynote address.



Denver Conference lunch speaker Tom Hannigan, Director of the California Department of Water Resources.



Maury Albertson receives the USCID Service to the Profession Award during the Denver Conference.



Gordon Kruse (right) receives the 2001 USCID Merriam Improved Irrigation Award from Jim Ruff, immediate past president.

Denver Conference and ICID Seoul Meeting



Larry Schluntz visits with Ken Craig, Aqua Systems 2000, Inc., at the company's booth during the Denver tabletop exhibit.



USCID Members Ken Tanji and Larry Stephens joined other ICID Seoul meeting participants on a Study Tour to southern Korea.



Grant Davids and ICID Vice President Chandra Madramootoo, Canada, take a break during the Denver Conference.



Warren Jamison, Garrison Diversion Conservancy District, discusses transbasin water transfers.



David Freeman, Colorado State University, presents a summary and synthesis to conclude the Denver Conference.



David Molden, International Water Management Institute, Sri Lanka, presents Rick Allen's paper during the Seoul ICID Meeting.



Hyun-Young Kim, Korea, received an AWF Scholarship to attend the Denver Conference.



Ken Tanji admires the elaborate ice sculptures during the ICID banquet in Seoul.



Manuel Contijoch, Mexico, and Janusz Rydzewski, United Kingdom (right), visit during the ICID meeting in Seoul.

Election (continued)

Board were **Richard G. Allen**, **Rick L. Gold** and **William A. Price**.

A total of 219 ballots were counted by a Tellers Committee of Sam Schaefer, Larry J. Schluntz and Larry D. Stephens.



Mark Limbaugh is Watermaster for the Payette River Basin Water District, Payette, Idaho. He received a B.S. Degree from the University of Idaho in 1978 and joined Deloitte &

Touche in Boise, Idaho, as a Certified Public Accountant. After leaving the firm in 1980, he farmed for 15 years on a Bureau of Reclamation project. Since 1995, he has served as state Watermaster for the Payette River Basin, a watershed of more than two million acres containing 500 miles of rivers and streams and more than 845,000 acre-feet of reservoir storage capacity. As Watermaster, he manages the delivery of natural flow and storage water to 150,000 acres of irrigated farmland and several industrial and municipal water users. He also manages the basin's water bank, accounting for the lease and rental of about 160,000 acre-feet of storage water annually. During the past five years, he has been instrumental in the design, financing, installation and implementation of automated computer technology in the delivery and management of irrigation water in the Payette River Basin. He currently oversees the operation of 25 automated water management sites, including river diversions, canal and lateral deliveries, and reservoir regulation points, in the basin. He is also the Executive Director for the Payette River Water Users Association, Chairman of the Lower Payette River TMDL Watershed Advisory Group and a member of the Snake River-Hells Canyon Public Advisory Team, involved with the TMDL process under the federal Clean Water Act. He also serves as Co-Facilitator for the Payette River Watershed Council and as President of the Family Farm Alliance, a water user organization with members

in 15 Western states focused on federal water policy issues related to irrigated agriculture. He is also actively involved with the Idaho Water Users Association in Boise. He has attended many USCID conferences and presented a paper at the USCID Conference on Competing Interests in Las Vegas, Nevada, in 1996.



Joseph C. McGahan is President of Summers Engineering, Inc. in Hanford, California. He received a B.S. Degree from

Polytechnic State University in 1970, and, in 1971, an M.S. Degree from California Institute of Technology in Pasadena. He has spent 30 years working in the field of irrigation, drainage and municipal water supply engineering. As President of Summers Engineering, he is responsible for assuring that the firm's projects are completed in a timely manner. This work has included irrigation and drainage studies, preparation of feasibility reports, economic analyses, structural design, hydraulic design, design of water treatment facilities for municipal purposes, preparation of specifications and supervision of construction. He has participated in planning, design, management and disposal of drainage waters. Since 1985, this has included issues related to the drainage problems in the San Joaquin River Basin in Central California. These problems deal with the discharge of drainage water to the San Joaquin River, and the agricultural production and regulatory requirements related to the high salt and selenium content of the waters. He currently serves as Drainage Coordinator for the Grassland Basin Drainers. He has also made presentations to groups nationwide regarding non-point source water quality issues. In 1993 and 1995, he assisted the World Bank in developing loan repayment strategies in the India. He is a Registered Civil Engineer in California, a Life Member of USCID, and member of American Society of Civil Engineers and American Water Works Association. He has presented

papers at several USCID conferences, and was on the organizing committee for the 1999 USCID Conference on Benchmarking Irrigation System Performance Using Water Measurement and Water Balances.



Bruce C. Moore is Regional Engineer for the Lower Colorado Region, Bureau of Reclamation, in Boulder City, Nevada. He received a B.S. Degree in Civil

Engineering from Iowa State University. His 25-year federal career includes experience in the natural and water resource fields, having held positions in the Corps of Engineers, National Park Service and the Bureau of Reclamation, serving in several responsible positions such as Project Supervisor for the National Park Service, Lower Colorado Regional liaison to the four billion dollar Central Arizona Project, and Regional Engineer for Reclamation's Upper Colorado Region. He was Reclamation's representative for implementing the adaptive management process required in the Environmental Impact Statement on the operations of Glen Canyon Dam. His current position involves providing engineering solutions that are technically sound, environmentally compatible and cost effective. He serves as the chief technical advisor to the Regional Director for all design and construction issues in the Region. He has written and presented papers at technical and professional conferences on water resource subjects in both domestic and foreign venues. In the early 1990s, he was selected to make presentations on construction contracting in Taiwan and Japan. In 1999, he received the Reclamation Regional Engineer of the Year Award for exemplifying quality in managing and leadership in the engineering and construction fields through out all of Reclamation. He is a Registered Civil Engineer in Colorado and has actively participated in several USCID conferences, serving as an author and speaker, as session moderator and as a member of a conference planning committee. □

New ICID Publications

The International Commission on Irrigation and Drainage has issued several new publications, available from the USCID Denver office.

Canal Operation Simulation Models. Canal operation simulation models can be very efficient tools for improving the design and operation of irrigation canal systems. The development of powerful personal computers has given access to computer simulation to a large number of potential users. The use of such models can be used to compare various design alternatives, to develop operational strategies and automatic control algorithms, and for operation and training. Unfortunately, many people with a need or an interest in this field are not aware of what models are available, and which ones may be suited to their needs and resources. Compiled by the ICID Working Group on Development and Management of Irrigation Systems, this report includes a description of 19 models that are currently in use around the world to assist with the operation of canal distribution systems. The price is \$10.

Remote Sensing and Geographic Information Systems in Irrigation and Drainage: Methodological Guide and Applications. Compiled by the French National Committee of ICID, the publication includes three sections: the basic elements of remote sensing and its integration into GIS; a methodology for establishing a geographic information base for an irrigation system; and examples of applications of remote sensing and GIS. The price is \$25.

ICID Survey on Funding of Operation, Maintenance and Management of Irrigation and Drainage Projects. This report is the final output of a questionnaire that examined the factors that may influence the adequacy of operation, maintenance and management funding to deliver a particular level of service. The report includes chapters on types of organizations; functions and systems managed; OM&M budgets, expenditures and record keeping; spending priorities; service charges;

water supply charges; and drainage and flood control charges. The price is \$15.

CD-ROM Version of Multilingual Technical Dictionary. The Dictionary provides definitions of more than 9,500 technical terms related to irrigation, drainage, flood management, environment and river training. It includes search options for locating definitions from keywords. More than 550 definitions have been illustrated with hyperlinked sketches. Price is \$20.□

9th International Drainage Workshop

The **9th International Drainage Workshop** will be held September 10-13, 2003, in Utrecht, The Netherlands. The Workshop is sponsored by the ICID Working Group on Drainage and by Alterra-ILRI. The following topics will be addressed during the Workshop:

- Innovative Drainage Technologies in Agriculture
- Drainage: A Tool for Integrated Water Resources
- Drainage Institutions for Participatory Development
- Capacity Building in Drainage

Contributions in the form of research papers, state-of-the-art papers, discussion papers and posters are invited. The deadline for contributions is expected to be during the latter part of 2002. The 54th International Executive Council Meeting of ICID will be held immediately following the Workshop in Montpellier, France (September 14-19, 2003).□

Montreal Congress

The **18th International Congress on Irrigation and Drainage** will be held in Montreal, Canada, July 21-28, 2002. A dozen papers from USCID authors have been accepted for oral presentation or the poster session, and a large contingent of U.S. participants is expected to attend the Congress, the first in North America since the 1984 12th Congress was held in Fort Collins.

The Theme of the Congress is *Food Production Under Conditions of Water Scarcity, Increasing Population and Environmental Pressures*. Congress technical sessions include **Question 50** (Food production, poverty alleviation and environmental challenges as influenced by limited water resources and population growth) and **Question 51** (Integration and management of irrigation, drainage and flood control), a **Special Session** (Research and development in irrigation, drainage and flood control) and **Symposium** (Lessons from failures in irrigation, drainage and flood control systems).

Several workshops and seminars will be held in conjunction with the Congress:

- Special Seminar on Malaria in Irrigated Agriculture
- International Workshop on Irrigation Advisory Services and Participatory Extension in Irrigation Management
- International Workshop on Crop Water Management for Food Production Under Limited Water Supplies

Following the Congress, participants will be able to choose from an array of study tours. The Final Bulletin and Registration Form will be available soon.□

New Publications

Water Measurement with Flumes and Weirs. Written by USCID Members **Albert J. Clemmens** and **John A. Replogle** (Agricultural Research Service, USDA) and **Tony L. Wahl** (Bureau of Reclamation); and **M. G. Bos** (ILRI), the book provides information on design, calibration, construction and hydraulic theory of long-throated flumes and broad-crested weirs. The book combines and updates material from the 1984 book *Flow Measuring Flumes for Open Channel Systems* and the 1993 book *FLUME: Design and Calibration of Long-Throated Measuring Flumes*, which introduced the first interactive flume design software. The new Microsoft Windows version of FLUME (WinFlume) is presented in Chapter 8. This computer program can be used to develop the hydraulic design of long-throated flumes and broad-crested weirs to be constructed in user-specified channels, satisfying user-specified boundary conditions and design requirements. The program also determines the head versus discharge calibration (the rating) of newly designed structures and existing structures. WinFlume can be downloaded from www.usbr.gov/wrrl/winflume. The book also adds new sections on modern flume construction methods and recent developments in portable and temporary flumes. For more information, or to order online, visit the ILRI website at www.ilri.nl — go to the Publications Section and look for ILRI Publication 58. ISBN 90-70754-55-X. Price NLG 90.00/EURO 41.00.

Hydraulic Engineering Software VIII, the proceedings of the Eighth International Conference on Hydraulic Engineering Software, held in Lisbon, Portugal, June 12-14, 2000. Papers included in the Proceedings cover hydrodynamic modeling, dam breaking and flooding, hydraulic networks and water supply, open channel flow, coastal dynamics and estuaries, wave propagation, hydrology, groundwater and aquifer modeling, water quality and treatment, hydraulic software, decision support systems, and numerical modeling. 470 pages. ISBN

18-53128-14-7. Price \$220. Order from www.compmech.com/witpress/.

Comprehensive Transboundary International Water Quality Management Agreement. EWRI/ASCE Publication 33-01 provides the most up-to-date model for comprehensive water quality planning and management of shared water resources. Based on the concept of shared sovereignty, this model agreement is appropriated for situations where the parties are prepared to relinquish a significant degree of sovereignty of their portion of the shared water resource. The objective of this integrated agreement is to achieve allocation based on equitable utilization. ISBN 0-7844-0543-3. Price \$65. Order from ASCE at 800-548-2723 or www.pubs.asce.org.

Standard Guidelines for Artificial Recharge of Ground Water. EWRI/ASCE Publication 34-01. This book describes the steps necessary to plan, design, construct, maintain, operate and close a project for artificial recharge of ground water. It also describes economic, environmental and legal considerations, as well as field investigation and testing procedures. ISBN 0-7844-0548-4. Price \$65. Order from ASCE at 800-548-2723 or www.pubs.asce.org.

Mechanics of Sediment Transport. This updated and translated volume, by Ning Chien and Zhaohui Wan, provides a practical survey of sediment transport. The book received a place on *Choice* magazine's **2000 Outstanding Academic Titles** list. ISBN 0-7844-0400-3. Price \$149. Order from ASCE at 800-548-2723 or www.pubs.asce.org.

ASAE Standards 2001: Standards Engineering Practices Data. Includes more than 200 current standards, engineering practices and data for agriculture, food and allied biological industries. The book also includes a list of current standards development projects and a list of technical committees responsible for developing and maintaining international standards. Available in hardbound book form or on CD-ROM. For ordering information, contact ASAE at 616-429-0300, e-mail stewart@asae.org.

Book Review

Machu Picchu: A Civil Engineering Marvel

Reviewed by Sally F. Kribs, Kribs' Technical Editing Services, Arvada, CO

Written by: USCID Member **Kenneth R. Wright** and Alfredo Valencia Zegarra.

Only the best engineers can claim that systems they designed will still work effectively 500 years after abandonment. ***Machu Picchu: A Civil Engineering Marvel*** establishes that the ancient Incas who built Machu Picchu were, indeed, some of the best engineers around.

Machu Picchu was a royal retreat built around 1450 A.D. High in the Andes, the site is a testament to the Incan ability to plan and build. Without benefit of a written language, the Incas created a terraced utopia functioning with a developed spring, an effective spring collection works, still-operating fountains, buildings that still stand and a drainage system that continues to work.

Chapter 5, Drainage Infrastructure, documents with words and compelling photographs the remarkable measures taken by the Incas at Machu Picchu to deal with nearly 79 inches of rainfall per year. Machu Picchu's drainage system is sophisticated and redundant, featuring a centralized main drain, highly permeable terraces with loosely packed large stones in the lower strata, positive surface drainage away from thatched roof structures with drip channels in some places, urban and agricultural drainage channels and formalized systems for intercepting groundwater drainage.

In addition to drainage, the book explores such engineering facets of the Inca site as planning, hydrology, hydraulics, agriculture and construction. ISBN 0-7844-0444-5. Price \$49. Published by ASCE Press. Order from ASCE at 800-548-2723 or www.pubs.asce.org.

Meetings Calendar

JANUARY 17-18, 2002, Law of the Rio Grande: Legal, Environmental and Practical Considerations, Albuquerque, New Mexico. Water Law Institute, CLE International. Visit www.cle.com for more information.

JANUARY 23-24, 2002, Water Rights, Colorado River Allocation, and the Role of Hoover Dam, Las Vegas, Nevada. Contact University of Nevada, Las Vegas, 702-895-3394.

MARCH 11-13, 2002, Watershed Management to Meet Emerging TMDL Environmental Regulations, Fort Worth, Texas. Contact ASAE, 800-371-2723, e-mail west@asae.org.

APRIL 21-25, 2002, Drought Mitigation and Prevention of Land Desertification, Bled, Slovenia. Organized by the Slovenian National Committee on Irrigation and Drainage. Contact Sabina Remskar, e-mail sdno-sincid@guest.arnes.si.

JULY 28-31, 2002; ASAE-CIGR Congress Annual International Meeting, Chicago, Illinois. Contact ASAE, 800-371-2723, e-mail west@asae.org.

AUGUST 6-9, 2002, Water Quality Enhancement through Membrane Technology, Tampa, Florida. Contact AMTA, amtaorg@aol.com or visit www.membranes-amta.org.

NOVEMBER 26-29, 2002; IWRA International Regional Symposium: Water for Human Survival, New Delhi, India. Contact A.R.G. Rao, e-mail cbip@nda.vsnl.net.in or visit www.cbip.org.

DECEMBER 17-20, 2002; Water and Energy for the 21st Century, Aurangabad, India. Fourth International R & D Conference, Central Board of Irrigation and Power, New Delhi. Deadline for Abstracts is May 1, 2002. Contact CBIP, e-mail cbip@vsnl.com or cbip@nda.vsnl.net.in or visit www.cbip.org.

JULY 20-23, 2003; ASAE Annual International Meeting, Las Vegas, Nevada. Contact ASAE, 800-371-2723, e-mail west@asae.org. □

Position Available

Dauids Engineering, a consulting firm that provides services primarily to irrigation districts and resource management agencies, has a position open for an Agricultural or Civil Engineer. Educational background should be a B.S. or M.S. in Civil Engineering with a water resources orientation or Agricultural Engineering with a water/irrigation emphasis. Desire 0-5 years of professional experience and PE or EIT with intent to acquire PE. Dauids Engineering offers competitive compensation and benefits, and the opportunity to contribute to the advancement of agricultural water management in California, the West and internationally, through services to a broad client base.

If interested, please send resume to: Dauids Engineering, Inc., Attention: Personnel, 1772 Picasso Avenue, Suite A, Davis, CA 95616. Or e-mail to: joni@de-water.com. Confidentiality assured. □

Missouri River Basin Report

Dry conditions persisted across much of the Missouri River basin during October. The runoff for the month, above Sioux City, Iowa, was 50 percent of normal, according to the Corps of Engineers. The forecasted runoff of the year is 22 million acre-feet, compared to the normal 25.2 MAF.

Despite the low runoff, the navigation season is expected to continue until December 1. System storage ended October at 50.4 MAF, down 1.5 MAF during the month. Last year at this time it was 51.0 MAF. The main stem powerplants generated 564 million kilowatt hours in October, 63 percent of normal. Given the forecasted inflow this year, energy production should be 6.1 billion kWh, compared to a normal of 10.2 billion kWh.

Daily and forecasted reservoir and river information is available on the water management section of the Northwestern Division website at www.nwd.usace.army.mil. □

Necrology

Harold G. Arthur died September 25 in Denver. A Member of USCID since 1961, he spent 42 years with the Bureau of Reclamation, retiring in 1977 as Director of Design and Construction. Memorial contributions may be made to the Harold G. Arthur Civil Engineering Fund, SDSM&T Foundation, 501 Saint Joe Street, Rapid City, SD 57701.

T. W. Mermel died in August 2000. After a long career with the Bureau of Reclamation, he spent many years with the World Bank. He had been a Member of USCID since 1955.

Kenneth L. Powers died August 12, 2001, in Lakewood, Colorado. A retired employee of the Bureau of Reclamation, he had been a Member of USCID since 1963.

Kenneth F. Vernon, Fullerton, California, died in April 2000. He had been a Member of USCID since 1968.

James M. Wolf died June 22 after battling prostate cancer. He was affiliated with Development Alternatives, Inc., and had been a member of USCID since 1991. Memorial contributions may be made to The Association for the Cure of Cancer of the Prostate, 1250 Fourth Street, Suite 360, Santa Monica, CA 90401.

Loan Reports

The following reports and publications are available on loan from the USCID Denver Office.

1998/99 Australian Irrigation Water Provider Benchmarking Report. February 2000. Australian National Committee on Irrigation and Drainage.

1999/2000 Australian Irrigation Water Provider Benchmarking Report. February 2001. Australian National Committee on Irrigation and Drainage.

ICID and Micro 2000 Abstracts, October 22-27, 2000, Cape Town, South Africa. International Commission on Irrigation and Drainage.

Keynote Addresses, 1st ICID Asian Regional Conference, Seoul, Korea, September 2001.

General Reports, 1st ICID Asian Regional Conference, Seoul, Korea, September 2001.

Workshop Proceedings, 1st ICID Asian Regional Conference, Seoul, Korea, September 2001 (CD-ROM).

Participatory Irrigation Management in the People's Republic of China, October 2000. Chinese National Committee on Irrigation and Drainage.

Water Saving Actions in the People's Republic of China, October 2000. Chinese National Committee on Irrigation and Drainage.

GIS and Remote Sensing Techniques in Land and Water Management, 2001. Edited by A. van Dijk and M. G. Bos.

Water for Food, Nature and Rural Livelihoods, Annual Report 1999-2000. International Water Management Institute.

Daylighting: New Life for Buried Streams, October 2000. Rocky Mountain Institute.

Irrigation and Drainage Systems, May 2000. Special Issue dedicated to the Management Improvement Program. Edited by **Allen R. Dedrick.**

KCID Quarterly Newsletter, 2000. Korean National Committee on Irrigation and Drainage (in Korean).

KCID Journal, No. 2, 1999 and No. 2, 2000. Korean National Committee on Irrigation and Drainage (in Korean).

Hommes, Terre & Eaux, December 1999 and March 2000. Moroccan National Committee on Irrigation and Drainage (in French).

Grid, February and August 2001. International Programme for Technology and Research in Irrigation and Drainage.

Source Newsletter, April 2001. Brace Centre for Water Resources Management, McGill University, Montreal, Canada.

IWMI Strategic Plan 2000-2005. International Water Management Institute.

IWMI Research Update, November 2000. International Water Management Institute.

IWMI Annual Report 2000-2001. International Water Management Institute.

Rivers and Japan, January 2001. Ministry of Land, Infrastructure and Transport.

Agriculture & Equipment International, July-December 2000.

Rural and Environmental Engineering, August 2000. The Japanese Society of Irrigation, Drainage and Reclamation Engineering.

Irrigation Business and Technology, August/September 2000 - July/August 2001. The Irrigation Association.

Water Conservation News, October 2000 - October 2001. California Department of Water Resources.

ERWG Letter, No. 1 and 2, 2000 and No. 1, 2001. European Regional Working Group of ICID.

ICID News and Views, Summer 1999 and Summer 2000. ICID British Section.

Resources, Fall 2000 - Summer 2001. Resources for the Future.

Newsflow, No. 2 and 3, 2000 and No. 1, 2001. Global Water Partnership.

Instream Colorado, October 2000 - October 2001. Colorado's Stream and Lake Protection Program.

Colorado River Project Report, Winter and Summer 2001. Water Education Foundation.

Western Water, September/October 2000 - September/October 2001. Water Education Foundation.

Water Current, October 2000 - October 2001. University of Nebraska-Lincoln Water Center.

The AgInformer, Spring and Summer 2001. JMLord, Inc.

Currents, November 2000 - November 2001. Wright Water Engineers, Inc.

WaterWise, Fall 2001. Colorado WaterWise Council

Water International, September 2000 - June 2001. International Water Resources Association.

Resource Law Notes, Summer 2001. Natural Resources Law Center. University of Colorado at Boulder.

Colorado Water, October 2000 - October 2001. Water Center at Colorado State University.

DFID Water, May 2001. Department for International Development, HR Wallingford, United Kingdom.

Water Gazette, November 2000 - October 2001. Coachella Valley Water District.

The Missouri River Report, April 2001. Missouri River Basin Association.

International Water & Irrigation, No. 1 and 2, 2000.

RMI Solutions Newsletter, Winter 2000. Rocky Mountain Institute.

Stockholm Water Front, October 2000. Stockholm International Water Institute.

Irrigation Newsletter, July 2000. Department of Irrigation, Nepal.

IWRA Update, October 2000 - October 2001. International Water Resources Association.

IWRA Networking Directory, June 2001. International Water Resources Association.

North Dakota Water, November 2000 - January 2001. North Dakota Water Education Foundation.

Water Operation and Maintenance Bulletin, September 2000, March and

September 2001. Bureau of Reclamation.

WaterNews, Fall 2000. Northern Colorado Water Conservancy District.

IWMI Research Reports, published by the International Water Management Institute:

37 — *Farmer Based Financing of Operations in the Niger Valley Irrigation Schemes*

38 — *An Assessment of the Small-Scale Irrigation Management Turnover Program in Indonesia*

39 — *Water Scarcity and the Role of Storage in Development*

40 — *Using Datasets from the Internet for Hydrological Modeling*

41 — *Urban-Wastewater Reuse for Crop Production in the Water-Short Guanajuato River Basin, Mexico*

42 — *Comparing Estimates of Actual Evapotranspiration from Satellites, Hydrological Models, and Field Data: A Case Study from Western Turkey*

43 — *Integrated Basin Modeling*

44 — *Productivity and Performance of Irrigated Wheat Farms across Canal Commands in the Lower Indus Basin*

45 — *Pedaling out of Poverty: Social Impact of a Manual Irrigation Technology in South Asia*

46 — *Using Remote Sensing Techniques to Evaluate Lining Efficacy of Watercourses*

47 — *Alternate Wet/Dry Irrigation in Rice Cultivation: A Practical Way to Save Water and Control Malaria and Japanese Encephalitis?*

49 — *Basin-Level Use and Productivity of Water: Examples from South Asia*

52 — *Charging for Irrigation Water: The Issues and Options, with a Case Study from Iran*

53 — *Estimating Productivity of Water at Different Spatial Scales Using Simulation Modeling* □

Websites of Interest

The following websites may be of interest to USCID Members:

www.iwmi.org — International Water Management Institute. Access *IWMI News*, Research Reports and the *World Water and Climate Atlas*.

water.usgs.gov/nawqa — U.S. Geological Survey water quality reports for 16 major river basins and aquifers. Presents significant findings on nutrients, pesticides, metals, volatile organic compounds and naturally occurring pollutants, such as radon.

www.oecd.org/agr/env/indicators.htm — OECD. Download the Executive Summary of the OECD publication *Environmental Indicators for Agriculture Volume 3: Methods and Results*.

watercenter.unl.edu — University of Nebraska-Lincoln Water Center. *Water Current* online, academic programs, research faculty and staff, information library, etc.

www.iahr.org — International Association for Hydraulic Engineering and Research. Subscribe to an electronic discussion group on rivers called "Rivers-List" or receive NewsFlash, a new bi-monthly electronic bulletin available free of charge on developments in the world of hydraulic engineering and research.

www.unesco.org — UNESCO Water Portal.

www.agua-latina.com — Agua Latina. The online magazine for the Latin American water industry.

www.tc.icwc-aral.uz — International Fund for Saving the Aral Sea Training Center. □

World Water Council Issues Vision Report

World Water Vision: Making Water Everybody's Business, by William J. Cosgrove and Frank R. Rijsberman.

World Water Vision presents the results of the most comprehensive analysis of the world's water resources ever undertaken. Based on contributions from thousands of experts involved in regional, national, and sector consultations, it provides an authoritative diagnosis of these resources and the pressures on them, and it lays out the steps we must take. The accompanying CD-ROM contains the complete set of background documents produced during the Vision exercise and includes thousands of pages of regional and sector scenarios, special studies, newsletters and infosheets — an invaluable reference archive.

Comprehensive and authoritative, this is the essential source book for policy makers, politicians and professionals working in the field of water management. It will also be useful for students, academics, researchers and policy makers in geography, natural resources management and international affairs.

William Cosgrove and Frank Rijsberman served as Director and Deputy Director of World Water Vision for the World Water Council.

ISBN 1-85383-730-X. \$19.95. To order, contact Earthscan at 120 Pentonville Road, London N1 9JN, United Kingdom, telephone 44-20-7278-0433, fax 44-20-7278-1142, or visit www.earthscan.co.uk. □

News of Members

Leo A. Busch, Manager of the Bureau of Reclamation's Bend, Oregon, Office, received the U.S. Department of the Interior Meritorious Service Award in recognition of his outstanding contributions in the fields of water operations, drainage, irrigation management and civil engineering.

Wayne Clyma, retired Colorado State University professor, was honored recently for contributions to the people and government of Egypt. Clyma, along with sociologist Max Lowdermilk, were recognized for their work to improve water resources management in Egypt. In addition, Clyma's work involving interdisciplinary teams to solve problems in irrigated agriculture both overseas and in the U.S. was featured in a recent edition of the international professional journal, *Irrigation and Drainage Systems*. The special issue of the journal, edited by **Allen R. Dedrick**, features several articles about the Management Improvement Program implemented by the Maricopa-Stanfield Irrigation District in Arizona.

Allen R. Dedrick recently received the Evelyn Resentreter Award from the American Society of Agricultural Engineers. The award is given to encourage and recognize individuals who contribute exemplary leadership and service toward the generation, maintenance and administration of ASCE standards activities.

John Eckhardt recently joined the Denver office of **CH2M Hill, Inc.** as a Vice President responsible for water resources programs in the southwest U.S. He was previously affiliated with the Imperial Irrigation District.

Robert H. Edwards has moved to a new position with the **Bureau of Reclamation**. He is now Chief, Tracy Engineering O&M Division.

Earl E. Eiker recently retired as head of the hydraulics program for the **Corps of Engineers**.

Gary E. Freeman recently joined WEST Consultants, Inc., Tempe, Arizona, as Director of Water Resources Engineering.

Duane D. Helton was recently featured in an article in *InStream Colorado*, published by the Colorado Water Conservation Board. The article discussed Helton's work as one of three members of the Board's original instream flow team.

Ramesh S. Kanwar received an honorary doctorate degree for his scientific contribution from the Georgian State Agrarian University in Tbilisi, Georgia. He is a professor of Agricultural and Biosystems Engineering at Iowa State University and director of the Iowa State Water Resources Research Institute.

Robert Leutheuser retired from the **Bureau of Reclamation** as the Deputy Area Manager of the Albuquerque Area Office, in September 2000, after 20 years of service. He is available for overseas consulting assignments.

Eugene R. Lindemann recently received a Doctor of Philosophy degree in Agricultural Engineering from Texas A&M University. He retired from the Natural Resources Conservation Service, USDA, in 1997, after a 35-year civil service career.

Clinton W. Mehring, President of Tipton and Kalmbach, Inc., recently announced the acquisition of Tipton and Kalmbach by Stantec Consulting Inc.

Joseph B. Summers, Chairman of the Board of Summers Engineering, Inc., recently announced the appointment of **Joseph C. McGahan** as President of the Hanford, California, firm. Summers also announced that **Roger L. Reynolds** has been appointed Vice President, and **Brian J. Skaggs** and **Scott L. Jacobson** are members of the Board of Directors.

Samuel W. Schaefer, formerly with the Bureau of Reclamation, is now affiliated with Science Applications International Corporation, Santa Barbara, California.

Larry J. Schluntz has retired from the Bureau of Reclamation. He continues to live in Denver, Colorado.

Vijay P. Singh received the 2001 **Colorado State University** College of Engineering Honor Alumni Award. Singh holds the Arthur K. Barton Endowed Professorship in Civil and Environmental Engineering at Louisiana State University.

R. Wayne Skaggs was recently installed as President of the American Society of Agricultural Engineers for the year 2001-2002. He is the William Neal Reynolds Professor and Distinguished University Professor at North Carolina State University in Raleigh. Skaggs also was recently presented the Distinguished Achievement in Agriculture Award by Gamma Sigma Delta.

Edwin D. Stains is now Vice President, Environment and Natural Resources for Development Alternatives, Inc. He lives in Bethesda, Maryland.

Daniel K. Sunada received the 2000-2001 Honors Professor award from **Colorado State University**.

Rodney J. Vissia has moved to Clarkdale, Arizona.

Kenneth R. Wright, President of Wright Water Engineers, recently celebrated the firm's 40th anniversary. Wright also received the 2001 Civil Engineering History and Heritage Award from the American Society of Civil Engineers for his "original research on and outstanding exposition of the civil engineering significance of the archaeological site of Machu Picchu."

James W. Ziglar was recently appointed Commissioner of Immigration and Naturalization by President Bush. Ziglar served as Assistant Secretary of the Interior for Water and Science from 1987 to 1988. □

New Members

The following have joined USCID since publication of the last Newsletter:

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USCID Notes

by Executive Vice President Larry Stephens

During times of stress or problems, we can look to family for help. This was certainly brought home for me during September 2001. I was in Dresden, Germany, attending the Annual Meeting of the International Commission on Large Dams on September 11, and a few days later I went on to Seoul, Korea, to attend the ICID Executive Council Meeting. The outpouring of messages of sympathy and support from the ICOLD and ICID families was wonderful, and again demonstrated that the international water resources community truly is an extended family! These exchanges of sympathy and support made it somewhat easier to be away from home during that time. The events of September 11 were a great loss for all freedom loving people in the world, not just Americans — this fact was certainly reinforced for those of us attending these international meetings.

The Korean National Committee on Irrigation and Drainage hosted a very successful ICID Meeting and Asian Regional Meeting, although attendance was somewhat reduced by the September 11 events. The USCID delegation included only two other people — **Ken Tanji**, who was on the first flight to leave San Francisco after the terrorist attacks, and **David Molden**, who came from Colombo, Sri Lanka. For the first time since our tradition started in 1972, there was no dinner for the USCID delegation. But, our Korean hosts helped us forget these problems and focus on the meetings and our friendships.

USCID continues to be an active leader for the irrigation and drainage profession. In addition to a series of three Energy Workshops this fall and winter, we are planning two important conferences for 2002 and another for 2003. The details are found elsewhere in this Newsletter, but I hope you will make plans now to attend the Conference in San Luis Obispo next July, and the Conference on TMDLs in Sacramento in October. Both conferences should be outstanding events — more than 60 abstracts for the San Luis Obispo Conference were received. You can review the Initial Program for this Conference on the USCID website. And by now, you should have received the Call for Papers for the TMDL Conference. Please respond to the Call for Papers if you can contribute your TMDL experience. This is a significant issue facing irrigation, one that will become more and more important in the future as the competition for water intensifies.

Then in 2003, USCID will host its Second International Conference on Irrigation, Drainage and Flood Control. A Call for Papers for the Conference, which will be held in Phoenix, Arizona, is scheduled to be issued in early 2002. Please plan to participate.

Finally, congratulations to **Maury Albertson** and **Gordon Kruse**, 2001 winners of the USCID Service to the Profession and Merriam awards. Maury and Gordon certainly deserve this recognition. Nominations for the 2002 awards are now being accepted.

Best wishes to you and your family for the holidays and for a prosperous and healthy New Year.□

USCID Meetings

July 10-13, 2002, San Luis Obispo, California. *Energy, Climate, Environment and Water — Issues and Opportunities for Irrigation and Drainage.*

October 23-26, 2002, Sacramento, California. *Helping Irrigated Agriculture Adjust to TMDLs.*

May 2003, Phoenix, Arizona. *Second International Conference on Irrigation and Drainage.*

ICID Meetings

July 21-28, 2002, Montreal, Canada. 53rd IEC Meeting and 18th Congress.

September 14-19, 2003, Montpellier, France. 54th IEC Meeting and 20th European Regional Conference.

March 2004, Australia. 2nd Asian Regional Workshop.

2004, Moscow, Russia. 55th IEC Meeting.

2004, Cairo, Egypt. 1st African Regional Conference.

September 10-18, 2005, Beijing, China. 56th IEC Meeting and 19th Congress.

2006, Kuala Lumpur, Malaysia. 57th IEC Meeting.