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**World Water Forum College Grant Program  
2007 Grant Proposals**

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**College**

Golden West College

**Faculty**

Marius Cucurny & Tom Hersh

**Project**

"Water for People" Mobile Education Project

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**“Water for People” Mobile Education Project**

**Southern California  
WORLD WATER FORUM  
Innovative Conservation Research and Technology  
College Grants for Universities and Community Colleges  
2007-2009**

**Sponsored by  
The Metropolitan Water District of Southern California**

**Marius Cucurny / Tom Hersh  
Golden West College**

**December 14, 2007**

**Southern California  
WORLD WATER FORUM  
Innovative Conservation Research and Technology  
College Grants for Universities and Community Colleges 2007-2009**

A.

College	Golden West College
Address	15744 Golden West Street
City, State, Zip Code	Huntington Beach, CA 92647-2748
Website	www.goldenwestcollege.edu
Make Check Payable To:	Golden West College Foundation

B.

Applicant	Check One
First Time – Local Project	XX
First Time – Global Project	
Existing Project – Local Focus	
Existing Project – Global Focus	

C.

Student Project Manager	Zehava Purim-Adimor
Undergraduate or Graduate	Undergraduate
Department	Environmental Studies
School Address	15744 Golden West Street, Huntington Beach, CA 92647
Telephone	(714) 892-7711 ext. 52180
Mobile Phone	
Email Address	zehava@cox.net
Home Address (optional)	

D.

Faculty Project Manager	Marius Cucurny/Tom Hersh
Department	Environmental Studies
School Address	15744 Golden West Street, Huntington Beach, CA 92647
Telephone	(714) 892-7711 ext. 52180
Mobile Phone	(714) 717-6207
Email Address	mcucurny@gwc.cccd.edu, thersh@gwc.cccd.edu
Home Address (optional)	

## E. ORGANIZATIONAL BACKGROUND

Located in the coastal community of Huntington Beach in Southern California, Golden West College (GWC) was founded in 1965 and is part of the California Community College system. On 120 acres of beautifully landscaped grounds, GWC serves over 13,000 students and is considered a medium-size, two-year college.

GWC provides an Associate degree in most subjects, a strong university transfer program, in addition to a wide variety of short-term vocational [Certificate] options--offering over 60 major areas. It provides a safe and secure location, a multicultural environment, an active student body and is proud of its newly developed honors program. The college is highly regarded for academic quality and innovation. In its earliest years, the college was recognized for its pioneering leadership in designing learning-centered programs and services for its student body and continues in that tradition to this day.

The mission of Golden West College is to support students' goals and interests in higher education, develop their employment skills, prepare them to be productive citizens, and respond to community needs by providing a range and variety of educational programs; two year degrees; transfer preparation; career and technical training, and remedial activities. We encourage all members of our learning communities to grow to their maximum potential as they contribute to the well-being of our diverse society.

The Environmental Studies (ES) program at GWC is concerned with the challenging issues that affect environmental quality, including air, water and soil pollution, preservation of biological diversity and ecological and community sustainability. The program introduces a wide range of career and transfer opportunities including environmental law, planning, site analysis, resource conservation, watershed management, renewable energy efficiency, biotechnology, hazards management, geographic information systems management, and ecotourism. Energy and engineering courses offered at Golden West College can lead students to specialization certificates in the fields of solar thermal energy, photo-voltaic, electrical process control, and energy efficiency. Many of the ES courses may also be applied toward an Associate in Arts degree and are transferable to four-year universities. The ES program curriculum is designed with the advice and counseling from an advisory committee whose members volunteer their time to keep the programs current with industry trends and technology advancements.

The GWC Environmental Studies program has been awarded two Federal Department of Education International Student Mobility grants, with institutional and industry participation from Canada, Mexico and the European community. The ES program also successfully organized and hosted two Earth Day Expo events for the City of Huntington Beach involving several hundred organizations and vendors. Over five thousand people participated. The City of Huntington Beach presented an award to the program for its outstanding efforts to preserve, conserve and protect the environment.

## **F. PROJECT DESCRIPTION**

### **Project Title: “Water for People” Mobile Education**

The *Water for People Mobile Education* (WPME) project is based upon the principle of using mobile education as a communicative strategy to reach a target population in urban and/or rural environments anywhere in the world. The project proposes to educate and to empower local communities, and beyond, to act responsibly using best management practices (BMP) as applied to two key water conservation/quality topics -- capturing rain water and storm water infiltration.

*Water for People Mobile Education* will develop a portable/mobile education prototype to demonstrate the use and implementation of these BMPs, using the local Orange County communities served by Golden West College as a target audience. The presentations will provide simple yet effective ways for students and community members to respond to the need for action regarding water quality and conservation. The portable unit will include off the shelf materials and renewable products, making it easily replicated.

As water management and applied renewable energy go hand in hand in a sustainable community, the WPME prototype will integrate renewable energy technology into the demonstrated BMPs. The *Water for People Mobile Education* project will develop several instructional modules focusing on the project’s topics of water infiltration, capturing rainwater, water use and water sanitation locally and in the developing world.

### **Objectives**

1. To build a portable educational unit to demonstrate the use and implementation of BMPs specifically applied to the topics of capturing rainwater and storm water infiltration.
2. To develop an outreach campaign to educate students and community members about water quality and conservation issues in the Orange County area.
3. To increase understanding and awareness of water use and water sanitation problems locally and in the developing world.
4. To demonstrate the benefits of using renewable material for sustainable design and construction.
5. To demonstrate the incorporation of renewable energy technology into the BMPs used by the project.

### **Need**

Community Colleges need to expand their educational model by reaching out to the community they serve. Often the educational programs offered by the colleges do not have the appropriate facilities to serve the students and the surrounding community. The Environmental Studies program at Golden West College is growing, but as yet has no significant geography on campus. The mobile education unit will allow the ES program to expand by reaching out to the community, by incorporating new modules into its curriculum and by delivering instruction at any site, on or off campus.

The cost of providing a usable water supply is increasing rapidly around the world. Other issues include decaying infrastructures and storm water system pollution. The problems not only contribute to a polluted ecosystem, but a valuable source of water is literally going down the drain.

The Australian company Atlantis, a leader in water management notes that, “Centuries of urbanization and industrialization have put extreme pressure on natural water systems and their related ecosystems. In nature, almost ninety per cent of the earth's surface is pervious, letting rainfall infiltrate where impurities can be remedied and moisture retained to support life. Conversely, in urban areas almost ninety percent of surface area is impermeable and, during rainfall, both air and surface pollutants are trapped and accumulate in water flow. It is imperative to design water management technology that not only meets human needs, such as preventing flooding, but also restoring nature’s water purification system and conserving resources for future use.”

The Water Environment Research Foundation indicates that storm water regulations have identified public education and participation as key features of holistic storm water programs though this aspect is often overlooked. Typically, storm water education focuses on the impacts of urban runoff and human behaviors that contribute to storm water pollution. Rarely do education efforts describe and showcase storm water best management practices. Facilitating public awareness of the function and benefits of BMPs can increase buy-in and create public demand for these features.

The *Water for People Mobile Education* project will demonstrate to the community the innovative technologies and systems available to capture, purify and reuse all rainwater on site, providing solutions that mimic the water cycle of nature. Also, capturing, filtering, and cleaning storm water where it falls, encourages retention and infiltration as opposed to runoff and drainage. Installation of drainage cells, infiltration tanks, purification units and bioremediation soils can help restore natural water purification processes.

According to Orange County Coastkeeper, many storm water regulations in urban areas encourage the use of infiltration BMPs but they are directed at large scale projects and developers. The residents in the community are not engaged in water conservation and storm water management programs. Most often water conservation, water quality, water supply, and energy objectives can only be achieved by engaging the members of the targeted local community. The WPME project involves students and the community for its development and implementation.

### **Key Individuals**

Marius Cucurny and Tom Hersh are full time professors at GWC. They will serve as Faculty Project Managers for the project. They have been responsible for the development and restructuring of the Environmental Studies instructional program at the college since joining the faculty there in 2002. Marius Cucurny also teaches for the Spanish Department and Tom Hersh for the Engineering Technology program. Between the two instructors, they have been teaching Environmental Studies, Renewable Energy Technology, Engineering Technology, and Spanish

courses for the Coast Community College District for over 40 years. They have been awarded and co-directed three FIPSE International Consortium Student Mobility grants with institutional and industry participation from Canada, Mexico and the European community. Marius Cucurny has participated as advisor in translating some of the California State Water Board educational materials from English into Spanish. Tom Hersh has been Master Teacher at the National Renewable Energy Laboratories (NREL) in Golden, Colorado for the past three summer terms. Both instructors have years of collaboration with O.C. Coastkeeper and with the Citizens Water Monitoring Program through the California State Water Board.

Zehava Purim-Adimor is a student currently enrolled at the Environmental Studies program at GWC. She will serve as the student project manager for WPME. She holds a BA in Chemistry and has over six years of experience in field analysis of chemical components, hazardous chemical disposal, site investigation, citizen interaction and project analysis. Monitoring sites inspections as well as nurseries. She has worked for the Southern California Coastal Water Research Program (SCCWRP) as a Research Assistant in Environmental Microbiology. In this position she worked in an epidemiological study of swimming related illness at Doheny State Beach in Dana Point and in Catalina Island. She joined O.C. Coastkeeper in May, 2004, as Field Supervisor of the "Coastal Watershed Citizen Volunteering Monitoring" Project. Her duties include:

- Water quality monitoring procedures including sample processing, chemicals analysis, site inspections, analysis of physical properties, and microbiology.
- Biological assessment including the collection and identification of macro invertebrates utilizing California Fish and Game Streamside Biosurvey.
- Management of project chemicals including proper storage, handling and disposal, logging chemical usages, interacting with vendors, trouble shooting, arranging hazardous chemical transfer and upkeep of Material Safety Data Sheets.
- Implement quality control measures related to field analysis, laboratory standards, data entry and data analysis. These measures included calibration sessions, duplicates, arranging certified laboratory testing, and verification of stored data.
- Produce project reports which included compiling and analyzing monitoring results, site descriptions, verification of quality control testing, and analysis of performance measures.
- Maintenance and calibration of project equipment and supplies including Hach Colorimeter, Oakton submersible probes, Idexx Quatitrays products, and various incubators.

Zehava has been instrumental as a liaison in the ES student internship program collaboration between GWC and O.C. Coastkeeper during the past four years. International students from Golden West College's partner institutions in the Three Dimensional Environmental Education (3DEE) Consortium funded by the Fund for Improvement in Postsecondary Education (FIPSE) Department of Education, have also interned at O.C. Coastkeeper under Zehava's supervision.

## **Project Participants/Cooperating Agencies**

### Ray Hiemstra

Orange County Coastkeeper  
3151 Airway Ave. Suite F-110  
Costa Mesa, CA 92626  
www.coastkeeper.org

Ray Hiemstra is the Associate Director-Programs at O. C. Coastkeeper and will provide technical advice on BMPs details for the project. Ray Hiemstra has been an active member of the GWC Environmental Studies Program advisory committee since the restructuring of the program took place in 2002. Mr. Hiemstra has years of experience managing large projects involving public outreach and participation along with research projects. Public outreach projects have included two large scale monitoring projects over five years utilizing citizen volunteers to collect water quality data at 42 sites across three counties along with many smaller projects and events as part of O..C. Coastkeeper's mission. He is currently managing two research projects documenting water and sediment contamination in Newport Bay. This combination of extensive public outreach experience along with research capabilities fits well with the scope of the proposed project.

### Tony Pham

Creasian Overseas Trade, Inc  
5061 Warner Ave., Suite B  
Huntington Beach, CA 92649  
www.bamboocreasian.com

Tony Pham is the president of Creasian Overseas Trade, Inc. He will be a consultant in the design and construction of the portable educational structure for the PWME project. Mr. Pham grew up in a family of craftsmen in North Vietnam, where in many poverty-stricken villages like in many other parts of the world, bamboo is often considered a roof. He discovered a market niche for the grass material that he imports from his native village in Vietnam, where his factory has provided jobs for more than 80 people. For Tony Pham, a resident of Little Saigon of Westminster, bamboo "relates to my life".

Additionally, the Municipal Water District of Orange County and the Orange County Water District support the project and may assist in its implementation.

### Greg Woodside /Orange County Water District

Planning and Watershed Management Director  
10500 Ellis Ave.  
Fountain Valley, CA 92708  
(714)378-3200 phone  
(714)378-3373 fax  
gwoodside@ocwd.com

## Project Schedule

The project will begin in August 2008. The Table below outlines the project timeline, deliverables and measurable outcomes.

Task	Description	Deliverable	Date
	Project start date	One signed contract	5/08
1	Design prototype structure	One prototype structure designed	6/08
2	Build prototype structure	One prototype structure built	7/08
3	BMP identification Design educational campaign	List of BMPs to be demonstrated identified Educational campaign designed	8/08-9/08
4	BMP installation and documentation RET installation	BMP installed and documented RET Installed and documented	10/08
5	Develop educational campaign materials in English, Spanish and Vietnamese	Educational campaign materials designed	10/08
6	Implement the educational campaign  Implement the instructional modules	Educational campaign implemented a minimum of four times at weekly GWC Swap Meet and/or other community events.  Other organizations will have access to the mobile unit for local water related events.  Instructional modules implemented in a minimum of two course offerings in GWC	11/08-2/09
7	Project end	Final Report	3/09

The design and building of the educational unit prototype structure will be accomplished as a collaboration between the WPME project team and Tony Pham of Creasian Overseas Trade, Inc. Bamboo will be used for the construction of the mobile unit to demonstrate the benefits of its simplicity, structural properties, cost, and sustainability as a building material.

The WPME project team and Ray Hiemstra, who has served as project manager in several watershed management programs conducted in the Southern California area, will collaborate to identify BMPs and to design the educational campaign. Equipment and materials for the BMPs selected, will be purchased and installed by the WPME project team. The GWC ES program will contribute some of the renewable energy technology components to be incorporated in the unit.

The WPME project team will develop the educational campaign materials in English, Spanish and Vietnamese. The materials will be printed for distribution.

The project team will develop the related instructional modules. The modules will be produced and presented in GWC classroom/courses.

The educational campaign will be implemented by the WPME team at the Golden West College Aquatic Lab and Swap Meet Community events. The weekly GWC Meet on Saturdays and Sundays attracts approximately 10,000 people each day. Members of the WPME project will be available for demonstrations, to answer questions and to distribute information materials. Additionally, the mobile unit can be shared with local organizations that express interest in demonstrating it at other water conservation/quality events in the community.

### **Benefits**

Some of the benefits to regional water supply include:

- Water conservation, reducing the cost of alternative water supplies and management programs
- Flood mitigation, erosion and sedimentation control
- Potable water supply and safe aquifer recharge

Golden West College will benefit by:

- Expanding and incorporating its educational mission at one of the largest Community College's Swap Meets in the area
- Attracting potential students to the ES program
- Expanding and enhancing of the ES curriculum with instructional equipment and teaching modules
- Enhancing the college's existing collaboration and partnership with local businesses, industry, and the community.

The overall impact and final results of the educational campaign will be reported at the end of the project, indicating the benefit to be replicated and/or expanded.

## G. PROJECT MANAGEMENT TEAM

	NAME	TITLE	ADDRESS	PHONE & EMAIL
1	Marius Cucurny	Project Co-Manager	15744 Golden West Street, Huntington Beach, CA 92647	mcucurny@gwc.cccd.edu
2	Tom Hersh	Project Co-Manager	SAME	thersh@gwc.cccd.edu
3	Zehava Purim-Adimor	Student Project Manager	SAME	zehava@cox.net
4	Whitney Allen	Student Assistant	SAME	whitneyrallen@yahoo.co
5	Eddie Garcia	Student Assistant	SAME	garciajakaeddie@bcglobal.net

## H.1. BUDGET

DESCRIPTION	AMOUNT	NOTES
GRANT FUNDS REQUESTED FROM MWD	\$10,000	
ADDITIONAL SOURCE OF FUNDS	N/A	DATE ISSUED (if applicable):
ADDITIONAL SOURCE OF FUNDS	N/A	DATE ISSUED (if applicable):
PROJECT TOTAL	\$10,000	

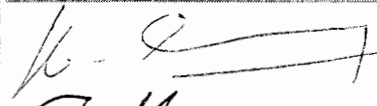

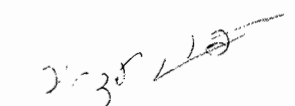

H.2.

LINE ITEM	AMOUNT	DESCRIPTION
STIPENDS	N/A	
LAB FEES	N/A	
OFFICE SUPPLIES	N/A	
CONSULTANT	N/A	
OVERHEAD FEE	N/A	
CONFERENCE REGISTRATION	N/A	
EQUIPMENT	\$9,500	Protoypte structure, rainwater and storm water equipment for demonstration BMP's
OTHER (Define)	\$500	Production and printing materials for educational campaign
TOTAL	\$10,000	

**Matching Funds:**

Grants	N/A	
In-Kind Contributions	Industry Advisors (20 hours)	\$1,600
In-Kind Contributions	ES Program RET Equipment	\$1,500
Volunteer Time – Faculty	80 hours	\$3,200
Volunteer Time – Student/Community	200 hours	\$2,400
Donated Equipment	N/A	
<b>TOTAL</b>		<b>\$8,700</b>

**I. SIGNATURE BLOCK**

	<b>NAME</b>	<b>SIGNATURE</b>	<b>DATE</b>
Faculty Project Manager (s)	Marius Cucurny		12/13/07
	Tom Hersh		12/13/07
Student Project Manager	Zehava Purim-Adimor		12-13-07
Member Agency Representatives	Greg Woodside		12/13/07
	Darcy Burke		

*Directors*

CLAUDIA ALVAREZ  
PHILIP L. ANTHONY  
WES BANNISTER  
KATHRYN L. BARR  
DENIS R. BILODEAU  
JAN DEBAY  
SHAWN NELSON  
IRV PICKLER  
STEPHEN R. SHELDON  
ROGER C. YOH



## ORANGE COUNTY WATER DISTRICT

*Orange County's Groundwater Authority*

*Officers*

STEPHEN R. SHELDON  
*President*

WES BANNISTER  
*First Vice President*

DENIS R. BILODEAU  
*Second Vice President*

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MICHAEL R. MARKUS, P.E.  
*General Manager*

December 11, 2007

Mr. Marius Cucurny  
Arts and Letters  
Golden West College  
15744 Golden West Street  
Huntington Beach, CA 92647

**Subject: Support for Grant Proposal to Metropolitan Water District of Southern California**

The Orange County Water District (OCWD) is pleased to support your proposal to the Southern California World Water Forum sponsored by the Metropolitan Water District of Southern California.

As you indicated, your proposal for Water for People on Wheels (WPW) will educate and empower people in the use and implementation of simple and effective Best Management Practices (BMP) for capturing rain water and stormwater infiltration. WPW will focus in the Orange County communities served by Golden West College. The project is based on the principles of mobile education as a communicative strategy to reach a target population in urban and/or rural environments anywhere in the world. WPW will develop a portable educational prototype to demonstrate the use and implementation of BMPs rain water capturing and stormwater infiltration. The portable educational unit will include off the shelf materials and products, making it easily replicated in other locales. The amount of money to be requested from Metropolitan through the grant proposal is \$10,000.

Please contact Greg Woodside at (714) 378-3275 or [gwoodside@ocwd.com](mailto:gwoodside@ocwd.com) if you need further information.

Sincerely,

Michael R. Markus, P.E.  
General Manager



ORANGE COUNTY  
**COASTKEEPER**  
EDUCATION ADVOCACY RESTORATION ENFORCEMENT

3151 Airway Avenue, Suite F-110  
Costa Mesa, CA 92626  
Phone 714-850-1965  
Fax 714-850-1592  
Website [www.Coastkeeper.org](http://www.Coastkeeper.org)

12/12/07

Dear Sirs,

I am writing this letter in support of GoldenWest Colleges' Water for People Mobile Education Project. Orange County Coastkeeper has worked with Golden West College for many years as part of our water quality program, and they have an excellent record of reaching out to their students and the community. O.C.Coastkeeper has focused a major part of our efforts into the implementation of capture and infiltration Best Management Practices (BMP's) on residential property. It is our opinion that convincing residential property owners to install appropriate BMP's will make a major difference in water use and vastly reduce the flow of urban runoff that carries the majority of pollutants to our local streams and ocean.

The GoldenWest College proposal to develop a portable prototype home that will demonstrate a variety of BMP's will provide both the students and local homeowners with a valuable resource that will allow them to visualize how new technologies to capture and infiltrate dray weather and stormwater runoff can save them money while conserving water and reducing pollution. Every weekend thousands of people come to GoldenWest College for a large regional swap meet. By displaying this prototype to the public attending the swap meet a much larger audience can be reached than by using traditional education methods. Also this prototype will be a valuable resource for O.C.Coastkeepers' educational outreach to promote BMP implementation county wide. We look forward to the creation of the proposed prototype and working together with GoldenWest College to encourage residents to make the proper improvements to their property to conserve water and reduce water pollution.

Sincerely,

Raymond Hiemstra  
Associate Director-Programs  
Orange County Coastkeeper