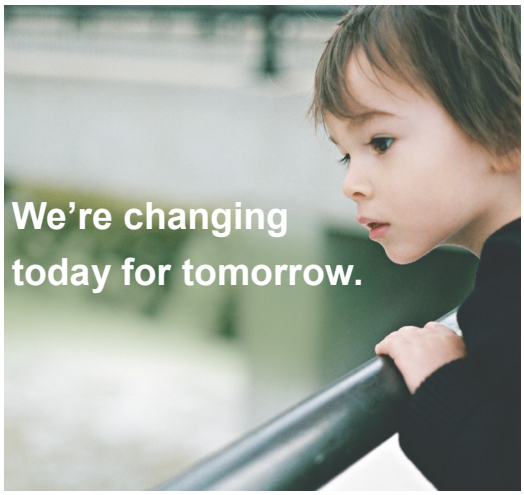
# Australian Sustainable Development Institute




June 2010 Volume 1, Issue 2

# Newsletter

See ASDI's comprehensive sustainability news feed: www.asdi.org.au/knowledge_hub/

## WELCOME FROM DIRECTOR

Thank you for your positive comments following the inaugural ASDI newsletter in March.

I have recently returned from an Austrade University Delegation to Canada where a number of exciting partnerships were made with Queens University and Waterloo University.

The sustainable development agenda continues to grow and is represented within key projects in climate change, solar and biomass conversion, electric vehicles, waste reuse, biodiversity and desalination.

I recently had the pleasure of being involved in Curtin's World Environment Day event: *Our World Environment Vision—towards 2020.*

Curtin is now purchasing 15 per cent of the electricity for the Bentley campus through an accredited Green Power product. This means that 15 per cent of campus electricity in 2010 will be sourced from Australian wind, solar and biomass sources-equivalent to the electricity needs of 750 households going green for a whole year.

New events to look forward to include, 'Showcasing Sustainability Education in Western Australia', 'City to Cape: Sea-levels in 2100' and 'Moving Cooler: Sustainable Transport Matters'. Details of these events are within this issue.

## CURTIN LEADS 5-YEAR CLIMATE CHANGE RESEARCH PROJECT

The public will be able to have their say on climate change thanks to a new social media website being developed by Curtin University of Technology researchers.

Professor Janette Hartz-Karp, from Curtin University's Sustainability Policy Institute, and Professor Mark Balnaves, from Curtin's Department of Internet Studies, are the only Australian researchers involved in the five-year international project.

"This project, which also involves the University of Alberta together with Canadian private and public sector organisations, will look at how we can understand public opinion on climate change by using social media," Professor Hartz-Karp said.

"It will not only inform the public, it will provide a new platform for documenting and evaluating public opinion and draw on this information to help shape legislation and policy."

Professor Balnaves said the interactive website would help translate scientific findings into easy to understand language for policy makers and the public, which will promote closer cooperation and knowledge sharing and assist in decision-making.

"We all need to act to reduce the impact on the planet's climate," he said.

"Well designed tools to increase public participation can play a pivotal role in shifting the politics of climate change in Australia and internationally, and aid in motivating community action.

"The website will provide an easy way for governments to disseminate information and seek informed discussion and feedback from citizens in a comprehensive way."

The project has started and the website is expected to go live in 2011.

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## PB-CUSP ALLIANCE

The Curtin University Sustainability Policy (CUSP) Institute recently celebrated its two year anniversary since its establishment at Curtin. CUSP continues to be an outstanding contributor to Curtin and the wider community, with its record in attracting 50 PhD students and substantial research funds, including 5 Australian Research Council (ARC) grants as well as in its Masters in Sustainability Studies, which is proving very popular.

The PB-CUSP Alliance is a formal alliance between Parsons Brinckerhoff and CUSP. Central to the alliance is the incorporation of PB's world renowned ability to deliver on projects of all sizes, alongside the research vision and applied policy focus that Curtin has to offer.

Several research projects have since been won by the alliance and a range of well-received papers launched with considerable interest. The latest two policy papers on Pilbara Cities and The Knowledge Arc Light Rail received broad media coverage, and a further two academic papers on geothermal energy are being published in prestigious refereed journals.

The alliance leadership team comprises Adjunct Professor Darren Bilsborough and Paul Reed from PB and Professor's Peter Newman and Dora Marinova from Curtin. The alliance is managed by PB's Dr Edward Oldmeadow.

L to R: CUSP Sundowner, Professor Peter Newman, CUSP, Professor Jeanette Hacket, Vice-Chancellor, Dr Ed Oldmeadow, PB and Professor Dora Marinova, CUSP

## MORE TO CELEBRATE FROM CUSP

At a recent CUSP sundowner the following achievements were celebrated with Curtin's Vice-Chancellor, Professor Jeanette Hacket:

- The completion of CUSP's first two PhDs by Shamim Samani and Matthew Bradley.
- Professor Dora Marinova won the R&D award for the highest RPI (research productivity index) within the Faculty of Humanities.
- Professor Peter Newman received the exceptional recognition and honour of being invited to be a Lead Author on Transport for the IPCC's (Intergovernmental Panel on Climate Change) 5th Assessment Report.
- Dr Nonja Peters' has been appointed to the Council of the National Library of Australia.
- Professor Jeff Kenworthy's new book "An Introduction to Sustainable Transportation: Policy, Planning and Implementation" published by Earthscan was launched last month.
- Professor Janette Hartz-Karp is on an international team that won a major research grant on public deliberation and climate change to be piloted in Alberta Canada, and she has now commenced an Australian version in collaboration with City of Geraldton-Greenough.

## RESEARCHER PROFILE: PROFESSOR DORA MARINOVA

Dora is a Professor of Sustainability at CUSP with experience in new technological trends in sustainable technologies, innovation models, uptake of environmental management systems (ISO 140001), technological assessment, evaluation of innovation support schemes and science and technology policy. Her interests also relate to policies and measures promoting the uptake of sustainable innovations and new technologies by companies and the wider society. Dora's most recent work is in the newly emerging field of sustainometrics, namely the modelling and measuring of sustainability.

Her background in engineering, mathematics and economics allows her to cross boundaries between social sciences and science research, policy strategies and engineering, demography and community development, university, industry and civil society.

She has more than 200 publications, including in journals such as *Nanotechnology, Journal of Econometrics, Scientometrics, Environmental Modelling and Software and Medical Journal of Australia*.

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## SAID NEMO TO DORY

Many fish, like humans, use sound to communicate. This has led a team of researchers to listen to fish "chatter" as a way of learning more about local iconic species.

The two-year study, led by Dr Miles Parsons from the **Centre for Marine Science and Technology** will use hydrophones (underwater microphones) to record the sounds produced by spawning fish.

"For centuries, traditional fishers around the world have targeted groups of fish by listening to their calls through the hulls of wooden fishing boats," he said.

The project will identify and record sounds of spawning Mulloway at locations including the Swan and Blackwood Rivers to help improve the knowledge of fish numbers in WA.

Dr Parsons said the project will also look at Western Australian Dhufish, Snapper and Black Bream schools from Shark Bay to the Nornalup Inlet to determine whether these species produce sound and how useful their calls could be for monitoring the fish.

"Sound travels well underwater and recording calls is a great way to observe vocal fish species from a distance, making it an effective way to monitor fish in situations that inhibits other census techniques."

Dr Parsons said the acoustic method being used would allow researchers to observe fish populations without interfering with them.

The study is funded through the Fisheries Research and Development Corporation, the Department of Fisheries, the Department of Environment and Conservation, the Challenger Institute of Technology (Fremantle), the Shark Bay Ecosystem Research Project and Recfishwest.

## WA ORGANIC AND ISOTOPE GEOCHEMISTRY CENTRE

The WA-OIGC have recently submitted a large ($1.4M) ARC Linkage grant with collaborators at Southern Cross University and University of Melbourne and QLD Department of Environment and Resource Management. Titled, Electron flow in a hyper-iron rich environment: Kinetics and pathways for iron-sulfur-carbon transformations. Curtin will receive approximately 0.5M if the project is successful.

Dr Youping Zhou from the WA-OIGC, Department of Chemistry has been appointed as a research associate on an ARC Discovery grant 2010-2013 Grice, Snape, Summons, Greenwood. Linking modern biolipids and pigments to ancient biomolecules using innovative laser and hydro pyrolysis and compound specific stable isotope techniques.

Dr Caroline Jaraula, also from the WA-OIGC, in he Department of Chemistry has been employed as a research fellow on an ARC QEII Discovery grant 2008-2012 (Grice, Summons, Twitchett) working with the team on the Triassic/Jurassic mass extinction event in addition to recent Antarctic samples.

## PERTH RANKED LEAST SUSTAINABLE CITY IN AUSTRALIA

The Sustainable Cities Index, created by the Australian Conservation Foundation tracks the progress of Australia's 20 largest cities across 15 indicators including air quality, ecological footprint, green buildings, water, biodiversity, health, density, wellbeing, transport, employment, climate change readiness, education, food production, public participation and household debt.

Perth was ranked the least sustainable city in Australia, with Darwin topping the list. Perth was dragged down by recording the highest level of water use, ecological footprint per person, and car ownership, with 641 private vehicles for every thousand people.

Full results available here: http://www.acfonline.org..au

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## RISING OCEANS KEY CONCERN FOR CONFERENCE

Rising sea levels will be the focus of a national conference to be held at Curtin University of Technology next month.

The City to Cape: 2100 conference — organised by the Australian Sustainable Development Institute (ASDI), Engineers Australia and the Academy of Technological Sciences and Engineering (ATSE) — will feature a number of high-profile speakers discussing possible solutions to the problem of a rising ocean.

ASDI Executive Director, Charlie Thorn, said a rising sea level was one of the great global environmental threats to continued development and habitation in coastal areas in the 21st Century.

"With so many people living on or near the coast, Australia will be one nation which could be severely affected by rising ocean levels," he said.

ATSE WA Chair, Professor Ray Smith, said the seminar would increase the level of understanding on how Western Australia could cope with sea level rise.

"Every region is different and it is important that people understand what solutions can work for Perth and nearby areas that are characterised by a micro-tidal environment," he said.

Engineers Australia WA President, Professor Tony Lucey, said engineers would need to work with the wider community to see how engineering solutions could be used to protect the Australian coastline.

"This is a unique occasion for engineers and other professionals to come together to discuss the possible solutions for a problem that could affect so many," he said.

"Engineers or scientists alone can't deal with climate change; we will need to work together with other professionals and the community to find the answers."

Key speakers include Curtin's Professors Peter Newman and David Wood, who will focus on solutions needed to cope with a rising ocean and planning considerations.

Industry representatives such as Professor Paul Hardisty of WorleyParsons and Mr Matt Eliot of Damara WA will describe the engineering principles of protection against the impacts of sea -level rise.

Other nationally prominent speakers including CSIRO's Dr John Church will review the national and international science of sea level rise.

The conference will be held in the Elizabeth Jolly Lecture Theatre on 22 July at Curtin's Bentley Campus. For more information or to register, contact Kelly Pilgrim-Byrne on 9266 1792 or K.Pilgrim -Byrne@curtin.edu.au

## INTRODUCING MR TIM WALTON

Tim Walton has been appointed to the new role of Director, Resources and Sustainability, at Curtin University, within the Office of Research and Development. With responsibilities which support activities in both ASDI and the Curtin Institute of Minerals and Energy, Mr Walton will work to grow the research activities in both Institutes, with particular focus on expanding Curtin's engagement with research opportunities in the private and public sectors and supporting the development of inter-disciplinary teams within Curtin.

Mr Walton brings to Curtin extensive experience in science leadership and administration from his most recent role with Science and Innovation in the Western Australian government. He has previously worked in a diverse range of areas including conservation education, natural resources management, policy and regulation, heavy industry and port logistics and has an Arts degree in English from Edith Cowan University and a Master of Business Administration qualification from Curtin. Executive Director of ADSI, Charlie Thorn said this appointment was a further commitment by Curtin University to developing its strategic themes of Minerals and Energy, and Sustainable Development.

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## ASDI FUNDED RESEARCH FELLOW

**Dr Andrew Simpson** is an ASDI supported Senior Research Fellow in the Curtin University Sustainability Policy (CUSP) Institute. He has wide-ranging expertise in sustainable energy and transport systems from over 10 years working in the renewable energy, electric power and hybrid/electric vehicle industries in Australia and the USA - including Tesla Motors in California and the National Renewable Energy Laboratory in Colorado.

Andrew joined CUSP in 2009 to focus on the deployment of plug-in vehicles, smart grids and renewable energy in sustainable communities**.**

Andrew has just returned from the Smart Grids China 2010 conference in Shanghai.
http://www.smartgridssummit.com/china/

## ROADS FROM WASTE MATERIALS

Research conducted at Curtin University of Technology could mean that the next time you drive to the shops you could be driving over the leftovers from someone's renovation.

Curtin researchers have been looking at ways of turning construction and demolition (C&D) waste into new roads that will save money, help the environment and provide a superior road for motorists.

Professor Hamid Nikraz, Curtin's Head of Civil Engineering, said the technology, already used on parts of the Kwinana Freeway and roads in the Cities of Canning and Gosnells, could provide a cheaper and more environmentally friendly way to construct roads.

"Since you are reducing the demand for more materials needed to make the roads, you are reducing the rock that needs to be quarried, limiting habitat loss," he said.

"By using fewer resources, substantial environmental and cost savings can be made.

These roads can be made from a number of sources including old concrete pavements and structures, demolished homes and leftover material from construction sites.

## NEWS FROM THE CLIMATE CHANGE REFUGIA RESEARCH GROUP

The Climate Change Refugia Research Group is a group of scientists concerned about the potential impacts of impending climate change on the biodiversity of our planet. They believe that we can prevent some of the predicted extinctions by identifying and protecting refugia/safe heavens These are places that provide environmental diversity and stability, facilitating persistence as regional biotic and abiotic environments change. The group is affiliated with the Curtin Biodiversity and Climate Institute and composed of scientists from numerous organisations, including the Department of Environment and Conservation, Royal Botanical Gardens Kew, Trent University, and The University of Western Australia.

The group's current focus is the granite outcrops of South-West Australia, which provide a range of microhabitats and some protection from droughts and fires. They are extremely old habitats that may have acted as refugia for millions of years. As part of this project, they are looking for PhD students in various fields, including biogeography, community assembly, phylogenetics, population genetics and many others. They anticipate expanding considerably in scope (different refugia and disciplines), geographic area (countries other than Australia) and expertise (more scientists) in the near future.

Above: Granite outcrops include many micro-habitats including relatively resource-rich aprons at their base. The local endemic Eucalyptus brevistylis is largely restricted to such sites. Photo courtesy Climate Change Refugia Research Group—http://refugia.curtin.edu.au/

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## NCED FUNDING ROUND 1 RESULTS

**Curtin's Water Quality Research Institute (CWQRC)** has been successful in attracting investment from the National Centre of Excellence in Desalination (NCED) for the 2-year project, *Evaluation of vibratory shear membrane technology for concentrate minimisation and brine recovering/recycling.*

The NCED received 61 Expressions of Interest for Funding Round 1. Following the EOI assessment, fewer than 20 EOIs were shortlisted, and the NCED received 17 proposals, all of high quality. Constrained by the budget for the first funding round, the Board selected 12 projects for investment, equally divided between fundamental and applied research.

The aim of the project is to trial innovative vibratory shear membrane (VSEP) technology for minimization of brine waste from reverse osmosis desalination plants. VSEP technology can potentially provide benefits of waste minimisation due to the ability to recycle salt for beneficial reuse applications and/or reduce concentrate volumes to improve the overall treatment plant water recovery efficiency.

The environmental benefits are significant by developing a process that considerably reduces the ecological footprint for concentrate treatment compared with using conventional methods (i.e. evaporation ponds, off-site disposal) and providing a more sustainable solution for concentrate management.

"This is particularly important for inland desalination projects where brine waste disposal is a crucial issue.," said A/Professor Anna Heitz from the CWQRC.

"In this project a full-scale automated demonstration unit will be installed at the Wanneroo groundwater treatment plant (Perth) to treat a brine waste similar to that produced from reverse osmosis desalination. "

The project has strong national and international support from NCED, industry and academia, with a total project value of $1.3 M. Partners include Orica Watercare, Water Corporation of Western Australia, New Logic Research (USA), University of El Paso Texas, Monash University and the project is led by Curtin University.

## WORLD ENVIRONMENT DAY 2010: *OUR WORLD ENVIRONMENT VISION— TOWARDS 2020*

This event was organised early June for Curtin staff and students to mark World Environment Day,

World Environment Day is one way the United Nations stimulates worldwide awareness of the environment and encourages political attention and action.

It's aimed at being the biggest, most widely celebrated, global day for positive, environmental action. This year's theme is "Many Species. One Planet. One Future".

Curtin is proud to promote its "green" credentials. Our Environmental Sustainability Office is now firmly established and our Environmental Sustainability Committee, which was set up last year, meets regularly.

Green Campus is the term under which all our on campus environmental sustainability projects are branded and the initiative under which this event is being run. For more information you can visit the Environmental Sustainability section on the Curtin website. (link at bottom of page) These web pages are soon to be renamed as Green Campus.

Curtin is now purchasing 15 per cent of the electricity for the Bentley campus through an accredited Green Power product. This means that 15 per cent of campus electricity in 2010 will be sourced from Australian wind, solar and biomass sources - equivalent to the electricity needs of 750 households going green for the whole year.

This dedication to sustainability doesn't stop at the boundaries of our campuses - we're actively involved in conservation efforts both here in Western Australia and as far away as South America. Our world-class research initiatives and commitment to solving community problems sees us well-placed to make a real difference to a global problem. We've also achieved a 33 per cent reduction in scheme water use in 2008/09 when compared with 2006/07 and last year 3.5 tonnes of Curtin's electronic waste was sent to recycling instead of landfill.

The focus on sustainability on campus is matched by the University's ground-breaking research in sustainability, which is one of Curtin's key areas of research focus.

Environmental Sustainability at Curtin: http//about.curtin.edu.au/environmental-sustainability.cfm

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## SHOWCASING SUSTAINABILITY EDUCATION IN WESTERN AUSTRALIA

On Friday, 23rd July, Curtin will host a day-long conference to showcase sustainability education initiatives in WA and provide a forum for sharing sustainability learning with educators.

This conference will be of particular interest to academics, educators, students, principals, government agencies and other organisations with an interest in sustainability education in Western Australia.

The program includes a welcome address by WA's Chief Scientist, Professor Lyn Beazley, and keynote address by Professor Peter Newman, *Opportunities for building sustainability education in Western Australia*.

The event is sponsored by the Department of Environment and Conservation, Perth Zoo, Science Teachers' Association of Western Australia, Scitech, WA Museum and ClimateWatch.

**Register online** and download the full program at: www.stawa.net/courses/view/18 **before 9/7/2010**. Registration is $60pp (including GST) and includes lunch and refreshments.

## ASDI NEWS FEED

Check out ASDI's daily sustainability news feed tracking tool. You can find it under Knowledge Hub, News Feed. Once there, the page will generate sustainability news items in real time. It's a comprehensive resource and can be found here: www.asdi.org.au

## LAUNCH OF THE COASTAL COLLABORATION CLUSTER

More than 85 per cent of us live and work along the coast. Our beautiful beaches and reefs are an important part of our national identity and attract tourists from around the world.

But what does the future hold for these iconic areas?

Our coasts are affected by decisions from governments, communities, industries and individuals about urban and industrial development, recreation and tourism, marine protected areas, fishing zones, ports and dredging, and offshore oil and gas developments. Coastal ecosystems and human communities also face mounting pressure from population growth and climate change.

A major three-year research program – the Coastal Collaboration Cluster – will develop approaches to better connect science with the needs of governments, communities and industries in meeting these challenges.

Funded by CSIRO's Flagship Collaboration Fund, the cluster is led by Professor David Wood at Curtin University of Technology and involves Deakin University, Flinders University, the University of Adelaide, the University of the Sunshine Coast, the University of Tasmania, the University of Wollongong and CSIRO's Wealth from Oceans Flagship.

Using techniques such as Google Earth and custom-built animations, the CSIRO National Research Flagship Coastal Collaboration Cluster will focus on making scientific, community, Indigenous and managerial knowledge available to coastal policy-makers and planners.
In doing this the Cluster will:

- identify the social and institutional barriers that inhibit the uptake of science and other knowledge in the coastal zone
- develop understanding and tools to overcome these barriers and to help Australians sustain coastlines for future generations
- work to make approaches to coastal sustainability more sophisticated and collaborative.

The cluster's research will extend over southern Australia, from the south-west of Western Australia to South Australia, Victoria, Tasmania and south-east Queensland.

The official launch of the Coastal Collaboration Cluster was held at Cottesloe Surf Life Saving Club on Wednesday, 21 April 2010.

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***Join with Curtin as we make changes today for tomorrow***

## ASDI 2010 EVENTS CALENDAR—UPCOMING CONFIRMED EVENTS

**13 July**

**6pm—8pm**

'Australia's Nuclear Policy Options'

Tim Winton Lecture Theatre, Building 213, Curtin University of Technology, Kent Street, Bentley

Register: events@curtin.edu.au or 08 9266 2563 by Friday 9 July

**22 July**

'City to Cape: Sea-levels in 2100'

An ATSE/Engineers Australia/Curtin University seminar on coping with the likely impacts of sea-level changes on Australia's Southwest Coast – from Perth to Cape Naturaliste – by 2100.

Full program and registration details are available here:

www.engineersaustralia.org.au/wa/sea-level-rise-seminar

**23 July**

'Showcasing Sustainability Education in Western Australia'. Full day conference.

Full program and registration details are available here:

www.stawa.net/courses/view/18

**9 August (ASDI sponsored event)**

'Moving Cooler: Sustainable Transport Matters'

Roundtable being led by **Dr Lee Schipper from University of California, Berkeley**
Contact Dr Reena Tiwari, Senior Lecturer, Architecture and Urban Design—9266 4730

**11—14 October (Curtin sponsored event)**

Riversymposium

Full details can be found here: www.riversymposium.com/

Previous events and links to information pertaining to presentations can be found here:

http://www.asdi.org.au/news__events/events.cfm

## ASDI'S EXTERNAL BOARD

**Mr Keith Spence (Chair)**
Keith was most recently Executive Vice President Enterprise Capability for Woodside and was responsible for ensuring the business operated with the best people, technology and processes. He was also responsible for building a skilled and technologically advanced workforce through targeted recruiting and enhanced training and played a key role in representing Woodside's interests to the government and the public. In addition, he was responsible for Woodside's Western Australian gas supply interests.

**Mr Barry Carbon, FTSE, AM**
Mr Carbon's experience includes: Chief Executive of the Ministry for the Environment, New Zealand; Director General-Queensland Department of Environment and Heritage; Director General-Queensland Environment Protection Agency, including Parks and Wildlife; Executive Director, EPA, Commonwealth of Australia; The Supervising Scientist, Alligator Rivers Region; Chairman and Commonwealth Representative, National Environment Protection Council Committee and served on the Environment Protection Authority of Western Australia as Chairman from 1985 – 86 and as Chairman and Chief Executive from 1986-93.

**Mr John Akehurst**
Mr Akehurst joined Shell in 1976 and pursued a career in oil and gas exploration and production, working in the North Sea, Malaysia on the supply of gas to their first LNG development, New Zealand, Nigeria, London and Holland.

John moved to Perth in 1994 and was appointed CEO of Woodside in 1996. He was also a Director of Oil Search Limited. He is a Director of CSL Limited, Chairman of Alinta Limited and is a Director of Youth Focus, an organisation devoted to the prevention of youth suicide in Western Australia.

**Mr Malcolm James McCusker AO, QC, LLB**
Mr McCusker was born in Perth and was educated at Perth Modern School and the University of Western Australia. He was admitted to practice 1961 and has appeared as counsel in Supreme Court, Federal Court, High Court and Privy Council.

Mr McCusker was appointed Queen's Counsel in 1982 and he is the current Chairman of the Legal Aid Commission of WA, making him the Longest serving Legal Aid Commission Chairman in Australia).

**ASDI's internal Board Members are:** Professor Linda Kristjanson, Professor Andris Stelbovics and Professor Majella Franzmann

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