

## Results of Applications for the 2013 Sustainability Science Research Projects at Academia Sinica Announced

There were a total of 17 applications for the 2013 Sustainability Science Projects (4 from Area of Natural Disaster Reduction; 7 from Area of Green Energy; 4 from Area of Food Security; 2 from Area of Human Dimension of Climate Change and Sustainability). The applications require a budget of NT\$191,503,000 in total (NT\$77,180,000 for Area of Natural Disaster Reduction; NT\$72,018,000 for Area of Green Energy; NT\$30,800,000 for Area of Food Security; NT\$11,505,000 for Area of Human Dimension of Climate Change and Sustainability).

Of all applications, 7 were approved in the meetings of the Second-round Review and Budget Review, including 2 from Area of Natural Disaster Reduction, 1 from Area of Green Energy, 2 from Area of Food Security, and 2 from Area of Human Dimension of Climate Change and Sustainability. The total approved budget amounts to NT\$70,787,000 (NT\$30,098,000 for Area of Natural Disaster Reduction; NT\$9,984,000 for Area of Green Energy; NT\$19,200,000 for Area of Food Security; NT\$11,505,000 for Area of Human Dimension of Climate Change and Sustainability). Please refer to the following table for detailed information.

### A. Area of Natural Disaster Reduction: (2 projects)

Project No.	Title of Projects	Principal Investigators	Institutions
AS-102-SS-A09	Mega-seismic risk and multi-geological disasters in Taiwan	Cheng-Horng Lin Bor-Shouh Huang	Institute of Earth Sciences, Academia Sinica
	A09-1 Seismic Activity in the Taipei Metropolitan Area	Kou-Cheng Chen	Institute of Earth Sciences, Academia Sinica
	A09-2 Earthquake scenario shaking simulation for the potential megathrust event along the southern Ryukyu Trench and the Manila Trench	Shiann-Jong Lee	Institute of Earth Sciences, Academia Sinica

A09-3 Real-time Inversion of Earthquake Sources	Li Zhao	Institute of Earth Sciences, Academia Sinica
A09-4 Development of seismic information network for hazard mitigation	Yih-Min Wu	Department of Geosciences, National Taiwan University
A09-5 Seismic monitoring and hazard reduction for the northern Manila Trench and its surrounding region	Bor-Shouh Huang	Institute of Earth Sciences, Academia Sinica
A09-6 Seafloor geodetic survey off the coast of Ilan for earthquake and tsunami hazard assessment and disaster mitigation program in Taiwan.	Masataka Ando	Institute of Earth Sciences, Academia Sinica
A09-7 The potential earthquake rupture scenario along the southern Ryukyu Trench and the Manila Trench	Ya-Ju Hsu	Institute of Earth Sciences, Academia Sinica
A09-8 Finding paleotsunami based on geological records in east and south coast of Taiwan and its significance for tsunami genetic earthquake and environmental changes.	J. Bruce H. Shyu	Department of Geosciences, National Taiwan University
A09-9 Seismic Monitoring of Large Landslides and Submarine Volcanoes in Taiwan	Cheng-Horng Lin	Institute of Earth Sciences, Academia Sinica

AS-102-SS-A10	Study on Climate Change and Urban Development/Land use	Huang-Hsiung Hsu Shaw-Chen Liu Chia Chou Shi-Yu Lee Wei-Liang Lee  Min-Hui Lo	Research Center for Environmental Changes, Academia Sinica  Department of Atmospheric Sciences, National Taiwan University
	A10-1 Climate variability projection over Taiwan: regional dynamical downscaling and the impact of urban heat island effect	Chuan-Yao Lin	Research Center for Environmental Changes, Academia Sinica
	A10-2 Adaptation and Impacts of Climate and Land Use Changes on Environmental Disasters	Liang-Chun Chen Chao-Tzuen Cheng Shen Chiang Shih-Liang Chan Yung-Ming Chen	National Science & Technology for Disaster Reduction (NCDR)

**B. Area of Green Energy: (1 project)**

Project No.	Title of Projects	Principal Investigators	Institutions
AS-102-SS-A11	Molecular Design of Organic Dyes for Sensitized Solar Cell	Tahsin J. Chow	Institute of Chemistry, Academia Sinica
	A11-1 Organic materials for Dye-Sensitized Solar Cells	Jiann-T'suen Lin	Institute of Chemistry, Academia Sinica
	A11-2 Fast and Material Economical New Method of Dyeing TiO <sub>2</sub> Electrode for Dye-Sensitized Solar Cells	Chin-Ti Chen	Institute of Chemistry, Academia Sinica

A11-3 Theoretical and computational study of dye-regeneration in dye-sensitized solar cells	Chao-Ping Hsu	Institute of Chemistry, Academia Sinica
A11-4 Supramolecular organogels for light harvesting and photovoltaic applications	Shih-Sheng Sun	Institute of Chemistry, Academia Sinica
A11-5 Non-conjugated organic dyes for sensitized solar cells	Tahsin J. Chow	Institute of Chemistry, Academia Sinica
A11-6 Large-area DSSC platform development	Tzu Chien Wei	Department of Chemical Engineering, National Tsing-Hua University

### C. Area of Food Security: (2 projects)

Project No.	Title of Projects	Principal Investigators	Institutions
AS-102-SS-A 12	Development of bird flu vaccine using combination of virus-like particle and adjuvant strategies	Shu-Mei Liang	Agricultural Biotechnology Research Center, Academia Sinica
	A12-1 Optimization of influenza virus-like particle (VLP) platform to research and develop effective, safe, and cost-effective poultry vaccine	Pei-Wen Hsiao	Agricultural Biotechnology Research Center, Academia Sinica
	A12-2 Development of a novel TLR agonist as vaccine adjuvant for bird flu vaccine	Shu-Mei Liang	Agricultural Biotechnology Research Center, Academia Sinica

	A12-3 Study the protective vaccine efficacy of adjuvanted virus-like particles against high pathogenic avian influenza virus	Shu-Hwae Lee	Animal Health Research Institute, Council of Agriculture, Executive Yuan
AS-102-SS-A 13	Rice Productivity Improvement Project	Wen-Hsiung Li	Biodiversity Research Center, Academia Sinica
	A13-1 Increasing rice productivity by genetic transformation	Maurice S. B. Ku	Department of Bioagricultural Science, National Chiayi University
		Shin-Han Shiu	Department of Plant Biology, Michigan State University
Arthur Chun-Chieh Shih		Institute of Information Science, Academia Sinica	
		Kin-Ying To	Agricultural Biotechnology Research Center, Academia Sinica
	A13-2 Identifying C4 leaf developmental regulators by transcriptomic analyses, computational predictions and experimental validation	Wen-Hsiung Li	Biodiversity Research Center, Academia Sinica
		Shin-Han Shiu	Department of Plant Biology, Michigan State University
		Chun-Chieh Shih	Institute of Information Science, Academia Sinica
		Hsuan-Cheng Huang	Institute of Biomedical Informatics, National Yang-Ming University

		Mei-Yeh Jade Lu	Biodiversity Research Center, Academia Sinica
		Kin-Ying To Choun-Sea Lin	Agricultural Biotechnology Research Center, Academia Sinica
A13-3	Functional validation of candidate regulators for C4 photosynthesis in crops	Shu-Hsing Wu	Institute of Plant and Microbial Biology, Academia Sinica
		Shin-Han Shiu	Department of Plant Biology, Michigan State University
		Chun-Chieh Shih	Institute of Information Science, Academia Sinica
		Hsuan-Cheng Huang	Institute of Biomedical Informatics, National Yang-Ming University
		Mei-Yeh Jade Lu	Biodiversity Research Center, Academia Sinica
		Kin-Ying To Choun-Sea Lin	Agricultural Biotechnology Research Center, Academia Sinica

**D. Area of Human Dimension of Climate Change and Sustainability: (2 projects)**

Project No.	Title of Projects	Principal Investigators	Institutions
AS-102-SS-A14	Urban Response to Global Climate Change - Human Dimensions	Hsin-Muang Michael Hsiao	Institute of Sociology, Academia Sinica
	A14-1 Risk of Urban Development around Coastal Areas	Jiun-Chuan Lin  Chia-Hung Jen	Department of Geography, National Taiwan University  Environment and Safety Division, National Kaohsiung Normal University
	A14-2 Urban Industrial and Economic Transformation in Response to Climate Change	Shin-Kun Peng  Tsung-Chen Lee	Institute of Economics, Academia Sinica  Department of Economics, National Taipei University
	A14-3 Investigating the Effects of Urbanization and Urban Form on Energy Consumption and GHG Emission	Chia-Tsung Yeh Shu-Li Huang	Graduate Institute of Urban Planning, National Taipei University
	A14-4 Urban Social Problems and Coping Strategies to Climate Change: Social Vulnerability and Resilience	Hsin-Muang Michael Hsiao  Keng-Ming Hsu	Institute of Sociology, Academia Sinica  Department of Public Administration and Policy, National Taipei University
	A14-5 Spatial Planning and Climate Change Mitigation and Adaptation	Shu-Li Huang	Graduate Institute of Urban Planning, National Taipei University  Department of

		Szu-Hua Wang	Architecture and Urban Design, Chinese Culture University
	A14-6 Urban Climate Governance in Taiwan	Sue-Ching Jou  Jing-Chein Lu	Department of Geography, National Taiwan University  Department of Fire Science, Central Police University
AS-102-SS-A15	Taiwan Sustainable Transition Model: Theory and integrated Assessment Model	Daigee Shaw	Institute of Economics, Academia Sinica
	A15-1 An endogenous economic growth model with environmental properties incorporated	Jhy-Hwa Chen  Jhy-Yuan Shieh	Department of Economics, Tamkang University  Department of Economics, Soochow University
	A15-2 Intergrating social dimension into the development model: A capital method	Chiung Ting Chang  Daigee Shaw	APEC Center for Typhoon and Society Socio-Economic  Institute of Economics, Academia Sinica
	A15-3 The Modification of Taiwan PAGE Integrated Assessment Model	Chih-Ming Hung  Daigee Shaw	Chung-Hua Institution for Economic Research  Institute of Economics, Academia Sinica
	A15-4 Improvement and Application of Integrated Environmental Assessment Model	Hwong-Wen Ma	Graduate Institute of Environmental Engineering, National Taiwan University
	A15-5 A Macro-econometric	Chien-Fu Jeff Lin	Department of



	model: Accounting for the restrictions of environmental resources, climate changes, and research and development	Huang Wen-Hsiu	Economics, National Taiwan University Department of Public Finance, Ling Tung University
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