Selective annotated bibliography

HEDBIB

International Bibliographic Database on Higher Education

Higher Education and Sustainable Development

2010 - 2018

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Access	1221
Distance Learning	1318
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Government University Relationship	1191
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HEDBIB

International Bibliographic Database on Higher Education

http://hedbib.iau-aiu.net

COLLECTIONS	
Monographs	14479
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TOTAL	35440

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September 2018

Presentation

This Bibliography provides references of monographs, documents, reports and periodical articles on Higher Education and Sustainable Development. The first section of the Bibliography details Declarations on Sustainable Development by higher education networks and institutions, both internationally and regionally.

The second section of the Bibliography details a selection of publications (books, reports, periodical articles) from the last five years. It begins with "Global initiatives and global actions" which provides a thematic overview of higher education and sustainable development as well as specific university strategies for sustainable development from universities around the world. This is followed by publications which analyse specific sub-themes: Campus greening; Curriculum and Education for Sustainable Development (ESD), Partnerships for Sustainable Development; Research; Student engagement; Sustainability evaluation and reporting; and Teacher education.

The Bibliography is compiled from *HEDBIB*, the International Bibliographic Database on Higher Education (http://hedbib.iau-aiu.net). HEDBIB is managed by the International Association of Universities (IAU), with contributions from UNESCO Headquarters; UNESCO International Institute for Educational Planning (IIEP); UNESCO International Institute for Higher Education in Latin America (IESALC). In 2012, the following IAU Member organisations became contributing partners to HEDBIB : Agence universitaire de la Francophonie (AUF), Associació Catalana d'Universitats Públiques (ACUP), Higher Education South Africa (HESA), Southern African Regional Universities Association (SARUA), Union de Universidades de América Latina (UDUAL).

Hard copies of documents which have a classmark number are available within the IAU-UNESCO Information Centre on Higher Education. The majority of the periodical articles are from periodicals which are also available at the IAU. Where available, a link to the full text electronic document is included.

Please note that the IAU holds all back copies of the periodical *International Journal of Sustainability in Higher Education*. For a complete list of all articles in this publication please consult the HEDBIB database (http://hedbib.iau-aiu.net).

Please also note that all IAU Member institutions and organisations have access to Member Services in the HEDBIB database, including access to abstracts and to all full text articles from the IAU quarterly periodical *Higher Education Policy*.

For more information about HEDBIB, to receive your Member login details, to provide your feedback, or for specific information services, please contact Amanda Sudic, IAU Librarian / Documentalist (a.sudic@iau-aiu.net).

Summary

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Declarations

A selection of texts from the IAU Higher Development for Sustainable Development Portal
http://www.iau-hesd.net/en/ressources.html

A Statement on climate change and education / InterAcademy Partnership [IAP] . - Trieste, Italy : IAP, 2017 . - 4 p.

Abstract : This Statement on Climate Change and Education was released at the One Planet Summit which took place in December 2017 in Paris, France. The Statement lays out a series of recommendations on how effective climate change education can be promoted in schools and universities.
URL : http://www.academie-sciences.fr/pdf/rapport/IAP_111217_gb.pdf

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Aichi-Nagoya Declaration on Education for Sustainable Development / UNESCO. - World Conference on Education for Sustainable Development, Aichi-Nagoya, Japan, 10-12 November 2014. – Paris: UNESCO, 2014 . – 2 p.

Abstract: This Declaration adopted by the participants of the UNESCO World Conference on Education for Sustainable Development calls for urgent action to further strengthen and scale up Education for Sustainable Development (ESD).
URL : http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ERI/pdf/Aichi-Nagoya_Declaration_EN.pdf

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IAU Iquitos Statement on Higher Education for Sustainable Development / International Association of Universities. -Blending Higher Education and Traditional Knowledge for Sustainable Development, Iquitos, Peru, 19-21 March 2014. -
Paris: IAU, 2014.

Abstract : The Iquitos Statement was produced following the conclusions of the IAU 2014 International Conference and the input of the wider higher education community. It advocates for the recognition of the important role higher education can play in the post-2015 Agenda.
 URL : http://www.iau-hesd.net/sites/default/files/documents/iau_iquitos_statement_on_hesd_2014.pdf

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Charte biodiversite des etablissements d'enseignement superieur / Conférence des Grandes Ecoles [France]; Conference des Présidents d'Université [CPU][France] . – Paris : CGE, CPU, 2013 . - 2 p.

Abstract : This Charter on Biodiversity in higher education institutions has been produced in view of the creation of a French National Agency on Biodiversity in 2014.
URL : http://www.cpu.fr/wp-content/uploads/2013/09/130925-Charte-Biodiversite.pdf

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Bonn recommendations on Education for Sustainable Development beyond 2014 / German Commission for UNESCO . - International Education for Sustainable Development Workshop, Bonn, 27–28 February 2012 . - Bonn, Germany : German Commission for UNESCO, 2012 . - 4 p.

Abstract : The Bonn Recommendations on ESD beyond 2014 was developed during the Horizon 2015 Workshop organized by the German Commission for UNESCO. They offer 17 recommendations to continue the Education

for Sustainable Development (ESD) efforts after the end of the UN DESD in 2014.
URL : http://www.unesco.or.kr/upload/data_center/2012_Bonn_Recommendations_eng.pdf

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Commitment to sustainable practices of higher education institutions on the occasion of the United Nations Conference on Sustainable Development : Rio + 20 Declaration / Higher Education Sustainability Initiative . - HESI, 2012 . - 1 p.
Abstract : On the occasion of the UN Conference on Sustainable Development in 2012, the leaders of the international academic community were called upon to commit to the development of sustainable practices for Higher Education Institutions by signing this declaration.
URL : http://rio20.euromed-management.com

People's sustainability treaty on higher education / European Network on Higher Education for Sustainable Development [Copernicus Alliance] . - Copernicus Alliance, 2012. - 15 p.
Abstract : This Treaty, developed in 2012, emerged out of a need to rethink higher education and its role in a transition towards a more sustainable society. It provides an action plan which demonstrates the collective visions of representatives from twenty five higher education agencies, organisations, associations and student groups rooted in different parts of the world. The cross-cultural dialogue and development process underpinning this document has served to build collaborative links and ownership. It has paved the way for a new consolidated platform for cooperation beyond the Rio+20 event.
URL :
http://insight.glos.ac.uk/sustainability/Education/Documents/People%27s%20Sustainability%20Treaty%20on%20Higher%20Education%20-%20Final.pdf

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Declaración de las universidades del Perú por la educación para el desarrollo sostenible = Declaration of the Peruvian Universities on Education for Sustainable Development / Asamblea Nacional de Rectores [Peru] . - Lima : Asamblea Nacional de Rectores, 2012 . - 2 p.
Abstract : The rectors of the Peruvian universities, assembled in Lima on 16 March 2012, signed a Declaration on Education for Sustainable Development in which they agreed to make sure that each University had its Education Plan for Sustainable Development and would promote activities in this field. They also agreed to create networks in this domain.
URL : http://www.iau-hesd.net/sites/default/files/documents/compromisodelasuniversidades.pdf

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Declaración de las Américas "Por la sustentabilidad de y desde la universidad" / Inter-American Organization for Higher Education [OUI-IOHE] . – Loja, Ecuador : OUI-IOHE, 2011. - 6 p.
Abstract: This Declaration for Sustainability to and from the university is addressed to the Inter American university community.
URL : http://iau-hesd.net/sites/default/files/documents/declaracion.pdf

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Unica Green Academic Footprint Pledge / UNICA, Jorulf Brøvig Silde, Maryam Faghihimani. –In: Unica Green Academic Footprint, pp. 6-8 . - UNICA, 2010.
Abstract: This Pledge was adopted by UNICA, a network of 46 universities from 35 capital cities of Europe, at the UNICA Rectors' Seminar in Tallinn 2010.
URL: http://iau-hesd.net/sites/default/files/documents/parallel_meetings_green_academic_footprint_workshop_pre-ga_tallin_from_policy_to_strategy.pdf

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Universities for sustainable development : Declaration by the German Rectors' Conference and the German Commission for UNESCO on Higher Education for Sustainable Development /

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Hochschulrektorenkonferenz, German Commission for UNESCO . – Bonn : Hochschulrektorenkonferenz, German Commission for UNESCO, 2010 . – 8 p.

Abstract: This Declaration was adopted by the 7th General Meeting of the German Rectors' Conference on 24 November 2009 and by the Executive Committee of the German Commission for UNESCO on 22 January 2010.
URL: http://www.iau-hesd.net/sites/default/files/documents/universities_for_sustainable_development_german_natcom_unesco.pdf

Publications

■ Global initiatives and global actions

International

A decade of progress on Education for Sustainable Development : reflections from the UNESCO Chairs Programme / G. Michelsen and P. J. Wells , Editors / UNESCO . - Paris : UNESCO Publishing, 2017 . - 134 p.
Abstract : This focuses on the activities undertaken by UNESCO Chairs within the context of the UN Decade of ESD. The case studies are detailed in Mexico, France, Italy, Canada, Cameroon, the Netherlands, Germany, Uzbekistan, Greece, Spain, Armenia, and the Russian Federation. These detail good practices, applied research and curricula innovations pioneered by the individual UNESCO Chairs, as well as highlighting the challenges and lessons learned both for the new follow-up Global Action Programme (GAP) on ESD and the wider Education 2030 Agenda.
URL : http://unesdoc.unesco.org/images/0025/002523/252319e.pdf

Africa 2030 : How Africa can achieve the Sustainable Development Goals / Sustainable Development Goals Center for Africa [SDGC/A][Rwanda] . - Kigali : SDGC/A, 2017 . - 138 p.
ISSN 2077-5091
Abstract : This report looks at the performance of African countries on the achievement of the Millennium Development Goals. It examines the reasons that hindered their complete achievement, as well as recognising best practices to move forward in line with the 2030 Agenda for Sustainable Development.
URL : http://sdgcafrica.org/wp-content/uploads/2017/03/sdgca-africa-2030-report.pdf

Africa beyond 2030 : leveraging knowledge and innovation to secure Sustainable Development Goals / African Academy of Sciences [Kenya] . - Nairobi : African Academy of Sciences, 2018 . - 53 p.
Abstract : The report finds that progress regarding investment in research and development in the past decade has been mixed across the continent. It recommends that African countries improve the quality and relevance of their national STI policy frameworks to sharpen focus on social and environmental dimensions of sustainable development.
URL : http://otrasvoceseneducacion.org/wp-content/uploads/2018/03/africa-beyond-2030-1.pdf

Agenda setting in multilateral contexts : the example of the Decade of Education for Sustainable Development / Sugata Sumida . - **In:** Globalisation, Societies and Education, v. 15, no. 4, pp. 381-396, August 2017
ISSN 1476-7724 . - Online ISSN 1476-7732
Abstract : A number of papers have focused on UN policy formulation processes, but little is known about how particular issues come to policy-makers' attention in the first place. This very early stage of policy formulation, called agenda setting, remains under-researched and more so in multilateral contexts. Applying Kingdom's multiple streams model to the example of the Decade of Education for Sustainable Development (DESD), this study analyses the trajectory of the policy from being just an idea to the point of being placed on the UN agenda. This paper goes on to argue that there are three conditions that supported the successful trajectory of DESD: a funding-backed policy entrepreneur, policy oligopoly, and a highly predictable policy window. Its theoretical contribution is to fill the gap between current studies and theories by presenting an analysis of one policy in a multilateral context.

Action for climate empowerment : guidelines for accelerating solutions through education, training and public awareness / UNESCO; United Nations Framework Convention for Climate Change [UNFCCC] . - Paris, Bonn : UNESCO, 2016 . - 81 p.

ISBN 978-92-3100-182-6

Abstract : These guidelines provide a flexible, phased approach for policymakers to the strategic and systematic implementation of Action for Climate Empowerment activities (ACE) at the national level. Activities exemplifying ACE implementation are provided from more than 20 countries in all regions of the world.
URL : http://unesdoc.unesco.org/images/0024/002464/246435e.pdf

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Global Education Monitoring Report 2016 : Education for people and planet : creating sustainable futures for all / UNESCO . - Paris : UNESCO Publishing, 2016 . - 535 p.
Abstract : The GEM Report provides an evidence-based examination of the complex relationship between education and the 2030 Agenda for Sustainable Development, and particularly Sustainable Development Goal (SDG) 4. This report shows that education will not deliver its full potential unless participation rates increase dramatically and sustainable development guides education system reform. It also warns of the destructive impact that climate change, conflict, unsustainable consumption and the increasing gap between rich and poor have on education.
URL : http://unesdoc.unesco.org/images/0024/002457/245752e.pdf

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Issues and trends in education for sustainable development / Alexander Leicht, Julia Heiss, Won Jung Byun, Eds. / UNESCO . - Paris : UNESCO Publishing, 2018 . - 276 p. (Education on the move)
ISBN 978-92-3-100244-1
Abstract : This book examines the richness and complexity of Education for Sustainable Development (ESD) in the context of its centrality to the 2030 Agenda for Sustainable Development. The first part 'Understanding Education for Sustainable Development and Implementing Education for Sustainable Development' outlines how ESD should be understood as an integral part of quality education, including higher education and lifelong learning. It focuses on key sustainability competences in teaching and curriculum and emphasises a whole-institution approach to mainstreaming sustainability. The second part explores how ESD is implemented in practice and is structured around the five Priority Action Areas of the Global Action Programme on ESD (GAP): advancing policy; transforming learning and training environments; building capacities in teacher-training; empowering and mobilising youth; and accelerating sustainable solutions at local level. Throughout the book, summaries of case studies in implementing ESD are provided. These include Brazil's integration of climate change education in teacher training; a Southern African university partnership for introduction of ESD in curricula and institutional practices; and international universities' cooperation in the Regional Centre of Expertise in Egypt.
Classmark : INT-713 UNE
URL : http://unesdoc.unesco.org/images/0026/002614/261445e.pdf

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Responsible living : concepts, education and future perspectives / Robert J. Didham, Declan Doyle, Jørgen Klein, Victoria W. Thoresen . - Heidelberg, New York, Dordecht, London : Springer International Publishing, 2015 . - 283 p.
ISBN 978-3-319-15305-6
Abstract : Focusing on the challenges of the transition to responsible, sustainable lifestyles, this book examines developments over the last decade, and specifically in the context of global development agendas: Education for Sustainable Development (ESD); Education for All (EFA) and the forthcoming Sustainable Development Goals (SDGs). Contributors focus on the creation and implementation of relevant teaching methods and materials and examples of ESD projects with teacher education in Southern Africa and Southern Asia; the development of responsible interdisciplinary 'Living Curricula'; policies on education for sustainable consumption and lifestyles; and global processes for education on sustainable development. The book also looks at the roles that central actors such as PERL (The Partnership for Education and Research about Responsible Living) play in this process.
Classmark : INT-71 THO

Post-sustainability and environmental education : remaking education for the future / Bob Jickling, Stephen Stirling, Eds. - Cham, Switzerland : Palgrave Macmillan, 2017 . - 155 p.
ISBN 978-3-319-51321-8

Abstract : This book provides a critique of over two decades of effort to infuse educational systems with education for sustainable development. It reviews the basis of environmental education, its evolution into Education for Sustainable Development and examines the future directions for education The book is structured around four parts, which critique the neo-liberal approach to education and look at alternatives that are argued to be more appropriate to sustainability goals: they are: 'Remaking Education'; 'Critique and Proposition'; Experience and Relation; and 'Education Through Action'. Each chapter promotes educational approaches that are focused on environmental and social values. The authors strongly argue for the need to change, and that a paradigm shift is required at large to run parallel with this repositioned education.

Progress and potential : higher education playing its part in the Sustainable Development Goals / Association of Commonwealth Universities [ACU] . - London : ACU, 2015 . - 8 p.
Abstract : This report is published in the framework of ACU's campaign *The world beyond 2015, is higher education ready?*
URL : https://beyond2015.acu.ac.uk/about/final-reports

Rethinking education : towards a global common good? = **Repenser l'Éducation : Vers un bien commun mondial ?** = **Replantear la educación: ¿Hacia un bien común mundial?** / UNESCO . - Paris : UNESCO Publishing, 2015 . - 84 p.
ISBN 978-92-3-100088-1
Abstract : This book is intended as a call for dialogue. It is inspired by a humanistic vision of education and development, based on respect for life and human dignity, equal rights, social justice, cultural diversity, international solidarity and shared responsibility for a sustainable future. It proposes that we consider education and knowledge as global common goods, in order to reconcile the purpose and organisation of education as a collective societal endeavour in a complex world.
URL : http://unesdoc.unesco.org/images/0023/002325/232555e.pdf (English)
http://unesdoc.unesco.org/images/0023/002326/232696f.pdf (French)
http://unesdoc.unesco.org/images/0023/002326/232697s.pdf (Spanish)
http://unesdoc.unesco.org/images/0023/002325/232555r.pdf (Russian)
http://unesdoc.unesco.org/images/0023/002325/232555c.pdf (Chinese)
http://www.unescocat.org/fitxer/3683/Repensar (Catalan)

Sustainable development goals : actors and implementation / Global University Network for Innovation [GUNI] . - Barcelona : GUNI, 2018 . - 68 p.
Abstract : This publication constitutes a report of the eponymous International Conference, which took place in Barcelona, Spain on 18, and 19 September 2017 which was organised by GUNI and the Catalan Association of Public Universities (ACUP). The report includes several approaches to the SDGs, from different perspectives, and geographical areas and reviews the main discussions and ideas that emerged during the Conference. Themes covered include quadruple helix: needed collaboration between all actors for implementing SDGs; the different levels of governing and implementing SDGs: global, national and local; smart and sustainable cities and metropolis: where 2/3 of the world's population live; developing countries and SDGs. Can SDGs be implemented? SDGs and social engagement; the intersection between humanities, science, technology and SDGs; responsible research and Innovation and research ethics; educating citizens in skills and competences related with SDGs. Which education institutions for which societies?
Classmark : INT-71 GUNI
URL : http://www.guninetwork.org/files/guni_sdgs_report.pdf

Sustainable development in action : Special report on voluntary multi-stakeholder partnerships and commitments for sustainable development / United Nations. Department of Economic and Social Affairs . - New York : United Nations, 2015 . - 28 p.

Abstract : This report reviews progress and knowledge sharing of a number of action networks and multi-stakeholder partnerships and voluntary commitments to sustainable development, including the higher education sustainability initiative.
URL :
https://sustainabledevelopment.un.org/content/documents/1855SD%20in%20Action%20Report%202015.pdf

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World Education Forum 2015: Final report / UNESCO . - World Education Forum, Incheon, Korea, 19-22 May 2015 . - Paris : UNESCO, 74 p. . - 74 p.

Abstract : This report is based on the proceedings of the World Education Forum held at Incheon, Republic of Korea, in May 2015. It reframes the global education agenda within the Sustainable Development Goals (SDGs) for 2030. This new agenda is outlined in the Incheon Declaration 'Education 2030: Towards inclusive and equitable quality education and lifelong learning for all' which was adopted at the conference and which is included in the appendix.
Classmark : INT 711.2 UNE
URL : http://unesdoc.unesco.org/images/0024/002437/243724e.pdf

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Shaping the Future We Want: UN Decade of Education for Sustainable Development (2005-2014) : final report / UNESCO . – Paris: UNESCO, 2014. – 201 p.
ISBN 978-92-3-100053-9

Abstract : This report focuses on the outcomes of 10 years of work around the world to advance education as a critical tool for moving societies towards sustainability. It also provides insights on the impact of the call for a UN Decade of Education for Sustainable Development (DESD) on all levels and areas of education, including higher education.
Detailing activities in different regions and countries, the report notes that there has been considerable progress in higher education for sustainable development during the DESD.
URL : http://www.iau-hesd.net/sites/default/files/documents/shaping_the_future_we_want.pdf

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UNESCO Roadmap for implementing the Global Action Programme on Education for Sustainable Development / Paris : UNESCO Publishing, OECD Publishing, 2014 . - 38 p.
The Global Action Programme on Education for Sustainable Development was endorsed by the UNESCO General Conference in 2013. It comes at a time when the international community is charged with proposing a new set of sustainable development goals that are action-oriented, global in nature and universally applicable. As a follow-up to the UN Decade of Education for Sustainable Development, the Global Action Programme is also designed as a concrete, tangible contribution to the post-2015 development and education agendas. The Roadmap explains the Programme's goal, objectives and priority action areas in order to enable strategic focus and stakeholder commitment, together with implementation and monitoring strategies
URL: http://unesdoc.unesco.org/images/0023/002305/230514e.pdf

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Towards the sustainable university : progress and prospects / Stephen Stirling, Larch Maxey, Heather Luna, Eds . – Abingdon, New York : Routledge, 2013 ; 323 p. (Routledge Studies in Sustainable Development)
ISBN 978-0-415-62774-0

Abstract : This book springs from the recognition that the world that today's graduates are entering is already – and will increasingly – very different from that inherited by previous generations. Whilst there is a growing response in higher education to the sustainability agenda, particularly in campus management and revision of selected courses and curricula, the contributors argue that an integrative whole institutional response is called for, which embraces all areas including governance and leadership, leaning and teaching, campus operations, research, community wellbeing, student experience and organisation learning and change. Written by leading

exponents of sustainability and sustainability education, this book brings together examples, insight, reflection and strategies from the contributing universities, drawing on a wealth of experience to provide reflective critical analysis of barriers, achievements, strategies and potential. While it is based on UK experience, it will be relevant to universities in other countries that are seeking to respond to the rising agenda of sustainability since many of the issues are common across higher education systems.

World social science report : changing global environments = Rapport mondial sur les sciences sociales : changements environnementaux globaux; Informe mundial sobre ciencias sociales : cambios ambientales globales / International Social Science Council [ISSC]; UNESCO . - Paris : UNESCO Publishing, OECD Publishing, 2013 . - 609 p.
ISBN 978-92-3-104254-6 (UNESCO); 978-92-64-203340-2 (OECD) . - Online ISBN 978-92-3-104254-6 (UNESCO); 978-92-64-20341-9 (OECD)
Abstract : Produced by the International Social Science Council (ISSC) and UNESCO, and jointly published by the OECD, the 2013 edition of the World Social Science Report focuses on the transformative role of the social sciences in confronting climate and broader processes of environmental change, and in addressing priority problems from energy and water, biodiversity and land use, to urbanisation, migration and education. The report includes 100 articles written by 150 authors from 41 countries all over the world. Authors represent some 24 disciplines, mainly in the social sciences. The contributions highlight the central importance of social science knowledge for environmental change research, as a means of understanding changing environments in terms of social processes and as framework for finding concrete solutions towards sustainability.
Classmark : INT-141 UNE
URL : http://unesdoc.unesco.org/images/0022/002233/223388e.pdf (English summary);
http://unesdoc.unesco.org/images/0022/002233/223388f.pdf (French summary);
http://unesdoc.unesco.org/images/0022/002233/223388s.pdf (Spanish summary)

Higher Education in the World 4: Higher education's commitment to sustainability : from understanding to action / Global University Network for Innovation [GUNI] . - Basingstoke : Palgrave Macmillan, 2012 . - 341 p. (GUNI Series on the Social Commitment of Universities)
Bibl. - ISBN 978-0-230-53555-8
Abstract : This book explores higher education's commitment to sustainability. It includes papers by 86 authors from 36 countries. The first part of the book presents the context of the role higher education can play in sustainability and provides an overview of the movements and milestones to date. The second part of the book, 'Regional perspectives: what has been achieved at this stage' illustrates how Africa, the Arab States, Asia and the Pacific, Europe, Latin America and the Carribbean, and the USA and Canada have introduced sustainability in higher education and explores issues of leadership, management research, curriculum, networks and community engagement. These regional reports are complimented with national analyses and case studies of good practices within and between institutions. Part III identifies the barriers that prevent HEIs from finding responses to challenges posed by sustainability. It presents the findings from a GUNI research study and proposes solutions to overcoming these barriers. In the fourth section of the book 'Visions for transformation' the authors propose innovative ideas and sustainability paradigms.
Classmark : INT-71 GUNI

Shaping the education of tomorrow : 2012 full length report on the UN Decade of Education for Sustainable Development / Arjen E. J. Wals / UNESCO . - Paris : UNESCO, 2012 . - 102 p.
Incl. bibl.
Abstract : This report represents the second review of the UN Decade of Education for Sustainable Development and is conducted in the context of its Global Monitoring and Evaluation Framework (GMEF). The report shows that many governments, NGOs, UN agencies and indeed, companies are increasingly emphasising the importance of learning and capacity-building as they search for solutions to sustainability challenges including climate change, disaster risk management, biodiversity loss and sustainable production and consumption. At the level of higher education, this review shows that colleges and universities around the world are beginning to make

more systemic changes towards sustainability amidst educational reforms towards efficiency, accountability, privatisation, management and control that often hamper their possibilities to do so. Alternative benchmarking and ranking systems now being established for universities include indicators of a university's contributions to sustainability.

URL : http://unesdoc.unesco.org/images/0021/002164/216472e.pdf

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In Focus: The contribution of higher education to sustainable development = Dossier thématique : la contribution de l'enseignement supérieur au développment durable / International Association of Universities [IAU] . - **In:** IAU Horizons / AIU Horizons, v. 18, no. 2, pp. 14-38, June 2012

Abstract : Recently the attention has shifted from sustainable development to ESD (Education for sustainable development) as universities see the criticality of embedding sustainability into its core business - education. This issue of IAU Horizons includes 26 articles presenting a rich set of briefs, explaining the diversity of actions undertaken around the world in the fields of policy advocacy, leadership and management, education and curriculum reform, research, outreach, campus greening, student initiatives and assessment tools. It also includes a paper on the People's Sustainability Treaty on Higher Education.

URL : http://www.iau-aiu.net/sites/all/files/IAU%20Horizons%20Vol%20%2018%20N%202%20EN%20%28Internet%29.pdf (English); http://www.iau-aiu.net/sites/all/files/AIU_Horizons_Vol18n2_FR_Web.pdf (French)

The midway point of the UN Decade of Education for Sustainable Development : Where do we stand? [special issue] / De Hann, I Bormann, A Leicht, Eds. / UNESCO Institute for Lifelong Learning . - **In:** International Review of Education, v. 56, no. 2-3, pp. 199-372, 2010

Abstract : This collection of papers on education and sustainable development covers all areas of education and education levels including higher, adult or vocational education — and in formal, non-formal or informal learning settings. Contents include: current research and practice in ESD; education for sustainable development and retention: unravelling a research agenda; synergies and potential conflicts; economic dimensions of sustainable development, the fight against poverty and educational responses; implementing the UN Decade of Education for Sustainable Development: achievements, open questions and strategies for the way forward; ESD and lifelong learning; mainstreaming environment and sustainability; an ESD initiative in the Arab world; the development of ESD-related competencies in institutional frameworks; UNEP's work to implement good practice at a regional level: contribution to UNDESD.

About the role of universities and their contribution to sustainable development / Walter Leal Filho / International Association of Universities [IAU] . - **In:** Higher Education Policy, v. 24, no. 4, pp. 427-438, December 2011

Abstract : The debate on sustainable development is not new and the search for new approaches, methods and means to further the case of sustainability in a higher education context is needed today more than ever. This paper reviews the status of sustainable development at universities and presents issues which need to be considered in ensuring sustainable development is integrated in higher education institutions in a systematic way.

■ Sustainability in action: university strategies

International

Higher education institutions : a strategy towards sustainability / Fabricio Casarejos, Mauricio Nogueira Frota, Laura Morten Gustavson . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 7, 2017

Abstract : This paper aims is to guide higher education institutions (HEIs) in accomplishing sustainability goals while strengthening their associated systems and processes. It proposes a conceptual framework for modeling the HEI organisational environment; a set of strategic sustainability actions to drive movements toward sustainability; and an assessment scheme incorporating four indices to measure the degree of commitment, parity, difficulty and institutional performance throughout the implementation process of the actions proposed. Development of the work included a literature review focused on internationally established concepts, recommendations and guidelines aimed at driving HEIs to fully acknowledge the principles of sustainable development, a study of the state-of-the-art evaluation frameworks for sustainability and an analysis of scientific studies on sustainability in HEIs and society. The overall approach proposed proved to be robust, as it synthesizes global concepts, recommendations and guidelines endorsed by key international organizations and researchers thoroughly discussed in worldwide publications related to sustainability. Moreover, the conceptual framework for modeling the HEI organizational environment, the strategic sustainability actions formulated and the assessment scheme are confirmed to be a practical and realistic strategy for assisting HEIs to effectively achieve their sustainability targets and goals.

Sustainable development policies as indicators and pre-conditions for sustainability efforts at universities : fact or fiction? / Walter Leal Filho, Luciana Londero Brandli, Deisi Becker, et al . - **In:** International Journal of Sustainability in Higher Education, no. 19, no. 1, pp. 85-113, 2017

Abstract : This article details the results of a survey of 35 universities in seven countries - Brazil, Germany, Greece, Portugal, South Africa and the UK and the USA - to ascertain the extent to which universities that are active in the field of sustainable development have formal policies on sustainable development, and whether such policies are a pre-condition for successful sustainability efforts. A mixed-methods approach was used, including document analysis, website analysis, questionnaires and interviews. Although only 60 per cent of the sampled universities had a policy that specifically addressed SD, this cannot be regarded as an indicator that the remaining 40 per cent are not engaged with substantial actions that address SD. Indeed, all of the universities in the sample, regardless of the existence of a SD formal policy, demonstrated engagement with environmental sustainability policies or procedures in some form or another.

The role of distributed leadership in mainstreaming environmental sustainability in to campus life in an Israeli teaching college : a case study / Ilana Avissar, Iris Alkaher, Dafna Gan . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 3, pp. 518 - 546, 2018

Abstract : Based on the Multi-Level Model of Leadership Practice in higher education, taken from Bolden et al. (2008) and from Woods et al. (2004), the authors investigated how the characteristics of distributed leadership are expressed in three central organization-wide structures in the college (a student group, the green council and a professional development programme). They also explored in what ways aspects of distributed leadership promote sustainability-oriented activities on campus. They used a deductive and inductive interpretive approach in this case study. The authors found three organization-level processes that are based on the principles of distributed leadership and that promote sustainability on campus: distributed leadership enables change in the organization's internal culture with respect to mainstreaming sustainability; distributed leadership encourages collaboration between the entire campus population and between different departments and distributed leadership on campus enables the development of diverse "bottom-up" and "top-down" structures in the organization.

Climate change action for sustainable development / Higher Education Sustainability Initiative . – New York : United Nations. Division for Sustainable Development, 2015 - 42 p.

Abstract : This paper was presented on the occasion of the "From Rio to Paris: Higher Education for Climate Change Action" event, held on 14 October 2015 at UNESCO headquarters. Meant as a contribution to the 21st Session of the Conference of the Parties to the UNFCCC (COP21), to be held in Paris, France, in December 2015, it puts forward 47 submissions presenting concrete examples of initiatives taken by institutions against climate change in terms of teaching, research, outreach, or greening their campuses. Also featured is an open letter urging Ministers and Governments to acknowledge and strengthen the research and education role that universities and colleges play in addressing climate change.
URL : https://sustainabledevelopment.un.org/content/documents/2121HESI%20-%20Climate%20Change%20Action%20for%20SD%20final.pdf

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Integrative approaches to sustainable development at university level : making the links / Walter Leal Filho, Luciana Brandli, Olga Kuznetsova, Arminda Maria Finisterra do Paço, Eds. . - Springer, 2015 . - XII, 731 p.
ISBN 978-3-319-38507-5 . - Online ISBN 978-3-319-10690-8

Abstract : This book highlights not only the challenges of integrating sustainable development into higher education, but also the many creative and innovative entry points that students, researchers and university staff find to collaboratively address it. Built largely on descriptions and analyses of practical experiences from Europe, North America, Brazil, South Africa and Australia, it showcases a variety of techniques and environments that encourage learning, as well as how these relate to the backgrounds, needs and capacities of different stakeholders. The book is divided into two parts, one of which looks at the different ways integration can be approached. The second part focuses on convergent approaches with a wide range of good practice examples of curricula, organizational changes and training and green campus initiatives.

Participatory processes in sustainable universities : what to assess? / Antje Disterheft, Ulisses M Azeiteiro, Walter Leal Filho, Sandra Caeiro . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 5, pp. 748-771, 2015
ISSN 1467-6370

Abstract : This qualitative study of participants from 17 countries is part of an ongoing research project that aims to investigate participatory processes in university sustainable development initiatives. Interviews and focus groups were conducted with persons engaged in sustainability implementation in higher education institutions including lecturers, coordinators and students. The findings suggest that participatory processes can be better assessed from a social learning and organisational learning perspective, emphasising non-linear criteria for the quality of the process in terms of depth and meaningfulness as well as criteria for the quality of the outcome in terms of knowledge generation and innovation. The findings underline the high impact of institutional governance if a culture of participation towards sustainability is to be pursued.

Sustentabilidad y universidad : etos, ritos y posibles rutas = Sustainability and the university : challenges, rites and possible routes / Edgar J. González Gaudiano, Pablo Á. Meira-Cartea, Cynthia N. Martínez-Fernández / Asociación Nacional de Universidades e Instituciones de Educación Superior [ANUIES] . - **In:** Revista de la Educación Superior, v. XLIV (3), no. 175, julio-septiembre 2015
ISSN 0185-2760

Abstract : This article reports the challenges facing the integration of sustainability in universities in Latin America, Spain and Portugal. The authors discuss regional sustainability, societal and political challenges, and global market pressures. The focus is placed on higher education institutions' declarations and plans on sustainability, which the authors found tend to remain at a purely formal level. The authors apply the glass ceiling metaphor – adopted from gender studies - to represent the barrier towards substantive and structural changes. They emphasise that universities do not seem to be able to address many challenges, in particular in the integration of sustainability into institutional structure, operations and substantive functions.

El artículo reporta las dificultades que enfrenta el proceso de inserción de la sustentabilidad en las universidades

iberoamericanas. Se recupera la discusión conceptual sobre la sustentabilidad en la región, así como los desafíos derivados de las demandas de la sociedad, del Estado y las presiones del mercado global. El punto focal está puesto en la manera en que suelen ejecutarse los pronunciamientos de las instituciones de educación superior (IES). Las principales dificultades están caracterizadas por un conjunto de declaraciones y de planes que quedan en un plano meramente formal. Asimismo, aplicamos la metáfora del "techo de cristal" -adoptada en los estudios de género- para representar la barrera que impide hacer cambios sustantivos y estructurales.
URL : http://publicaciones.anuies.mx/pdfs/revista/Revista175_S3A3ES.pdf (Spanish)

The path to fossil fuel divestment for universities : climate responsible investment / Cutler J. Cleveland, Richard Reibstein . - Boston : Boston University, 2015 . - 60 p.
Abstract : This paper presents the case for divestment by universities from fossil fuels. The authors argue that in addition to the ethical imperative of sustainability, universities holding assets in fossil fuel companies, and in companies that are fossil fuel-intensive, poses significant risks.
URL : http://energyincontext.com/wp-content/uploads/2015/02/University-Divestment-Fossil-Fuels-Cleveland_Reibstein_02_13_15.pdf

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The sustainable university : progress and prospects / Stephen Sterling, Larch Maxey, Heather Luna, Eds. . - Abingdon : Routledge, 2013 . - 334 p. (Routledge Studies in Sustainable Development)
ISBN 978-11-3880-1516
Abstract : This book brings together examples, reflection and strategies from the experience of ten universities, widely recognised as leaders in developing sustainability in higher education. The authors provide reflective critical analysis of barriers, achievements, strategies and potential. It critically reviews the theory and practice involved in developing the sustainable university in a systemic and whole institutional manner, including the role of organisational learning and maps out new directions and lines of research.

Intergenerational learning and transformative leadership for sustainable leadership / Peter Blaze Corcoran, Brandon P. Hollingshead, Eds. . - Wageningen : Wageningen Academic Publisher, 2014 . - 431 p.
ISBN 978-90-8686-252-8 . - Online ISBN 978-90-8686-802-5
Abstract : This book explores the challenges of future learning models beyond the UN Decade for Sustainable Development. Specifically focusing on intergenerational learning and leadership, authors from 26 countries in six continents describe ESD initiatives in often under-represented regions of the world. Part one outlines key principles and the conceptual foundation of education for sustainable development, intergenerational learning, and leadership. Part two, Perspectives, includes contributions from applied research and policy analysis. Examples include a research programme on intergenerational learning in Aboriginal Australia; implementation of university policy to promote sustainability in a Malaysian university; and developing a teacher education curriculum at a South African university to include local ecological knowledge. Part three features the work of several university centres in environmental education and sustainable development in contrasting parts of the world: China, Pacific Island countries, United States, Malaysia, Kenya and Japan. Intergenerational learning activities of several regional and international networks and partnerships for education and sustainability are detailed in further chapters. These include the Earth Charter Movement; UNEP's Global University Partnership; and UNESCO networks in Asia-Pacific.
Classmark : INT-73 COR

Green guide for universities / International Alliance of Research Universities [IARU]; Sustainia . - Zurich, Copenhagen : IARU, Sustainia, 2014 . - 143 p.
Online ISBN 978-87-93038-21-9
Abstract : Jointly developed by the ten IARU universities and the international think-tank Sustainia, this report presents key issues, recommendations and lessons learned when addressing campus sustainability, with a particular focus on environmental aspects. The guide includes 23 cases that have made a difference at the IARU universities.

Regenerative sustainable development of universities and cities : the Role of Living Laboratories / Ariane König, Ed. . - Cheltenham, Northampton, Mass : Edward Elgar, 2014 . - xxii, 321 p.
ISBN 978-1-78100-363-3

Abstract : This book brings together diverse examples of how universities from around the world are establishing "living laboratories" for sustainable development. Living laboratories, it is argued, have the potential to integrate research, curricula, pedagogical method and community engagement. Part one of the book presents seven case studies of universities developing the campus as a site of knowledge production and sustainability initiatives across disciplinary boundaries. The role of these initiatives in institutional culture change as a starting point for mainstreaming sustainable goals and strategy within the university are detailed. Part two of the book presents case studies in which universities are engaging in joint knowledge production, research and sustainable transformation beyond the campus, in the community, within the city or region. The case studies are from mainly urban universities in Canada, Japan, Sweden, Australia, Hong Kong, Luxembourg, United States, Denmark and Croatia.
Classmark : INT-73 KON

A comparative study of education for sustainable development in one British university and one Chinese university . - **In:** International Journal of Sustainability in Higher Education, v. 15, no. 1, pp. 48-62, 2014
ISSN 1467-6370

Abstract : This paper compares two different approaches to how education for sustainable development (ESD) initiatives are delivered in a University in the UK and in a university in China. Semi-structured interviews were conducted among samples of staff and students in both universities. In the British university, many students were engaged through linking extra-curriculum activities back to the curriculum and opportunities for students to take part in campus operations were offered. Second, a project-oriented approach was employed to enhance interdisciplinary cooperation. The main learning points found in the Chinese university are: pedagogic changes are required to realize a transformative education and additions of more active learning into the curriculum are needed. Third, policy support is necessary to promote the ESD agenda but significant changes will happen only when the top-down approach mixes with a bottom-up approach. The authors conclude that both initiatives comprise students' learning and living experiences in a microcosm of a pilot sustainable community through inter-disciplinary approaches. They suggest that the UK practices can be useful as a model for developed countries and the university of China as a model for developing countries

Integrating environmental sustainability into universities / Meredith Ralph, Wendy Stubbs . - **In:** Higher Education, v. 67, no. 1, pp. 71-90, January 2014
ISSN 0018-1560 . - Online ISSN 1573-174X

Abstract : This research explored the factors that influence the integration of sustainability into the operations, teaching and research activities of universities in Australia and England. The research, using semi-structured interviews, found that individuals, committed to the goal of a more sustainable world, play a vital role in the success of integrating environmental sustainability into universities. The factors critical to enabling universities to undertake the transformational changes necessary to embed environmental sustainability into all university areas included: a strong policy environment, resourcing of strategies, and encouragement of leaders and environmental sustainability advocates. Educating and building the awareness of university staff of the importance of environmental sustainability to future generations was key to a successful strategy.

Quest for a sustainable university : a review / Luís P. Amaral , Nelson Martins, Joaquim B. Gouveia . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 2, pp. 155-172, 2015
ISSN 1467-6370

Abstract : The paper provides a detailed review of the methods used to pursue the concept of a "sustainable university".

A literature and web review was conducted of sustainability implementation methods and assessment and report tools. The results found that due to flaws in traditional sustainability environmental sustainability initiatives, more recent tools have been developed to help manage sustainability. Two university sustainability management systems are outlined on this paper. They both emphasise the use of resources, especially energy, on campus buildings; the social responsibility of the institution; and educational and research sustainability activities.

Global sustainability and the responsibilities of universities / Luc E. Weber, James J. Duderstadt, Eds. . - Glion Colloquium, 8th, Glion-above-Montreux, Switzerland, June 2011 . - London; Paris; Geneva : Economica, 2012 . - 283 p. (Glion Colloquium Series, no. 7)
ISBN 978-2-7178-6113-6
Abstract : Drawn from the 7th Glion Colloquium, held in June 2011, this volume gathers contributions from university leaders around the world who discuss how research universities are adapting to the imperatives of global sustainability and how universities can develop new curricula, student experiences, research paradigms, social engagement and international alliances to better address the challenge of global sustainability, while producing globally identified citizens. Contents: Part I Elements of global sustainability. Contributions include analyses of governance; the role of university-based research institutes; how research universities can contribute to fostering sustainable societies in developing countries; university teaching and learning; and STEM education.
Classmark : INT-6 WEB

Sustainability education : perspectives and practice across higher education / Paula Jones, David Selby, Stephen Sterling . - London, Washington D.C.: Earthscan, 2010 . – 364 p.
ISBN 978-1-84407-878-3
Abstract : How can universities make a major contribution towards a more sustainable future? Amid rising expectations from professional associations, funders, policy makers, and undergraduates, and increasing interest amongst academics and senior management, a growing number of higher education institutions are taking the lead in embracing sustainability. This response does not only include greening the campus but also transforming curricula and teaching and learning. Bringing together the experience of the HEFCE funded Centre for Sustainable Futures (CSF) at the University of Plymouth and the Higher Education Academy's Education for Sustainable Development Project, the book examines the curriculum contributions of a wide range of disciplinary areas to sustainability. The first part of the book provides background on the current status of sustainability within higher education, including chapters discussing interdisciplinarity, international perspectives and pedagogy. The second part features 13 chapter case studies from teachers and lecturers in diverse disciplines, describing what has worked, how and why - and what hasn't. Whilst the book is organised by traditional disciplines, the authors emphasise transferable lessons and interdisciplinarity. Subject areas covered include: geography, environmental and Earth Sciences, nursing/health, law, dance, drama, music, engineering, media and cultural studies, art and design, theology, social work, economics, languages, education, business and built environment
Classmark : INT-73 JON

Africa

Promoting sustainable development implementation in higher education : universities in South Africa / Bankole Awuzie, Fidelis Emuze . - In: International Journal of Sustainability in Higher Education, v. 18, no. 7, pp. 1176 - 1190, 2017
ISSN 1467-6370
Abstract : This study aims to review the zeal exhibited by universities in South Africa towards aligning institutional mandates of teaching, learning, research and community engagement to the sustainable development (SD) agenda. The implementation of the SD agenda across higher education institutions (HEIs) continues to draw attention from the wider society. This is because HEIs are increasingly being looked up to for leadership in this regard. However, although several studies are quick to identify various factors which have driven the adoption of sustainable practices in HEIs, the paucity of studies seeking to identify the drivers for SD implementation remains glaring. This is particularly so in developing countries like South Africa. To confirm the exploratory data from desktop study on public university engagement with sustainability in South Africa, a single case study was

conducted in the Central University of Technology (CUT). The single case study design adopted semi-structured interviews and document reviews as data collection techniques. Purposive snowballing sampling technique was strictly adhered to in the selection of interviewees. Interviewees were selected on the basis of their roles in the implementation of the CUT's sustainability agenda. Data from these interviews were analysed thematically using qualitative content analysis. Although a plethora of drivers were identified, there appeared to be a consensus between most of the interviewees that the quest for cost reduction remained the most significant driver for the viable implementation of the sustainability agenda at CUT.

RECP study on higher education for renewable energy in Africa / Africa-EU Renewable Energy Cooperation Programme [RECP] . - Eschborn, Germany : EU Energy Initiative Partnership Dialogue Facility (EUEI PDF), 2015 . - 37 p.
Abstract : This report is targeted at African and European academic institutions planning to engage in the renewable energy sector. It focuses on Master level education in sub-Saharan Africa, delivering an overview on energy supply and renewable energy, identifying challenges and needs faced by the higher education sector, providing recommendations and entry points for support activities as well as developing a conceptual framework for future interventions.
URL : http://euei-pdf.org/sites/default/files/files/field_pblctn_file/RECP_Higher%20Education%20for%20Renewable%20Energy_Apr2014_EN.pdf

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Climate change adaptation and higher education : Securing our future / Pius Zebhe Yanda, Bruce C. Hewitson, Steve Makungwa, Dominic Mazvimavi, Heila Lotz-Sisitka, Coleen Vogel / Southern African Regional Universities Association [SARUA] . - Johannesburg : SARUA, 2010 . - 137 p. (SARUA Leadership Dialogue Series, v. 2, no. 4)
ISBN 978-0-9869903-1-1
Abstract : SARUA, in partnership with the University of Mauritius, hosted a Southern African Higher Education Leadership Programme to review the present contribution of higher education in southern Africa and to explore opportunities for scaling up existing initiatives so that it can make a meaningful impact on the way the region responds to climate change, adaptation and sustainability. This publication is a result of that meeting.
URL :
http://www.sarua.org/files/publications/SARUA%20leadership%20Dialogue%20Series/Leadership%20Dialogue%20Series_Vol%202%20No%204.pdf

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Education for sustainable development in Nigeria: bridging reform gaps and strengthening university development linkage / Joel Babalola, Morayo Atinmo / National University of Educational Planning and Administration [NUEPA][India] . - **In:** Journal of Educational Planning and Administration, v. 24, no. 1, pp. 53-69, 2010
Incl. bibl., abstract . - ISSN 0971-3859

The promotion of sustainable development by higher education institutions in Sub-Saharan Africa : survey report / Global University Network for Innovation [GUNI]; International Association of Universities [IAU]; Association of African Universities [AAU] . - GUNI, IAU, AAU, 2011. - 101 p.
Abstract : Academic institutions vary considerably in how they approach sustainability: some concentrate on minimizing their ecological impact through changes in campus operations; others emphasize sustainability in the curriculum; yet others concentrate on university outreach and/or embed sustainable development principles in their overall development strategy. This report presents the findings of a survey conducted with African higher education institutions in Sub-Saharan Africa. The questionnaire focused on the following areas: Institutional Governance, Curriculum: Teaching and Learning; Research, Campus Operations, and Outreach and Services. From the responses obtained from 73 higher education institutions, information on the institutions; accomplishments in achieving sustainability in each of these five critical dimensions was compiled.
URL : http://www.iau-aiu.net/sites/all/files/promotion_sd_by_HEIs_sub_saharan_africa_0.pdf

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UNEP's work to implement good practice at a regional level: contribution to the UNDESD / Akpezi Ogbuigwe / UNESCO Institute for Lifelong Learning . - **In:** International Review of Education, v. 56, no. 2-3, pp. 353-372, 2010

Abstract : This paper outlines the contribution made by the United Nations Environment Programme (UNEP) towards enhancing the integration of sustainable development concerns in Africa through its initiative, the Mainstreaming Environment and Sustainability in Africa (MESA) Universities Partnership, during the United Nations Decade of Education for Sustainable Development (UNDESD). The paper underscores Africa's wealth and diversity of natural resources while illuminating sustainable development challenges facing the region in order to highlight the need for African universities to respond appropriately. It furthermore outlines the role of education in sustainable development and attempts to contextualise higher education in Africa by exploring universities (historical and current) role with regard to ESD. The paper goes on to describe the MESA partnership and list the programme's key milestones by outlining ESD innovations in African universities, as well as by examining ESD in terms of its global impact and influence on policy to date.

Asia and the Pacific

The role of university partnerships in urban sustainability experiments : evidence from Asia / Gregory Trencher, Xuemei Bai . - **In:** Handbook on sustainability transition and sustainable peace . - a : Springer, 2016 . - pp 631-653 (Hexagon Series on Human and Environmental Security and Peace , 10)

Abstract : This chapter examines the role of university partnerships in knowledge co-production and implementation of urban sustainability experiments in Asia by examining fifteen case studies from Singapore, Japan, Hong Kong and Korea. Key findings are that, overall, university partnerships for urban sustainability in this Asian sample are dominated by technical approaches. Yet the most significant barriers are human aspects such as time restraints, lack of unity, and poor management and leadership. On key drivers, government funding is playing a major role in enticing partnership formation and influencing particular approaches to urban sustainability. The authors suggest that measures are required to encourage the participation of the social sciences and humanities, and non-technical sustainability experiments. THe case study evidence suggests that the ability of partnerships to tackle complex social issues and trigger societal transitions towards sustainability is often constrained by existing research projects and the institutional capacities of universities and their partners.

Transforming higher education for a sustainable tomorrow : 2011 Delivering excellence : World's first initiative / University Sains Malaysia . - Penang : University Sains Malaysia, 2011 . - 115 p.

Transforming higher education for a sustainable tomorrow : 2009 Laying the foundation / University Sains Malaysia . - Penang : University Sains Malaysia, 2010 . - 196 p.

Abstract : These two publications document the programmes and initiatives taken by the University Sains Malaysia In a university-wide effort to become a world-renowned sustainability-led university. 'Laying the Foundation' describes Phase 1 of the Higher Education Transformation Road from 2009-2010 under the strategic plan of the Ministry of Higher Education. Phase 2 of this plan is detailed in the 2011 publication 'Delivering Excellence' and presents nine initatives at the University which aim to deliver excellence from an indigenous base with a global outreach.
URL : http://www.usm.my/index.php/en/info-gateway/publication

University social responsibility and sustainability / ASEAN University Network [AUN] . - Workshop on University's Social Responsibility and Sustainability from ASEAN-Japan Perspectives, Chonburi, Thailand, October 2010 . - Bangkok : AUN, 2011 . - 159 p.
Abstract : This publication brings together first-hand accounts of Asian universities' strategies and effective

management structures for actively engaging in University Social Responsibility and Sustainability (USR&S) activities. The case studies are from universities in Malaysia, Thailand, the Philippines, Indonesia, Vietnam, Singapore, Japan, Cambodia and Myanmar. They include outreach programmes to eradicate poverty linked to education; educating the local community about sustainable economic activities; students' involvement in community service; providing efficient campus services such as transportation and child care; campus recycling; efficient energy consumption; and a holistic approach to disaster management.
Classmark : ASI-73 AUN
URL : http://www.aunsec.org/site/upload/USR/USRbook.pdf

Europe and North America

A pilot study on education for sustainable development in the Romanian economic higher education / Isabel
Novo-Corti, Liana Badea, Diana Mihaela Tirca, Mirela Ionela Aceleanu . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 4, pp. 817-838, 2018
ISSN 1467-6370

Abstract : This paper aims to emphasize how economics courses offered at higher education institutions can influence sustainable development, in general, and Romania's sustainable development, in particular. The conclusions are based on a pilot questionnaire conducted by the authors on a sample of 1,250 respondents – students, master and PhD – from the economic faculties of Romanian universities. The study revealed that the economic higher education system in Romania has started with small steps to adapt to the environmental requirements. Unfortunately, the efforts still required to be made are significant, since it is observed that all undergraduate, postgraduate and PhD require a change of attitude and mentality. Romanian public universities are more involved than private universities in the implementation of programs, projects, debates and courses on sustainable development and students' reactions are positive.

Climate change and the Canadian higher education system: an institutional policy analysis . - **In:** Canadian Journal of Higher Education, v. 47, no. 1, pp. 1-26, 2017
Abstract : This paper reports on how Canadian postsecondary educational institutions have engaged with climate change through policy actions. The authors used descriptive quantitative methods to analyse climate change-specific policies from a representative sample of 50 institutions across Canada and found that nearly half had some form of climate policy. Existing policies were then qualitatively analysed. They found that the most common form of response focused on the built campus environment, with underdeveloped secondary responses focused on research, curriculum, community outreach, and governance policies. The authors consider the motivations for such institutional action and end with implications for policy makers and future research.
URL : http://journals.sfu.ca/cjhe/index.php/cjhe/article/viewFile/187451/pdf

(Higher) Education for Sustainable Development : A Global Perspective with an Arctic Touch / Hilligje van't Land, Stefanie Mallow . - **In:** Shared Voices - The UArctic Magazine, pp. 38-39, 2018
Abstract : This article looks at the place of higher education in the Sustainable Development Goals (SDGs), the IAU's Higher Education and Research for Sustainable Development (HESD) initiative, and the diverse contributions of universities in the Arctic to HESD.
URL : https://www.uarctic.org/shared-voices/shared-voices-magazine-2018/higher-education-for-sustainable-development-a-global-perspective-with-an-arctic-touch

Implementing the Sustainable Development Goals at university level / Silvia Albareda-Tiana, Salvador Vidal-Raméntol, Mónica Fernández-Morilla . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 3, pp. 473-497, 2018
ISSN 1467-6370
Abstract : To explore the principles linked with the sustainable development goals (SDGs) and the learning and teaching practices in sustainability at the International University of Catalonia (Universitat Internacional de

Catalunya, UIC, in Catalan), an empirical study was carried out by using a mixed methodology for data collection. Indicators related to SDGs found in the University curriculum (quantitative analysis), combined with in-depth semi-structured interviews to the deans of different faculties. Several visions, difficulties and challenges were identified in this mixed-method study around the concept of sustainability, which allowed the authors to describe and portray a specific starting position in relation to the SDGs at the university. Based on the results, proposals for making education for sustainable development more robust in higher education are given.

Stakeholders' perception of sustainability orientation within a major Romanian University / Dan-Cristian Dabija, Cătălin Postelnicu, Vasile Dinu, Alin Mihăilă . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 4, pp. 533-553, 2017
ISSN 1467-6370

Abstract : The research evaluates the perception that different stakeholder groups have of a large university in Romania with respect to its sustainability orientation. Data were collected by questionnaires and in-depth-interview from different stakeholder groups: staff members of the university holding coordination and/or management positions; bachelor (undergraduate) and master's students; lifelong learning programme participants coming from different secondary schools across the country enrolled on a training course organised by the university and secondary schools. Using factor analysis, the ways in which different stakeholders value and perceive the specific measures and efforts undertaken by the university were analysed. The findings showed that students, Lifelong learning participants and members of the university staff perceived the university's positive orientation towards sustainability and the measures taken in this respect. All stakeholders expressed highly favourable opinions of the university's dealings with different sustainability aspects, such as its attitude towards its employees, its performance within the higher education market and its establishment of an attractive and innovative educational programme, in compliance with sustainability principles, environmental protection and modern attitudes towards society.

Sustainable imagineries : a case study of a large suburban Canadian university / Philip Vaughter, Steve Alsop . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 1, pp. 129-145, 2017
ISSN 1467-6370

Abstract : This paper explores the concept of sustainability imaginaries – unifying core assumptions on what sustainability entails held by stakeholders – set within a large suburban university in Toronto, Canada. It draws upon interviews of university sustainability working group incluing students, staff, faculty and administrators. Analysis of the interviews identified four core sustainability imaginaries: sustainability as performance, sustainability as governance, sustainability as techno-efficiency and sustainability as community organising. The paper then uses these imaginaries to analyse two recent university-wide events: the establishment of a high-level sustainability council and an energy management program.

The implementation of sustainability practices in Portuguese higher education institutions / Ana Marta Aleixo, Ulisses Azeiteiro, Susana Leal . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 1, pp. 146-178, 2017
ISSN 1467-6370

Abstract : This study examines the of implementation of sustainability development (SD) in Portuguese higher education institutions (HEIs). A questionnaire was developed to measure the level of implementation of SD practices in HEIs as well as the number of rankings, certifications and declarations of these institutions. The questionnaire was sent by e-mail to all rectors, presidents, directors of faculties, departments and schools of Portuguese universities and polytechnics. A sample of 53 leaders was obtained. Portuguese HEIs are mainly engaged in the social dimension of sustainability. The economic dimension emerges in second place and the institutional in third; the environmental dimension is the least developed. Except for a few specific topics (e.g. related to research on SD, and the offer of degree courses in SD), there are no significant differences between universities and polytechnics in the implementation of SD practices. Only 11 % of HEIs are innovators in the implementation of SD practices, and a majority have implemented less than 34 % of the SD practices studied.

Transition communities and the glass ceiling of environmental sustainability policies at three universities
/ Miguel Pardellas Santiago, Pablo Meira Cartea, Lucía Iglesias da Cunha . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 4, pp. 576-593, 2017
ISSN 1467-6370

Abstract : This paper reports on the experiences of three European universities in Spain, Portugal and Scotland that have implemented transition initiatives, using the Transition Network's methodology to promote their sustainability plans. The Transition Communities' model for change is presented from a socio-educational perspective as an effective methodology for encouraging university environmental sustainability processes. The comparative analysis between the universities revealed three very different scenarios, which shared an absence of explicit theoretical–methodological references in the design, execution and evaluation of the educational actions that were implemented. Examination of the impact and continuity of these initiatives uncovered the existence of a "glass ceiling" in university environmental sustainability strategies. The authors note that the innovative Transition methodology was unable to alter the established academic, corporate, organisational and cultural structures and dynamics that perpetuate unsustainability.

A grid approach to managing sustainability : evidence from a multiple Italian case study / Deborah Agostino, Martina Dal Molin . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 6, pp. 875-894, 2016
ISSN 1467-6370

Abstract : The paper examines the simultaneous evaluation of sustainability conceptualization and implementation. The research is based on a multiple case study conducted in ten Italian Universities. In-depth interviews with general directors and administrative staff responsible for sustainable activities were conducted together with document and website analysis on sustainability practices, policies and implementation. The results showed the coherence between sustainability conceptualisation and its implementation showed heterogeneity of practice. The authors propose a grid approach, which highlights six different approaches to explain the connection between the "what" and the "how" of sustainability.

Briefing : UK academic institutions' response to the Paris Climate Agreement / Friends of the Earth . - London : Friends of the Earth, 2016 . - 20 p.

Abstract : This briefing summarises what UK universities are doing about climate change and the Paris Climate Agreement. It also includes top ten ways universities can tackle climate change. It is based on a survey of 59 UK universities and other research institutions on how their climate change plans were changing to reflect the goals set out in the Paris Climate Agreement of 2015.
URL : https://www.foe.co.uk/sites/default/files/downloads/paris-agreement-universities-responses-101752.pdf

Campus sustainability governance in Canada : a content analysis in post-secondary institutions' sustainability policies / Philip Vaughter, Marcia McKenzie, Lauri Lidstone, Tarah Wright . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 1, 2016
ISSN 1467-6370

Abstract : The paper reports findings form a representative sample of 50 Canadian colleges and universities on the orientations to sustainability evident on how sustainability is engaged in the policies in relation to overall governance, education, operations, research and community outreach. Of the institutions surveyed, 40 (80 per cent) had some kind of policy document, 17 (34 per cent) had documents referred to as policies, 5 (10 per cent) had only plans and 18 (36%) had both sustainability policies and plans. The results showed a clear preference in the policies for the "three pillar" definition of sustainability - economic, social and environmental; and a move away from the language of environment and toward the language of sustainable development and sustainability. Many sustainability policies also connected to other external municipal or provincial policies. Campus operations was discussed by all of the policies and in the most detail, while discussions of sustainability in education (i.e. the curriculum) and in research were vague, and discussions of sustainability in relation to community outreach were included less frequently.

UE4SD Innovation Report : Year 2 (2014-2015) / University Educators for Sustainable Development [UE4SD] . - UE4SD, 2016 . - 11 p.

Abstract : This Innovation Report is the second annual review of significant developments in Education for Sustainable Development (ESD) in Higher Education (HE), as part of the University Educators for Sustainable Development (UE4SD) project. The UE4SD Consortium involves 52 partners in 33 countries across Europe. The second reports spans international developments during 2015 and the landscape for ESD professional development across the world. It outlines the significant global dialogues, initiatives and platforms on education, sustainable development and higher education that have taken place following the close of the UN Decade of Education for Sustainable Development (DESD) and the launch of the UNESCO Global Action Programme (GAP) on ESD and national responses to this. It reports continued signs of the growth of demand for skills development and university action on ESD among higher education student populations and emerging dialogue on the competences and capabilities relevant to sustainability, both from employers and agencies that are looking for these attributes in higher education graduates, and from educators seeking to support the professional development of university educators.

An exploratory study of sustainable development in Italian universities / Emidia Vagnoni, Caterina Cavicchi . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 2, 2015
ISSN 1467-6370

Abstract : This paper aimed to outline the current status of the implementation of sustainability practices in Italian public universities. Based on a qualitative approach, the study uses the Deming Cycle (Glavic and Lukman, 2007) as a framework for the implementation of sustainability in universities. Information on university research and publications, academic programmes, published documents and plans, sustainability reports and charters from 67 Italian public universities were collected from their websites and analysed. The results of this exploratory study depicts that while many universities in Italy show a strong commitment to sustainability, this is approached in a fragmented way. Although there is a general lack of environmental management systems, the trend emerging is to formalise objectives of sustainability associated with the use of sustainability-related planning and reporting documents. Regarding curriculum, most sustainability training is found in second cycle (Masters) education and is relatively weak among undergraduate degrees. The study confirms university commitment to sustainable research (over 90 per cent of universities are or have recently been engaged in research activity on sustainability) and the organisation of sustainability events.

Sustainability in Canadian post-secondary institutions : the interrelationships among sustainability initiatives and geographic and institutional characteristics / Dan Beveridge, Marcia McKenzie, Philip Vaughter, Tarah Wright . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 5, pp. 611 - 638, 2015
ISSN 1467-6370

Abstract : This paper reports on a census of high-level sustainability initiatives at all accredited post-secondary institutions in Canada by documenting the institutions that have undertaken sustainability assessments, have signed one or more sustainability declarations, have sustainability offices or officers or have sustainability policies. The findings showed that institutions located in larger communities, and in British Columbia and Québec, tended to have higher sustainability initiative scores. Institutions in Saskatchewan and the territories had the lowest sustainability initiative scores. It was found that sustainability office(r)s, assessments and policies co-occurred disproportionately, potentially suggesting positive reinforcement mechanisms. On the other hand, having signed a declaration was not strongly linked to other sustainability initiatives. Terminological preference had shifted from "environment" and "sustainable development" to "sustainability".

Advancing campus and community sustainability : strategic alliances in action / Leanne Bilodeau, Jackie Podger, El-Aziz . - **In:** International Journal of Sustainability in Higher Education, v. 15, no. 2, pp. 157-168, 2014
ISSN 1467-6370

Abstract : This article summarises the experience of the University of British Columbia (Canada) in leveraging key drivers to develop sustainability initiatives and partnerships for greater operational efficiencies, cost savings, environmental stewardship and applied research. The university's leadership commitment to sustainability, economic opportunities and provincial legislative requirements are among the drivers discussed. This paper also

provides an innovative partnership framework to support sustainable community development.

Sustainable development in higher education : consultation on a framework for HEFCE / Higher Education Funding Council for England [HEFCE] . - Bristol : HEFCE, 2013 . - 26 p.
Abstract : This document sets out some of the ways higher education can contribute to sustainable development, and proposes an overall framework for how HEFCE will support sustainable development in the UK higher education sector. It includes policy statements on sustainable development and carbon reduction.
URL : http://www.hefce.ac.uk/media/hefce/content/pubs/2013/201331/2013_31.pdf

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2012 Higher Education Sustainability Review / Association for the Advancement of Sustainability in Higher Education [AASHE] . - Denver : AASHE, 2013 . - 34 p.
Abstract : Focusing on higher education in the USA, this review reveals that sustainable investment, affordability and access, and global sustainability initiatives are key areas of focus in higher education initiatives. New initiatives have arisen particularly in the areas of curriculum, research, funding, and staffing. In addition to highlighting trends, this review describes the impacts of campus sustainability achievements from over 40 higher education institutions.
URL : http://www.aashe.org/files/publications/he-review/2012/he_sustainability_review_2012.pdf

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Liberal education for sustainability [Special issue] . - **In:** Liberal Education, v. 98, no. 4, pp. 6 - 27, Fall 2012
ISSN 0024-1822
Abstract : Sustainability and Liberal Education: Partners by Nature (Neil B. Weissman); Curricular Innovation for Sustainability: The Piedmont/Ponderosa Model of Faculty Development (Peggy F. Barlett and Geoffrey W. Chase) - The Piedmont/Ponderosa model is a successful approach to curricular change that has inspired faculty at dozens of colleges and universities in the United States of America to integrate sustainability issues across the curriculum; Energizing Liberal Education (Mary Finley-Brook, Megan Zanella-Litke, Kyle Ragan, and Breana Coleman) - Renewable energy projects provide important opportunities for advancing liberal education.
URL : http://www.aacu.org/liberaleducation/

The sustainable university : green goals and new challenges for higher education leaders / James Martin, James E. Samels, Eds . - Baltimore : John Hopkins University Press, 2012 . - 331 p.
ISBN 978-1-4214-0459-2
Abstract : This book includes contributions on measuring sustainability on campus, the impact of sustainability on institutional quality assurance and accreditation, and sustainability in campus housing, food services, and athletics.
Contents: 1. Sustainable university: a need to move forward (James Martin and James E. Samels); 2. Promises made and promises lost: a candid assessment of higher education leadership and the sustainability agenda (Anthony D. Cortese); 3. Trends, skills, and strategies to catalyze sustainability across Institutions (Debra Rowe and Aurora Lang Winslade); 4. Measuring campus sustainability performance: implementing the first Sustainability Tracking, Assessment, and Rating System (STARS) (Judy Walton and Laura Matson); 5. Institutionalizing sustainability: achieving transformations from the Inside (Leith Sharp and Cindy Pollock Shea); 6. Sustainability: shifting definitions and evolving Meanings (Davis Bookhart); 7. Sustainable citizenship: the challenge for students and their institutions (Terry Link). II. Sustainability and the leadership team: New assignments: 8. Sustainability and the presidency: five starting points (Jo Ann Gora and Robert J. Koester); 9. Not so fast: a dose of reality about sustainability (Thomas Buchanan and Tara Evans); 10. Importance of sustainability in the Community College setting (Mary Spilde); 11. Sustainability, leadership and the role of the Chief Academic Officer (Geoffrey Chase, Peggy Barlett, and Rick Fairbanks). III. Fresh agendas for campus operations. 12. Greening the endowment (Mary Jo Maydew); 13. Sustainability and higher education architecture: best practices for institutional leaders (Scott Carlson); 14. Sustainable campus housing: building a better place (Norbert W. Dunkel and Lynne Deninger); 15. Food for thought: building sustainable food systems and healthy communities (Howard L. Sacks); 16. University athletics and sustainability: start on the field (Dedee DeLongpre Johnston and Dave Newport); IV. Beyond the green gates: sustainability and the Institution's external partners; 17. Impact of sustainability on institutional quality assurance and accreditation (Sandra Elman). 18. Green legal: creating a

culture of vigilance, compliance, and sustainability thinking (James E. Samels and James Martin). V. Complex path ahead. 19. Conclusion: new goals and new challenges for institutional leaders (James Martin and James E. Samels).

Classmark : US-14 MAR

Responsabilidad social de la universidad y desarrollo sostenible / Spain. Ministerio de Educación, Cultura y Deporte . - Madrid : Spanish Ministry of Education, 2011 . - 219 p

ISBN 978-84-369-5227-8

Abstract : This publication offers a diagnosis of the present situation; defines the concepts of social responsibility, sustainable development and sustainable universities and offers recommendations for its implementation in all areas of academic life.

URL : https://sede.educacion.gob.es/publiventa/descargas.action?f_codigo=14925&codigoOpcion=3

Latin America and the Caribbean

El plan de acción para el desarrollo sustentable en las instituciones de educación superior : Escenarios posibles / Blanca Estela Gutierrez Barba, Maria Concepcion, Martinez Rodriguez / Asociación Nacional de Universidades e Instituciones de Educación Superior [ANUIES] . - **In:** Revista de la Educación Superior, v. 39, no. 2, pp. 111-132, Abril-Junio 2010

ISSN 0185-2760

Abstract : Sustainable development is related to the environment, equitable distribution, participation, multiculturalism, creativity, self-fulfillment, cultural autonomy and even, for some authors, spiritual aspects. Universities could help lead the whole society towards a more sustainable future through more sustainable development in HE institutions at all levels.

URL : http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-27602010000200006&lng=es&nrm=iso

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Educación superior, colaboración intercultural y desarrollo sostenible : buen vivir, experiencias en América Latina / Daniel Mato, Ed. / UNESCO International Institute for Higher Education in Latin America and the Caribbean [IESALC] . - Caracas : IESALC, 2009 . - 264 p.

ISBN 978-980-7175-05-0

Abstract : This book brings together a set of eight case studies on the experiences of Higher Education Institutions (HEIs) from five countries in Latin America (Brazil, Chile, Colombia, Mexico and Peru) that have developed modalities of intercultural collaboration with communities and / or indigenous peoples' organisations

URL :
http://www.iesalc.unesco.org.ve/index.php?option=com_fabrik&c=form&view=details&Itemid=851&fabrik=10&rowid=84&tableid=10〈 =en

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Sustainability leaders' perceptions on the drivers for and the barriers to the integration of sustainability in Latin American Higher Education Institutions / Norka Blanco-Portela, Luis R. Pertierra, Javier Benayas, Rodrigo Lozano . - **In:** Sustainability, v. 10, no. 8, 2018

Abstract : This paper examines the drivers of sustainability integration in HEIs within their structures and operations. Open-ended expert opinion interviews of key sustainability leaders at 45 HEIs from 10 Latin-American countries were conducted. Additionally, a thematic workshop on HEI sustainability was organized to facilitate further discussions between 23 sustainability scholars and/or national coordinators of university networks from 11 Latin American countries. The results identified 15 barriers as hindering the institutionalisation of sustainability in HEIs. This study also examined the relationship between these reported barriers with 13 main drivers that were identified to be facilitating the integration of sustainable practices within the organizational and academic structures at the universities. The strong correspondence between several observed drivers for, and barriers to, change highlights the importance of strategic planning that offers integrated actions.

URL : http://www.mdpi.com/2071-1050/10/8/2954

Universidades y sostenibilidad : experiencias de las instituciones de educación superior en Colombia / Universidad Sergio Arboleda; Universidad de Ciencias Ambientales y Aplicadas;

Universidad Libre; Universidad Distrital Francisco José de Caldas; Universitaria Agustiniana . - Bogota : Universidad Sergio Arboleda, 2018 . - 123 p.

Abstract : This publication comprises the papers presented at the II Colombian Forum of Universities and Sustainability, organized by the University, Environment and Sustainability Team (UAS), the Colombian Environmental Training Network (RCFA) and the Environmental Network of Sustainable Universities. The papers detail the experiences in sustainability of 14 Colombian higher education institutions as well as two universities in Peru and Mexico. Speakers also called on universities in Colombia and the region to take on the challenges posed by the 2030 Agenda and the Sustainable Development Goals (SDGs).
URL :
http://repository.usergioarboleda.edu.co/bitstream/handle/11232/1109/Universidades%20y%20Sostenibilidad.pdf?sequence=3&isAllowed=y

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Dimensiones de sustentabilidad en las institutions de educacion superior : propuesta para un cenro de invesigacion / Blanca Estela Gutierrez Barba, Maria Concepcion Martinez Rodriguez / Asociación Nacional de Universidades e Instituciones de Educación Superior [ANUIES] . - **In:** Revista de la Educación Superior, v. 38 (4), no. 52, pp. 113-124, Octubre-Diciembre 2009

Abstract : This study evaluates the establishment of the UNESCO framework of implementation of sustainable development in higher education institutions. The study is undertaken at the Research and Studies Center on the Environment and Development (CIIMAD) of the Instituto Politénico Nacional (IPN) in Mexico. Six dimensions, based on the integration of different sectors that lead to sustainable development, were identified and analysed: academic, research, environmental, economic, philosophical-political, and social-personnel.
URL: http://seminariorepensarlabioquimica.files.wordpress.com/2013/07/dimensionessustentabilidad.pdf

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Higher education for sustainable development at EARTH University / Carlos Rafael Rodríguez-Solera, Marisol Silva-Laya . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 3, pp. 278-293, 2017

Abstract : This article presents the experience of a Central American university that has been successfully advancing an educational model focused on sustainability for over 25 years. It reports on a study conducted on perceptions of the impact from graduates of EARTH (Escuela de Agricultura de la Región Tropical Húmeda) University in Nicaragua, Honduras and Guatemala. The study uses a mixed methodology that combined the application of a standardised questionnaire, together with focus groups and semi-structured interviews of graduates, their employers, members of their communities, clients of the companies where they work and colleagues. The results show that agricultural engineers who graduated from EARTH University have had a positive social, economic and environmental impact in their communities of origin. They have taken on leadership positions and have become change agents who are aware of the social needs around them. They contribute to economic growth and job creation, and at the same time, promote sustainable management of natural resources. The authors conclude that this study reveals that, in the case of Latin America, education for sustainability cannot be limited to providing training in natural resources management. The promotion of inclusive development supposes that students have learned how to manage productive activities that are economically and socially sustainable, and that students have received a solid education in values, aimed at fostering a commitment to build a fairer society.

Strategies to promote sustainability in higher education institutions : a case study of a federal institute of higher education in Brazil / Issa Ibrahim Berchin, Vanessa dos Santos Grando, Gabriela Almeida Marcon, Louise Corseuil, José Baltazar Salgueirinho Osório de Andrade Guerra . - **In:** International Journal of Sustainability in Higher Education, v. 10, no. 7, pp. 1018 - 1038, 2017

Abstract : The research was based on a scientific literature review on sustainability in HEIs, to identify the actions

for sustainability in these institutions; and a case study of a federal institute of higher education in Brazil, to illustrate how these actions are being implemented by HEIs. Concerns about sustainability, prompted by the Brazilian federal legislature, led federal HEI to change its internal processes, infrastructure and organizational culture toward sustainability. The findings presented in this study, more specifically the sustainability plan of the Federal Institute for Education, Science and Technology of Santa Catarina, aligned with the recommendations proposed, can be used and replicated in other HEIs.

■ Campus greening

International

Demonstrating sustainable development in higher education : 2016 sustainable campus best practices from ISCN and GULF universities / International Sustainable Campus Network [ISCN] . - Boston : ISCN, 2016 . - 50 p.

Abstract : This report presents case studies of best practice initiatives from members of the ISCN and the World Economic Forum's Global University Forum (GULF) universities. The ISCN - GULF Sustainable Campus Charter is included in the publication. The case studies, from universities in Thailand, Hong Kong, Singapore, Korea, the Philippines, Denmark, Finland, Switzerland, Sweden, Canada, Turkey, the United Kingdom, and the United States, reflect how universities are developing sustainability skills and building capacities, collaborating with corporate partners, and demonstrating innovation in the built environment.
URL : http://www.international-sustainable-campus-network.org/downloads/general/441-2016-iscn-gulf-best-practice-report/file

Implementing campus greening initiatives : approaches, methods and perspectives / Walter Leal Filho, Muthu Nandhivarman, Golda Edwin, Mihaela Sima . - Springer, 2015 . - IX, 362 p. (World Sustainability Series)
ISBN 978-3-319-11960-1 . - Online ISBN 978-3-319-11961-8

Abstract : This book introduces a set of papers presented at the "Green Campus Summit"),organised by the Association for Promoting Sustainability in Campuses and Communities, in Puducherry, India in 2013. The contributions provide practical case studies from India, South Africa, France and the United States on research and models of campus greening initiatives, environment education and curriculum development, green buildings and land use, energy m and conservation, green Chemistry, waste Management, water management and transportation, campus biodiversity and food services.

Rationale of early adopters of fossil fuel divestment / Christopher Todd Beer . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 4, pp. 506-519, 2016
ISSN 1467-6370

Abstract : This research analyses the rationale used by the early-adopting universities of fossil fuel divestment in the USA. Through analysis of qualitative data from interviews with key actors at the universities that divested their endowments from fossil fuels, the paper examines how institutions navigate competing logics and frame their rationale. The results show that while many institutions relied on ecological values embedded in their missions to justify their decision to divest, many also continued to embrace an altered version of market logic.

Developing skills for future leaders : 2015 sustainable campus best practices from ISCN and GULF Schools / International Sustainable Campus Network [ISCN] . - Boston : ISCN, 2015 . - 67 p.

Abstract : This looks at best practice cases from 15 countries in 5 continents to develop a concrete sustainability skill set for future leaders. It includes chapters on Buildings that teach; Campus as a laboratory; teaching by example; Cross-curricular integration; and Holistic approaches to sustainability topics.
URL : http://www.international-sustainable-campus-network.org/resources/iscn-sustainable-campus-best-practices.html

Greening universities toolkit : transforming universities into green and sustainable campuses / United Nations Environmental Programme [UNEP] . - Nairobi : UNEP, 2013 . - 93 p.
ISBN 978-92-807-3345-7

Abstract : This Toolkit aims to provide University staff and students with a selection of strategies, tools and resources, gleaned from the literature, from global case studies and from practice which are intended to inspire, encourage and support Universities to develop and implement their own transformative strategies for establishing

green, resource-efficient and low carbon campuses. In turn, it is hoped the "green campus" will help inform the "green curriculum", and by extending beyond institutional boundaries, help to catalyse more sustainable communities. The Toolkit is part of a wider Greening Universities Initiative established through UNEP's Environmental Education and Training Unit, in collaboration with other UN agencies.
URL : http://www.unep.org/training/docs/Greening_University_Toolkit.pdf

Promoting sustainable campus landscapes : how-to guide / Association for the Advancement of Sustainability in Higher Education [AASHE] . - Denver : AASHE, 2013 . - 25 p.

Abstract : This guide of campus outdoor spaces identifies ways to build awareness of the benefits of sustainable practices, engage others in projects, garner external recognition, and effectively communicate the institutional value of sustainable campus landscapes in order to achieve a lasting impact. An important rationale behind this focus is that ultimately, long-term support from administrators, faculty, staff, students, and the community will be essential to the success of sustainable campus landscapes for future generations.
URL : http://www.aashe.org/files/publications/monographs/landscaping-2013/sustainable_campus_landscape_guide.pdf

The future is now : Summary report / International Sustainable Campus Network [ISCN] . - ISCN Conference, Singapore, June 2013 . - ISCN, 2013 . - 40 p.

Abstract : This Summary Report is from the ISCN 2013 Conference on The Future is Now, organised by the International Sustainable Campus Network and the National University of Singapore in June 2013. It contains section on the themes addressed at the Conference: Beyond carbon: the next generation of sustainability goals; Growth vs sustainability: are these mutually exclusive goals? and Engaging universities in co-creation for urban sustainability.
URL : http://www.international-sustainable-campus-network.org/latest-news/iscn-2013-conference-summary-now-available.html

A systems approach to reducing institutional GHG emissions / Sean R. Williamson . - **In:** International Journal of Sustainability in Higher Education, v. 13, no. 1, pp. 46-59, 2012
Abstract : The purpose of this paper is to establish necessity and methods for considering greenhouse gas (GHG) mitigation policies at a system-level. The research emphasizes connecting narrowly focused GHG mitigation objectives (e.g. reduce single occupancy vehicle travel) with broader institutional objectives (e.g. growth in student population) to demonstrate how policies operating at different scales individually and collectively influence GHG reductions. The central finding is that broad level policies associated with housing stock and student growth are more capable of influencing GHG emissions than traditionally classified mitigation policies such as investing in alternatives transportation services.

Africa

Students' attitudes to solid waste management in a Nigerian university : implications for campus-based sustainability education / Ayodeji Peter Ifegbesan, Biodun Ogunyemi, Isaac T. Rampedi . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 7, pp. 1244-1262, 2017
Abstract : Waste management is a critical element of the campus sustainability in which Nigerian universities are yet to actively participate. The purpose of this study was to investigate prevalent waste management practices and the disposition of undergraduate students in a Nigerian University. Data collection involved the use of a questionnaire, focus group discussion and participative observation. Respondents consisted of 840 students drawn from four academic faculties of the university. Descriptive and inferential statistics were used to address the research questions raised to guide the investigation. The findings showed that indiscriminate littering, open dumping of waste, weedy and overgrown lawns, proliferation of power generating sets, uncollected refuse sites and defaced walls with postings were the major observed environmental challenges. Open burning of refuse was

found to be the single most prevalent way of managing large volumes of waste generated on the university campus. Although the problems were widespread, only 40.5 per cent of the students expressed serious concern for the solid waste practices. Also, while the students were positively disposed to innovative ways of addressing the challenge of waste management in the university, there were significant differences in students' awareness and disposition according to sex, age, academic level and faculties.

Advancing grassroots climate change awareness in Botswana : BCA campus greenhouse gas baseline inventory / Nnyaladzi Batisani, Abijah Ndiane . - **In:** International Journal of Sustainability in Higher Education, v. 15, no. 3, pp. 304-313, 2014
Abstract : This paper provides the process of undertaking a campus greenhouse inventory within an Agricultural College of a University in Botswana. The procedure in carrying out the study provided learners with an opportunity to appreciate emissions from developing countries and also gain technical skills in conducting a greenhouse inventory using the Clean Air-Cool Planet (CACP) campus calculator to calculate emissions within the college. It also sensitised campus administrators about the scale of emissions and possible ways of reducing them. Furthermore, it highlights the fact that developing countries also produce significant emissions, hence the need for mitigation measures.

Using energy profiles to identify university energy reduction opportunities / Nandarani Maistry, Harold Annegarn . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 2, pp. 188-207, 2016
Abstract : This paper details efforts at the University of Johannesburg, to examine energy efficiency within the context of the green campus movement, through the analysis of electricity consumption patterns. The study is particularly relevant in light of the cumulative 230 per cent increase in electricity costs between 2008 and 2014 in South Africa that has forced institutions of higher education to seek ways to reduce energy consumption. Average diurnal consumption profiles were plotted according to phases of the academic calendar, distinguished by specific periods of active teaching and research. It was found that the academic calendar has profound effects on energy consumption. Diurnal maximum consumption corresponds to core working hours, peaking at an average of 2,500 kWh during "in-session" periods, 2,250 kWh during "out-of-session" periods and 2,100 kWh during recess. A high base load was evident throughout the year (between 1,300 and 1,650 kWh), mainly attributed to heating and cooling. By switching off the 350 kW chiller plant on weekdays, a 9 per cent electricity reduction could be achieved during out-of-session and recess periods. Similarly, during in-session periods, a 6 per cent reduction could be achieved.

Asia and the Pacific

Campus sustainability in Chinese higher education institutions : focuses, motivations and challenges . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 1, 2015
Abstract : This study examines sustainability in eight diverse higher education institutions in Changchun City, Jilin, China. Structured interviews were carried out with managers, students and government officials in addition to document analysis. The focus of sustainability among the studied HEIs was on water and energy conservation and on non-technical initiatives, rather than more expensive technical initiatives, due to limited accessibility to funding. Significant variation was found among the institutions: central-level HEIs are the best resourced and therefore able to implement more intensive programmes in water and energy conversation. The study also found that the reliance of non-technical initiatives has negatively impacted student welfare and has become unpopular among students.

Education for sustainability using a campus eco-garden as a learning environment / Chi Chiu Cheang, Winnie So Wing-Mui, Ying Zhan, Kwok Ho Tsoi . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 2, pp. 242-262, 2017
Abstract : This paper aims to explore stakeholder perspectives of the role of a campus eco-garden in education for sustainability (EfS) in a university in Hong Kong. Semi-structured interviews were conducted to reveal stakeholder understandings of a campus eco-garden, as well as its associated expectations of learning activities and education outcomes. Three stakeholder groups were interviewed; designers, educators and environmental and non-environmental subject-related students. The results showed that all three stakeholder groups expected cognitive learning of EfS to be enhanced by the eco-garden. The use of affective learning was not strongly expected by the stakeholders. Psychomotor learning was believed to be the most difficult to do. To fulfill the potential of the eco-garden in EfS, all stakeholders suggested learning activities and roles for both students and teachers.
URL : http://www.emeraldinsight.com/doi/full/10.1108/IJSHE-10-2015-0174

Environmental and social management plan for infrastructure development projects in universities and HEIs in Pakistan / Pakistan. Higher Education Commission . - HEC, 2011 . - 60 p.
Abstract : This plan aims at alleviating the negative social and environmental impacts that may be caused by construction and infrastructure development projects in universities and higher education institutions.
URL : http://www.hec.gov.pk/Documents/HEC%20ESMP%20TESP%202011.pdf

Greening of a campus through waste management initiatives : experience from a higher education institution in Thailand / Siwaporn Tangwanichagapong, Vilas Nitivattananon, Brahmanand Mohanty, Chettiyappan Visvanathan . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 2, pp. 203-207, 2017
Abstract : This paper described the effects of 3R (reduce, reuse and recycle) waste management initiatives on a campus community in Thailand. It is based on a study whereby demonstration projects on waste segregation and recycling, as well as waste a reduction campaign, were set up on the campus to ascertain people's attitudes and investigate their behavioral responses toward waste management practices. Data were collected through a questionnaire survey, observations, interviews and the project's document review. A waste audit and waste composition analysis was carried out to assess waste flows and actual waste management behaviors and measure the change in the recycling rate. The findings show that 3R waste management initiatives had positive effects on people's attitudes about resources, waste management and consciousness of the need to avoid waste, but these initiatives did not affect recycling and waste management behavior. Incentive measures showed a greater positive effect on waste reduction to landfills. Nevertheless, the demonstration projects helped to increase the overall campus recycling from 10 to 12 per cent.
URL : http://www.emeraldinsight.com/doi/full/10.1108/IJSHE-10-2015-0175

Variation of greenness across China's universities : motivations and resources / Wanxia Zhao, Yonghua Zou . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 1, pp. 48-66, 2017
Abstract : This study examines cross-institutional variation in university greenness in China and analyses its underlying dynamics. It constructs a University Greenness Index (UGI) and conducts multivariate regression. The study finds variation within two dimensions; in the vertical dimension, top-tier universities have significantly higher UGIs than tier-2 universities, and in the horizontal dimension (type of university) agricultural and forest, engineering and technology and generalist universities have significantly higher UGIs than other specialist universities. The dynamics underlying the greenness variation lies in different universities' motivations and resources, which are associated with China's higher education administrative system, especially the mechanism by which funding is allocated. The authors note limitations to their internet-search-based greenness index. First, there is a gap between green information communication and real green achievement. Second, this research may be difficult to apply to other countries, because of the specific characteristics of China's higher education system.

Europe and North America

A comparative study of the efficacy of intervention strategies on student electricity use in campus residence halls / Allison K. Wisecup, Dennis Grady, Richard A. Roth, Julio Stephens . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 4, pp. 503-519, 2017
Abstract : This paper details the results of a study at a university in the United States exposing first year university students in four matched residence halls and the use of three different interventions designed to encourage energy conservation, specifically electricity conservation. A control residence hall received no intervention. One residence hall had an energy dashboard prominently displayed. Another received various communications and programming designed to raise awareness of the need for energy conservation. A fourth residence hall had an energy dashboard and received programming. Electricity consumption among the residence halls was compared using multivariate analysis. The results showed that students in all residence halls receiving interventions demonstrated significantly lower electricity consumption compared to the control residence hall. Across two years with different student populations, results were consistent: the residence hall receiving only the communications and programming, but not the dashboard, had the lowest electricity use. The residence hall with only the dashboard also demonstrated a significant but smaller decline in electricity use. Curiously, the residence hall wherein both interventions were used demonstrated the smallest decline in electricity use.

Austerity-privacy and fossil fuel divestment activism at Canadian universities / Robert McGray, Jonathan Turcotte-Summers . - **In:** Australian Universities Review, v. 59, no. 2, pp. 36-49, 2017
Abstract : In this essay, the authors examine how what we term as austerity-privacy has enabled formal education - specifically Canadian universities - to withdraw from critical public discourses. They argue that austerity-privacy was a necessary step for postsecondary education institutions to speed their neoliberal march. To illustrate this phenomenon, the authors examine the fossil fuel divestment movement in Canadian universities, specifically focusing on campaigns to divers the endowment and pension funds in Canadian higher education institutions from the fossil fuel industry. They also examine the ways in which divestment can democratise the economy of university life.

Campus sustainability tours : exploring an uncharted tool / Ellen R. Trahan, Leslie A. North, Margaret M. Gripshover, Jeanine M. Huss . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 6, pp. 908 - 922, 2017
Abstract : This paper explores the development narrative and usage of environmental sustainability tours available at universities. Sustainability tours aim to increase awareness of knowledge of sustainability while demonstrating environmental sustainability in action in the campus environment. It uses as a case study the Western Kentucky University (WKU) Green Tour, a university in the United States. Questionnaires and interviews were conducted with sustainability leaders involved in tours at their university to discover how they were developed and used. An assessment of the WKU Green Tour used surveys and pre- and post-tests to determine the reach of the tour to the campus population, student learning and faculty use. The results show that there is a lack of data on sustainability tours, making it difficult to design new tours and validate their status as an essential tool. In the case of the university studies, the need for data was confirmed, as current practices that were assumed to be effective proved ineffective. Multiple suggestions for improved tours are provided.

Greening the campus intentions : a study of the University of the Aegean non-academic staff / Chrysanthi Bellou, Vassiliki Petreniti, Constantina Skanavis . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 4, pp. 520 - 532, 2017
Abstract : This study focuses on a study non-academic staff's environmental sustainability attitudes and behavior

both at work and at home, their perceptions for sustainability enforcement and their active participation skills at a university in Greece. A questionnaire consisting of 45 questions was completed by 101 non-academic staff working at a campus in Lesvos island. The analysis of the results brings light on the environmental profile of the University's non-academic staff on their intentions for greening their campus and the barriers that obstruct their attempts to promote sustainability at the University.

Greening transportation and parking at University of Coimbra / Luís Cruz, Eduardo Barata, João-Pedro Ferreira, Fausto Freire . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 1, pp. 23-38, 2017
ISSN 1467-6370

Abstract : This paper explored the potential contribution of integrated traffic and parking management strategies to ensure more rational use of available parking spaces and to reduce fuel consumption and greenhouse gas emissions by commuters traveling to the main campus of University of Coimbra (UC), Portugal. An integrated modelling approach is used, including the characterisation of supply and demand for parking and public transport, the creation and implementation of a survey to campus users and a life-cycle approach to assess six transportation and parking strategy scenarios. This analysis demonstrates the importance of integrated management measures to greening commuters' transportation and parking within a University campus, identifying and quantifying opportunities for successfully making the transitions toward a more sustainable future.

Sustainability in university campus : options for achieving nearly zero energy goals / Paula Fonseca, Pedro Moura, Jorge Humberto, Aníbal de Almeida . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 4, pp. 790-816, 2018
ISSN 1467-6370

Abstract : The purpose of this study was to design a renovation plan for a university campus building in a university in Portugal with the aim to achieve nearly zero energy performance. Whereas other studies are mostly based on envelope refurbishment and behaviour changes, this building renovation was based on a comprehensive lighting retrofit and a solar PV generation system. It achieved energy savings of 20 per cent.

The "carbon-neutral university" : a study from Germany / Erica Udas, Monique Wölk, Martin Wilmking . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 1, pp. 130-145, 2017
ISSN 1467-6370

Abstract : This paper presents a case study from a pilot project implemented by a university in Germany on its way towards a "carbon-neutral university". The purpose of this paper is to share an institutional process targeting a gradual transformation towards achieving carbon neutrality. To achieve carbon neutrality, three major transformative strategies were adopted: carbon reduction, carbon offsetting and mainstreaming sustainable actions via teaching and research.
A locally adaptable institutional framework on sustainability was successfully developed to: promote changes in daily operations, implement interdisciplinary research, incorporate sustainability into teaching and education and enhance outreach programs. Strong commitment from all stakeholders resulted in reduction of the university's carbon footprint from 8,985 to 4,167 tCO2e year−1. Further, the unavoidable emissions could be locally offset through enhanced carbon sequestration on the university-owned forests.

Barriers to energy efficiency and the uptake of green revolving funds in Canadian universities / John Maiorano, Beth Savan . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 2, pp. 200-2016, 2015
ISSN 1467-6370

Abstract : This paper investigate the financial and economic barriers to the implementation of energy efficiency projects in Canadian universities. Methods to address these barriers were investigated, including evaluating the efficacy of revolving funds. Senior administrators responsible for investment in energy efficiency of 15 Canadian

universities were interviewed. The results showed that 'access to capital' was the largest barrier to energy efficiency and respondents agreed that green revolving funds are both an effective method to address these constraints and to implement energy conservation projects at their university. However, only 2 out of the 15 interviewees and 7 out of the 98 universities in Canada currently make use of a green revolving fund. The authors suggest that a reluctance to formalise processes to prioritise energy efficiency limits the associated benefits of mechanisms such as revolving funds to implement energy efficiency projects at Canadian universities.

Design of higher education teaching models and carbon impacts / Sally Caird, Andy Lane, Ed Swithenby, Robin Roy , Stephen Potter . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 1, pp. 96-111, 2015
Abstract : This research examines the main findings of the SusTEACH study of the carbon-based environmental impacts of 30 higher education courses in 15 UK institutions, based on an analysis of the likely energy consumption and carbon emissions of a range of face-to-face, distance, online and information and communication technology (ICT)- enhanced blended teaching models. The findings showed that the main sources of carbon emissions were travel, residential energy consumption and campus site operations. Distance-based HE models reduced energy consumption by 88 per cent and achieved significant carbon reductions of 83 per cent when compared with campus-based HE models. The online teaching model achieved the lowest energy consumption and carbon emissions.

Recycling as a result of "cultural greening"? / Julia A. Flagg, Diane C. Bates . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 4, pp. 489-505, 2016
Abstract : This study examines whether faculty and students who have developed the most pro-environmental values and concerns are also the most likely to reduce the on-campus waste stream. Questionnaires were disseminated to a representative sample of 590 undergraduate students and faculty at a higher education institution in the USA. This research took place after widespread efforts were made to increase faculty and student knowledge of the college's recycling guidelines. The findings showed that among the measures of environmental orientation (values, concern about pollution and green consumption), only environmental values were associated with claiming to know guidelines and self-reporting higher levels of recycling effort. None was associated with knowledge about local recycling guidelines.

Energy efficiency of higher education buildings : a case study / Nelson Soares, Luísa Dias Pereira, João Ferreira, Pedro Conceição, Patrícia Pereira da Silva . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 5, pp. 669 - 691, 2015
Abstract : This paper proposes an energy efficiency plan for a higher education building at the University of Coimbra (FEUC) in Portugal. The plan was developed in the context of both the "Green Campus – Challenge for Energy Efficiency in Higher Education" and the Energy for Sustainability Initiative at the university. An energy audit was conducted and patterns of energy-environmental behaviours of the academic community were investigated through a web-based survey.

A-broad spectrum : sustainability in educational travel / Brack W. Hale, Alison Vogellar, Joshua Long . - **In:** International Journal of Sustainability in Higher Education, v. 14, no. 4, pp. 349-366, 2013
Abstract : Although sustainability issues and initiatives have become popular on campuses across the globe, little has been written specifically about efforts within higher educational travel programmes. The authors conducted an online survey of practitioners in the field of higher education travel at 95 institutions and organizations providing educational travel programmes, primarily in the USA, Canada, and Western Europe, about attempts, if any, to incorporate themes of sustainability and sustainable travel into travel programmes at the institutions. In general, results showed that sustainability-related themes and concerns have yet to develop to the level of campus

sustainability. The paper also found three additional themes: a disparity between sustainability in discourse and practice; sustainable measures that focus on local organisations/relationships and external programs; and the financial, marketing and relational offsets associated with the implementation of sustainability.

Eco-campus : applying the ecocity model to develop green university and college campuses / Jessica Finlay, Jennifer Massey . - **In:** International Journal of Sustainability in Higher Education, v. 13, no. 2, pp. 150-165, 2012

Abstract : This paper examines the theory of the ecocity and investigates the implications for its proposed building strategies for university and colleges in Canada and the United States, as institutions seek to create more sustainable campuses. The paper examines previous efforts to achieve sustainability and how the concept of the eco-campus can be practically and productively applied.

Latin America and the Caribbean

Greening the campus of a Brazilian university : cultural challenges / Giovana da Silveira Marques Pereira, Charbel Jabbour, Sonia V. W Borges de Oliveira, Adriano Alves Teixeira . - **In:** International Journal of Sustainability in Higher Education, v. 15, no. 1, pp. 34-47, 2014

Abstract : This study examined the relationship between environmental management practices developed at a campus of a Brazilian university (University of Sao Paulo) and the greening of its organizational culture. The study found that the studied university has an environmental management programme that is sometimes constrained in the following ways: the university bureaucracy and hierarchy; the main performance indicators for lecturers and professors are based on scientific production and publication, giving them little time for complementary activities; and some units develop their own environmental management practices, but they are not disseminated as best practices for use by other units. Some academic units showcase the proactive actions of professors who incorporate environmental management into their daily activities. The general perception is that the phrase 'environmental management' is almost synonymous with solid waste management.

■ Curriculum and Education for Sustainable Development (ESD)

International

Higher education in the sustainable development goals framework / Taya Louise Owens . - **In:** European Journal of Education, v. 52, no. 4, pp. 414-420, December 2017

Abstract : Whilst the Millennial Development Goals focused attention on universal primary attainment, the Sustainable Development Goals introduce tertiary education into the global development agenda. Higher education was an important consideration in the 2000 Dakar framework, but it was not included as a target. Instead, it appeared indirectly as a supportive pathway to other goals such as youth skills or quality teacher. Now, higher education plays a key role as a means to achieving Goal 4 on education: inclusive, equitable and quality education for all. This article evaluates the introduction of higher education into the development agenda and the introduction of the SDGs into the parallel but fragmented multilateral and university agendas. It concludes by specifying two factors that are essential if higher education is to play a revitalised role in the sustainable development framework: publicly-funded research and regional higher education partnerships. (Abstract from publisher)

Social media for environmental sustainability awareness in higher education / Suraya Hamid, Mohamad Taha Ijab, Hidayah Sulaiman, Rina Md. Anwar, Azah Anir Norman . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 4, pp. 474-491, 2017

Abstract : This paper aims to capture, summarise, synthesise and comment on the role of social media to garner interest of students and staff on environmental sustainability issues. The authors conducted a systematic literature review, and three selected online databases were searched for relevant papers for review. Specific data were extracted from each paper, and the discussion section is based on the developed research questions. The findings showed that
higher education needs to fully leverage the ubiquity of social media to extend how environmental sustainability is viewed by the students and staff. Sustainability practices conducted at the university level such as recycling, reduction of electricity and water consumptions and paper reduction in classroom and used to engage students on environmental matters. For staff, social media can be leveraged as to convey the university policy and assist in their quest to become full-fledged green universities. [Abstract from publisher]

Universities and the post-2015 development agenda: an analytical framework / Tristan McCowan . - **In:** Higher Education, v. 72, no. 4, pp. 505-523, October 2016

Abstract : Universities have been attributed a central role in the post-2015 development agenda and the achievement of the sustainable development goals. Yet questions of institutional models and their differential impact on society have not received sufficient attention. This paper presents an analysis of the 'anatomy' of the university in order to identify the salient changes in the institution across time and location in relation to knowledge and relationships with society. A framework is proposed structured around three key dimensions: first, 'value'—the extent to which knowledge is treated as intrinsically or instrumentally worthwhile; second, 'function'—the role of the university in terms of storage, transmission, production or application of knowledge; third, 'interaction'—the flow of ideas and actors between the university and society. This analytical framework is then utilised to assess two dominant tendencies in global higher education: commodification and unbundling. Finally, implications are drawn out for universities' potential impact on development in low- and middle-income countries in the context of these contemporary trends. (Abstract from publisher)
URL : http://rd.springer.com/article/10.1007/s10734-016-0035-7

Using e-learning for student sustainability literacy : framework and review / Susannah Diamond, Brian Irwin . - **In:** International Journal of Sustainability in Higher Education, v. 14, no. 4, pp. 338-348, 2013
Abstract : This paper explores staff practices in using e-learning to embed sustainability literacy, highlight best practice and determine areas for improvement. A framework of four areas for developing student sustainability literacy (SSL) was proposed as a basis for analysing practice. A literature review then explored the extent to which e-learning is used to support embedding SSL in the curriculum, and the types of e-learning currently in use for this. The authors found that E-learning tools were most frequently used to provide flexible access to information, followed by support for communication and collaboration, and were less frequently used for the development of specific skills, personal identity and confidence. This study highlighted scope for a pedagogical shift away from using e-learning for information delivery and practical communication, and towards supporting rich, student-centred forms of learning in both blended and distance learning modes to more effectively develop students' personal identities and skills, and yield graduates who are more confident in their ability to create more sustainable futures.

Campus sustainability : emerging curricula models in higher education / James R. McKenna Tamara Savelyeva . - **In:** International Journal of Sustainability in Higher Education, v. 12, no. 1, pp. 55-66, 2011
Abstract : This paper shows how academia can address sustainability through curricula models and provides a detailed description of the Global Seminar (GS) curricula model by exploring its on-the-ground participatory practices. The authors interviewed 20 faculty members from the USA, Mexico, Costa Rica, Italy, Australia, Sweden, Honduras, South Africa, Germany, Austria, and Denmark. They observed class sessions; and analyzed available course documents. The findings indicate that the GS model provides a broader notion of teaching and learning for sustainability that incorporates greening and education for sustainability into curricula. This participatory model proves the emerging shift towards a new paradigm of teaching and learning for sustainability in academia.

Educating engineers for a better future / Daniel Morano / UNESCO Office Montevideo and Regional Bureau for Science in Latin America and the Caribbean . - **In:** ISTIC-UNESCO-WFEO Workshop on Science, Engineering and Industry: Innovation for Sustainable Development . - Montevideo : UNESCO Office Montevideo, 2011
URL : http://unesdoc.unesco.org/images/0021/002110/211091e.pdf

Interactive and situated learning in education for sustainability / Sergio Altomonte, Brian Logan, Markus Feisst, Peter Rutherford, Robin Wilson . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 3, pp. 417-443, 2016
Abstract : This study aims to explore the opportunities offered by e-learning and m-learning in support of education for sustainability in disciplines of the built environment. The paper illustrates the development of an online portal and a mobile app aimed at promoting students' motivation and engagement with sustainability in design. The findings add empirical evidence to the view that information and communication technology-enhanced pedagogies can substantially contribute to the agenda of sustainability in higher education, primarily due to their affordance of interactive communication and contextualisation of knowledge, while guaranteeing flexible time and pace of learning. The authors note that the tools trialled in this were mostly at their prototypical stage and their testing included a relatively short-term evaluation and a narrow, self-selected, user base. However, the approach and findings are felt to be applicable to a much wider range of educational contexts.

Introducing Sustainability into business education contexts using active learning / Jason MacVaugh, Mike Norton / International Association of Universities [IAU] . - **In:** Higher Education Policy, v. 24, no. 4, pp. 439-457, December 2011

Abstract : The focus of this study is the experience of the authors in developing and implementing education for sustainability within their business-related higher education programmes in Japan and the UK. To address the inherent challenges of the task, they apply the principles of active learning, with substantial use of problem-based learning, in the classroom and engage in a process of staff development in their personal time. The method used is a simplified version of action research where the authors worked together over two years and then reflected on the experience through interviews and extensive discussions with each other, with their respective teaching teams, and with sustainability educators from outside of their programmes.

Sustainability curriculum in higher education : a call to action / Association for the Advancement of Sustainability in Higher Education [AASHE] . . - Denver : AASHE, 2010 . - 13 p.
Abstract : This report address how institutions of higher education can build on past initiatives in order to infuse sustainability topics into college and university curricula. It is based on the proceedings and discussions of the AASHE Summit on Sustainability in the Curriculum, held in in San Diego, USA in February 2010. A series of recommendations from the Summit is provided.
URL : http://www.aashe.org/files/A_Call_to_Action_final%282%29.pdf

Africa

Adding value to education for sustainability in Africa with inquiry-based approaches in open and distance learning / Rudi Pretorius, Andrea Lombard, Khotoo Anisa . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 2, pp. 167-187, 2016
ISSN 1467-6370
Abstract : This paper maps the benefits and challenges online distance learning using inquiry-based learning in education for sustainability in Africa. Evidence-based reflection is used to provide a narrative assessment of the experience gained with inquiry-based learning in two undergraduate sustainability-focused modules in the Geography department at the University of South Africa (Unisa), an online distance learning provider in Africa and the Global South. The findings indicated that although constraints are experienced, adoption of inquiry-based learning approaches holds potential as pedagogic for education for sustainability in Africa, due to grounding of learning in theory and applied to local places/contexts. The authors note that implementing place-based and contextual inquiry-based learning is innovative in online distance learning. It adds value to learning experiences and supports transformative learning, addressing a need in the African context.

Higher education curriculum for sustainability : course contents analyses of purchasing and supply management programme of polytechnics in Ghana / Daniel Etse, Coral Ingley . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 2, pp. 269-280, 2016
ISSN 1467-6370
Abstract : The purpose of this study is to determine the degree of attention to and the nature of sustainability issues in the curriculum of the Higher National Diploma (HND) Purchasing and Supply Management programme of Ghana. Documentary research was used to analyse the curriculum document for the programme of study. The findings reveal a low presence of sustainability in the curriculum, and most of the sustainability sub-topics address issues of social justice, while economic sustainability issues feature the least.

Proposing a master's programme on participatory integrated assessment of energy systems to promote energy access and energy efficiency in Southern Africa / Cheddi Kiravu, François Diaz-Maurin, Mario Giampietro, et al. - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 3, pp. 622 - 641, 2018
ISSN 1467-6370
Abstract : This paper presents an innovative higher education curriculum in terms of the attention given to energy access and energy efficiency that affect the southern Africa region and the nature of the methodology adopted to face these issues. A transdisciplinary approach called "participatory integrated assessment of energy systems" (PARTICIPIA) was used for the development of the curriculum. This approach is based on the two emerging fields

of "multi-scale integrated assessment" and "science for governance. The application of the PARTICIPIA methodology to three case studies reveals that the proposed transdisciplinary approach could support energy and development policies in the region. The implementation of the PARTICIPIA curriculum in three higher education institutions reveals its ability to respond to the needs of specific contexts and its connection with existing higher education programmes. Practical implications. Considering energy issues from a transdisciplinary approach in higher education is absolutely critical because such a holistic view cannot be achieved through engineering curricula. Deliberate and greater efforts should be made to integrate methods from "multi-scale integrated assessment" and "science for governance" in higher education curricula to train a new generation of energy planners in charge of coming up with solutions that are shared by all relevant stakeholders.

Mainstreaming environment and sustainability: an analysis of a master's in environmental science and a tree-planting project at Chancellor College, University of Malawi / Sosten S. Chiotha / UNESCO Institute for Lifelong Learning . - **In:** International Review of Education, v. 56, no. 2-3, pp. 287-298, 2010
ISSN 0020-8566 . - Online ISSN 1573-0638
Abstract : In 2004, Mainstreaming Environment and Sustainability in African Universities (MESA) was formally launched by UNEP, UNESCO and the Association of African Universities. This paper sets the stage for a critical analysis of ESD by reviewing historical perspectives of conservation in Africa as a means of appreciating the need for African universities to mainstream both environmental concerns and those relating to sustainability. Two case studies from the University of Malawi are discussed to illustrate that good practice in mainstreaming environment and sustainability requires challenges to be refined and knowledge to be extended on an ongoing basis. To analyse the reorientation of the curriculum for Education for Sustainable Development (ESD), the paper examines the introduction of an Environmental Science Masters programme at the college and notes how environmental issues are covered. The article also looks at the college's tree-planting programme in terms of the training, research and outreach involved.

Arab States

The interfaculty graduate environmental sciences program of the American University of Beirut: an ESD initiative in the Arab World / Rami Zurayk, Mutasem El-Fadel, Iman Nuwayhid / UNESCO Institute for Lifelong Learning . - **In:** International Review of Education, v. 56, no. 2-3, pp. 299-314, 2010
ISSN 0020-8566 . - Online ISSN 1573-0638
Abstract : The American University of Beirut's Interfaculty Graduate Environmental Sciences Program was launched in 1997 as a means of addressing salient issues on the environment and development in Lebanon and the Arab World. The programme adopts a student-centred learning approach and aims to develop critical and systems thinking skills to produce socially and environmentally conscious leaders and agents of change in the Arab World. In this paper, the authors provide an evaluation of the programme's ESD dimensions using the criteria of interdisciplinarity, local relevance and competence-based learning. This is followed by a critical analysis of the programme's potential for use as a model in the Arab World. The authors found that, while the model may be useful in providing inspiration and a good practice case, its transfer to institutions of higher education in the Arab World or even in Lebanon is unlikely, and perhaps undesirable, in view of the inherently diverse nature of Arab universities.

Asia and the Pacific

A critical review of education for sustainable development (ESD) in Japan : beyond the practice of pouring new wine into old bottles / Yoshiyuki Nagata . - **In:** Educational Studies in Japan : International Yearbook, no. 11, pp. 29 - 41, March 2017
ISSN 1881-4832
Abstract : In Japan, ESD has been incorporated as mainstream policy. However, looking back on the UN Decade of Education for Sustainable Development (UNDESD), ESD has not brought about the transformation in Japan expected, despite the support at the policy level. The cause may be that pouring the "new wine" of ESD into the "old bottle" of the traditional educational system has diluted the dynamic contained in ESD. This article describes

the differences between "shallow ESD" and "deep ESD". The former stems mainly form widely shared interpretations of ESD that emphasise the overlap and connections with the existing curriculum and types of education. The latter is needed to avoid this loss of dynamism and to gain access to the full potential of ESD. Holistic educational approaches that replace conventional ones, as well as system-level transformation, are indispensable to release "deep ESD". (Abstract from publisher)

Defining sustainable universities following public opinion formation process / Deniz Zaptcioglu Celikdemir, Gonca Gunay, Alev Katrinli, Sebnem Penbek Alpbaz . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 3, pp. 294-306, 2017
Abstract : This paper aims to re-define the "sustainable university" with all dimensions including environmental, economic and social factors in Turkey. Based on the model shaping the policy agenda and public opinion formation by certain groups presented by Papadakis (1996), the researchers collected data from intellectuals, rectors, political parties, media and public simultaneously. Focus groups and archival research was undertaken. The results found that the definition of sustainable universities in Turkey includes the economic, ecological and social aspects and a holistic view of different groups. The findings of the study indicate that the definition of sustainable universities in Turkey has many facets. Different groups in the public opinion formation process share almost similar views, though these points are usually mentioned under different topics.

Engaging sustainability good practice within the curriculum design and property portfolio in the Australian higher education sector / Joanna Poon. - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 1, pp. 146-162, 2017
Abstract : This research is based on case study institution of an Australian university, using desk-top study including the review of the University's Strategic Plan, policy agenda on sustainability and the documents on sustainability courses and units. Semi-structured interviews were held with academics who have course development and management responsibility within the university, colleagues who have a sustainability-focused role on estate management and colleagues whose roles are to manage sustainability initiatives at the institution level. Analysis of the findings showed that despite the university having clear strategic aims and initiatives on the incorporation of sustainability within the curriculum design and property portfolio, there is disconnection between policy development and policy implementation. As a result, the incorporation of sustainability varies largely between curricula within the institution. The incorporation of sustainability within the property portfolio is clear and effective. However, within the curriculum, it is polarised. The level of incorporation depends on the nature of the course or unit and is largely driven by the initiatives of the individual academic. Good practice identified in the incorporation of sustainability within the curriculum is to use a problem-based approach supported by real life projects to enhance the students' authentic learning experience.

Wheels of change in higher education : a collaborative, multi-stakeholder project as a vehicle for sustainability education / Kristi Warr Pedersen, Emma Pharo, Corey Peterson, Geoffey Andrew Clark . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 2, pp. 171-184, 2017
Abstract : This paper profiles the development of a bicycle parking hub at a university in Australia to illustrate how the process through which a cross-disciplinary place-based learning initiative was designed, implemented and evaluated over a three-year period.
URL : http://www.emeraldinsight.com/doi/full/10.1108/IJSHE-10-2015-0172

Connecting curriculum, capabilities and careers / Ian Thomas, James Depasquale . - **In:** International Journal of Sustainability in Higher Education, v.17, no. 6, pp. 738-755, 2016

Abstract : The reported research aims to examine the extent to which sustainability capabilities have been delivered by a undergraduate Education for Sustainability programme and international research project at a university in Australia and how important the capabilities have been in the workplace. Questionnaires answered by graduates who had completed the course examined demographics, the relevance of five "sustainability competencies" to the participant's employment, the degree to which the five competencies had been developed within the students' project and capabilities participants felt were important to their careers. The results indicate the relevance of all five sustainability competencies, especially that of "interpersonal competence". The authors conclude that clarification of competencies valued in the workplace provides guidance for the design of higher education curricular so that graduates become effective sustainability professionals.

Integrating sustainability education into international marketing curricula / Chamila Roshani Perera, Chandana Rathnasiri Hewege . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 1, pp. 123-148, 2016
Abstract : The study investigates the learning gaps in sustainability education among undergraduates enrolled in an International Marketing course in an Australian university. An online survey of 111 students and content analysis of essays of 60 students were carried out. The main learning gaps identified reveal that undergraduates find it difficult to view the social function of international business firms from a holistic point of view; critically assess sustainable marketing practices; and articulate views on sustainable marketing practices. The authors postulate a series of pedagogical practices to effectively integrate sustainability education into the curricula.

Sustainability champions?: Academic identities and sustainability curricula in higher education / Bronwyn E. Wood, Sue Cornforth, Fiona Beals, Mike Taylor, Rachel Tallon . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 3, pp. 342-360, 2016
Abstract : This paper explores the experiences of academic staff who are committed to embedding sustainability within tertiary curricula and pedagogy. A survey of staff was undertaken in a New Zealand university and in-depth interviews conducted with 11 sustainability "champions". A narrative variant of thematic analysis was used to examine the ways these sustainability "champions" made sense of the work they do. This revealed a sense of the identities that they held as educators of sustainability. Three types of identities emerged – the sustainability "saviour", "nurturer" and "struggler". These identities reflected the champion's experiences, disciplinary affiliations and pedagogical approaches. Interdisciplinarity emerged as a key tenet and challenge for such sustainability champions.

Teaching sustainable development in higher education : building critical, reflective thinkers through an interdisciplinary approach / Cathy Howlett, Jo-Anne Ferreira, Jessica Blomfield . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 3, pp. 305-321, 2016
Abstract : This paper presents a case study of innovations in pedagogy for sustainability in higher education. It evaluates the design of a course aimed to teach sustainable development to first year undergraduate students within an Australian higher education setting. Data from student reflective essays and student course evaluations are used to make an argument for the success of an interdisciplinary approach designed to promote capacities in students for critical and reflective thinking. The findings suggested that genuine transformative learning can occur within an informed pedagogical approach to teaching for sustainability. The authors argue that substantive changes are required in both curricula and pedagogical practice in higher education institutions to challenge dominant epistemologies and discourses to the environment. Central to such a shift, it is argued, is the need for higher education curricula to be interdisciplinary and for pedagogical practices to work to build capacities in students for critical and reflective thinking.

Using communities of practice to enhance interdisciplinary teaching : lessons from four Australian institutions / Emma Pharo, Aidan Davison, Helen McGregor, Kristin Warr, Paul Brown . - **In:** Higher Education

Abstract : This article reports on the establishment of communities of practice at four Australian institutions and evaluates their effectiveness and durability as a means of building staff and institutional capacity for interdisciplinary teaching. The communities established were anchored by a shared focus on climate change and they worked collaboratively to build relationships of trust and reciprocity between teachers in a wide range of disciplines. The aim of each community was to improve the teaching of climate change through enabling members to integrate diverse disciplinary perspectives, to teach collaboratively, to promote innovation through exchange and to demonstrate leadership within their institutions. The key factors that made the communities effective and durable are: (1) designation of two leadership roles, activator and facilitator, (2) provision for institutional autonomy in domesticating the model to fit local circumstances and (3) a pragmatic emphasis on opportunities for teaching innovation and leadership within existing administrative structures, teaching programmes and workloads.

Sustainability in business education in the Asia Pacific region : a snapshot of the situation / Malik Nqeem, Mark Neal . - **In:** International Journal of Sustainability in Higher Education, v. 13, no. 1, pp. 60-71, 2012
Abstract : This is the first region-wide survey of sustainability in business education in the Asia Pacific region. In addition to measuring the number of courses and programs integrating sustainability, the study solicited qualitative observations by respondents, to provide information and insight into the issues. The research found that whereas corporate governance, sustainability and business ethics were quite commonly taught in business schools, they were not generally prioritized. There was also an overall lack of systematic approaches to the integration of sustainability in business curricula, and significant barriers to the integration of sustainability into programs remained.

International field experiences promote professional development for sustainability leaders / R. Bruce Hull , David P Robertson , Michael Mortimer , Courtney Kimmel . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 1, pp. 86-104, 2016
Abstract : This paper examines and analyes the international component in China of a Master of Natural Resources programme which aimed to increase students' competences in leadership for sustainable development. The results found that the international project built competencies related to collaborative problem-solving, cultural capacity to work globally and sustainable development. Six pedagogic practices were perceived as effective by students and generate learning outcomes desired by faculty: authentic problems, learning cycles, shared inquiry, transdisciplinarity, exploration and engagement.

Europe and North America

A collaborative action research project towards embedding ESD within the higher education curriculum / Gisela Cebrián . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 6, pp. 857 - 876, 2017
Abstract : This paper presents a collaborative action research project conducted at the University of Southampton in the UK with the aim to promote curriculum and professional development in education for sustainable development (ESD) and learn from everyday practices of academics. An action research approach guided by participatory and emancipatory approaches was used. An interdisciplinary group of five academic staff members from different subject areas (education; archaeology; electronics and computer sciences; biology; and health sciences) was created with the aim to support the group's critical reflection and action towards embedding ESD in their teaching practice. The main outcomes of delivery of sustainability teaching achieved through the project and evidences of the impact of the facilitator role are outlined. The facilitator role has enabled reflection and action, together with the identification of specific needs of academics and the factors influencing their engagement and action.

A holistic approach to delivering sustainable design education in civil engineering / Chandra Mouli Vemury, Oliver Heidrich, Neil Thorpe, Tracey Crosbie . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 1, pp. 197-216, 2017

Abstract : This paper provides results of implementing sustainable design education (SDE) to second-year undergraduate students on civil engineering programmes in a university in the north of England. The research takes an action-based approach to the development of a teaching and assessment model centered on problem- and project-based learning in a real-world context. Because of the use of a design brief, which addressed a practical infrastructure problem encountered by regional communities, the academic team were able to make arguments related to the three pillars of sustainability more accessible to the students. This suggests that pedagogical instruments based on problem- and project-based learning strategies are effective in delivering SDE. The authors found that the successful delivery of SDE requires commitment from the senior management teams leading individual departments as well as commitments embedded in the high-level strategies of Higher Education institutions. In addition, some students need extra support from the teaching staff if their engagement through SDE is to be successful.

Remodelling urban planning education for sustainable development : the case of Serbia / Marija Maruna, Danijela Milovanovic Rodic, Ratka Colic . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 4, pp. 658-680, 2018

Abstract : The paper aims to present a pedagogical model tailored to the development of key competences in the urban planning profession. It is based on the principles of education for sustainable development and focuses on the establishment of a repeatable platform for dialogue between students and mentors, members of the mentoring team, the local community, external members of the consulting team of experts and foreign master's degree programmes, in the process of producing students' projects. It provides a comparative overview of the pedagogical model's application in producing the final master's degree projects of three cohorts of students, as well as its alignment with the needs of re-defining the role of the profession of urban planner in an environment of post-socialist transition. The model was improved, enhanced and optimised through this process and then corroborated with its practical implementation.

URL : https://www.emeraldinsight.com/doi/full/10.1108/IJSHE-07-2017-0102

Education for sustainable development : an exploratory study in a Portuguese University / Ricardo Torres, Rui Marques Vieira, Ana V. Rodrigues, Patrícia Sá, Gillian Moreira . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 6, pp. 956 - 970, 2017

Abstract : The research presented here, in Portuguese higher education institutions, was part of the European 'University Educators for Sustainable Development' project. This article examines whether Education for sustainable development was included in in the teacher training master programmes in a particular institution.

ESD principles in higher education from a perspective of Central and Eastern European countries / Jana Dlouhá, Katja Vintar Mally, Jiří Dlouhý . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 6, pp. 822-840, 2017

Abstract : This paper reflects on education for sustainable development (ESD) principles and their manifestation in higher education (HE) in Central and Eastern European (CEE) countries. Observations from comprehensive mapping of ESD in professional development of university educators in CEE within the University Educators for Sustainable Development project provided the initial input for this research. The research was based a questionnaire-based survey distributed among informed informed experts in ESD and assessed qualitatively. ESD success factors were identified to support the interpretation of the results within the overall HE policy context. The results showed that opportunities for educators' competence development are lower and less diverse in the CEE

region than in other parts of Europe. Historical reasons and the policy context may contribute to this situation; the most important factor being the underfinanced HE sector which is currently undergoing profound structural transformation.

How education for sustainable development is implemented in Germany : looking through the lens of educational governance theory / Inka Bormann, Jutta Nikel / UNESCO Institute for Lifelong Learning . - **In:** International Review of Education, v. 63, no. 6, pp. 793-809, 2017

Abstract : The authors of this article address the implementation process of ESD in Germany during the UN Decade (2005–2014). By undertaking a meta-analysis of the findings of four related sub-studies they carried out during a three-year project funded by the German Federal Ministry of Education and Research, the authors contribute to the understanding of the process of transferring the concept of ESD within a multi-level education system. They investigated this process at two levels – the federal state (a sub-national entity in Germany) and the communal level. Drawing on educational governance theory, the authors unveil principles, norms, rules and procedures in the coordination of action within constellations of heterogeneous actors contributing to the implementation of ESD in their social entities. The outcome of the meta-analysis describes an emerging governance regime in ESD, taking into consideration the following features impacting the coordination of action being carried out by the actors involved: (1) the understanding of the normative concept of ESD as content of negotiation; (2) the perceived opportunity for actors to gain and increase appreciation within the field of ESD as an incentive for and driver of engagement; and (3) the dynamic quality of the set-up, rules and principles of the coordination of action, which renders these subject to situative changes. In the final part of the paper, the findings are discussed from the perspectives of the theory of transfer and the current empirical basis of ESD policy and governance.

Integration of sustainability in engineering education : Why is PBL an answer? / Aida Guerra . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 3, pp. 436-454, 2017

Abstract : Problem based learning (PBL) has been one of the main learning pedagogies used to integrate sustainability in engineering education. This paper aims to investigate the relation between PBL and ESD and the ways in which they are integrated and practised in the engineering curricula. The study starts with a review of the literature concerning ESD and PBL theories where relations between both are defined. This is followed by an empirical work in which the PBL and ESD relations are investigated in relation to the PBL engineering curricula. The empirical work involves two engineering master programmes at a university in Denmark, while documentary analysis and interviews are used as methods for data collection. The results show that even though PBL and ESD share common learning principles, their practice presents limitations that challenge the full integration of sustainability, namely, the crowded, strict and academic-centred curriculum, the struggle to balance different contexts with professional, interdisciplinary and collaborative knowledge and the tacit presence of sustainability.

Learning for and about sustainability in higher education : a regional perspective based on experiences from the Baltic and the Mediterranean / Michael Scoullos, Vicky Malotidi, Paula Lindroos, Sinikka Suomalainen . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 6, pp. 877-893, 2017

Abstract : The paper presents and compares collective efforts of higher education institutions working through two regional networks in introducing and promoting education for sustainable development (ESD) and environmental education (EE); Both regions, the Baltic and the Mediterranean, have multiple needs and high potential for more efficient linking of SD with higher education. Early on it was realised that regional networking could stimulate countries and universities towards this task. Two networks were set up: the Baltic University Programme (starting in 1991) and the Mediterranean Universities Network for SD focusing on ESD (starting in 2007). The authors present the driving forces for the establishment of these two networks, reviews their main activities together with lessons learned and gives directions for their future operations.

Educating academic staff to reorient curricula in ESD / Michele Biasutti, Vassilios Makrakis, Eleonora Concina, Sara Frate . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 1, pp. 179-196, 2017

Abstract : This paper presents a professional development experience for higher education academic staff within the framework of within the framework of the Reorient University Curricula to Address Sustainability (RUCAS) project funded by the European Commission. Participants were academic staff (three males and five females) from two Jordanian universities who had been involved in the RUCAS activities. A qualitative approach was used to examine perceived professional development. Focus groups were conducted with the academic staff who participated in the project. The results provided evidence that revising their curricula offered the participants an opportunity to discuss different principles, teaching methods, didactic processes and practices in Education for Sustainable Development (ESD). Several strategies emerged during curricula revision such as a positive attitude towards meta-cognitive strategies and a goal-oriented approach to curriculum planning. Moreover, the project induced the academic staff to reconsider their teaching methods.

Motivating students on ICT-related study programs to engage with the subject of sustainable development / Lorenz M. Hilty, Patrizia Huber - **In:** International Journal of Sustainability in Higher Education, v.. 19, no. 3, pp. 642-656, 2018

Abstract : Many topics form a bridge between SD and ICT and could potentially be integrated into ICT-related study programs. This paper reports the findings of a study in two universities in Switzerland and in Sweden.
In this exploratory study, the authors evaluated Bachelor's and Master's courses that introduced the topic of SD to students on ICT-related study programmes. The evaluation focuses on the insights that the students gained into sustainability and the extent to which their motivation to engage with the subject was increased. The evaluation combines qualitative and quantitative approaches. The authors identify five thematic clusters with the greatest potential to motivate students to engage with the topic of sustainability: A conceptual model of the positive and negative impacts of ICT; Reports on the recycling of ICT hardware; Examples of using ICT to reduce greenhouse gas emissions with a focus on the substitution of virtual for physical presence; Statistical data on post-industrial seemingly dematerialized economies and the contradiction with regard to the total material demand of such economies; Evidence for rebound effects that lead to increasing demand for goods or services that are produced with less energy input or can be consumed faster.

Systematic curriculum integration of sustainable development using life cycle approaches : the case of the Civil Engineering Department at the Université de Sherbrooke / Bastien Roure, Chirjiv Anand, Véronique Bisaillon, Ben Amor . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 3, pp. 589 - 607, 2018

Abstract : This paper thus proposes a framework for the systematic integration of SD through the lenses of life cycle approach and associated tools to attain effective curriculum integration. The proposed framework suggests the following five steps: mapping the curriculum, setting learning targets, developing an action plan for the assessed program, implementing the action plan and assessing the final performance findings. This framework was applied to the Civil Engineering curriculum at Sherbrooke University, Canada. To assess its success, a student satisfaction survey was conducted, and teachers' feedback was obtained; the results showed 85 per cent positive responses. The authors show how this study allowed the CE curriculum to be properly updated and brought in line with today's engineering profession requirements with regard to SD.

The use of educational game design and play in higher education to influence sustainable behaviour / Theresa G. Mercer, Andrew P. Kythreotis, Zoe P. Robinson, Terje Stolte, Sharon M. George, Stephanie K. Haywood . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 3, pp. 359-384, 2017

Abstract : A case study on the creation, development and utilisation of educational games by university students for use in by school children of 10-13 years in Scotland is presented. The data used were from questionnaire feedback from the university students who designed the games and the school students who played the games. Further qualitative feedback was collected from local schools involved in playing the games created by the students. Overall, the university students responded positively to the assessment and would like to see more of this type of assessment. They enjoyed the creativity involved and the process of developing the games. For the majority of the skill sets measured, most students found that their skills improved slightly. Many university students felt that they had learnt a lot about effectively communicating science. The school children involved in playing the student-created games found them accessible with variable degrees of effectiveness as engaging learning tools dependent on the game.

Transdisciplinary learning and teaching as answers to urban sustainability challenges / Petra Biberhofer, Christian Rammel . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 1, pp. 63-83, 2017
Abstract : This case study stresses new forms of transdisciplinary learning and teaching as essential drivers of a sustainable urban development. The inter- and transdisciplinary teaching course "Sustainability Challenge", which has been offered since 2010 as a collaborative project by the four largest universities of Vienna, highlights the value of experienced-based learning approaches and the method of service learning. Special attention is devoted to the opportunities and challenges of the setting provided by the applied science-society interface and the particular method of service learning with its concrete benefits for the city of Vienna. In analysing the conceptual framework of the teaching course as well as conducted service learning projects, the authors prove potential benefits of transdisciplinary learning and teaching for real answers to urban sustainability challenges. Portraits of the most successful service learning projects are presented, with partners such as the City of Vienna, an organization and one enterprise. Lessons learned from the case study and key elements of the institutionalized umbrella function of science-society interfaces that provide prerequisites for applying transdisciplinary learning and teaching are shown. [Abstract from publisher]

Using module-based learning methods to introduce sustainable manufacturing in engineering curriculum / Debalina Sengupta, Yinlun Huang, Cliff I. Davidson, Marrio R. Eden, Mahmoud El-Halwagi . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 3, pp. 307-328, 2017
Abstract : This paper is reports on the implementation into the curriculum of a United States National Science Foundation-sponsored project titled: "The Sustainable Manufacturing Advances in Research and Technology Coordination Network (SMART CN)". The project aims to bridge the gap between the academic knowledge discovery and industrial technology innovation for sustainable manufacturing, defined as the creation of manufactured products that use processes that are non-polluting, conserve energy and natural resources, and are economically sound and safe for employees, communities and consumers. The paper reports on research and educational activities have been undertaken to introduce Sustainable Manufacturing Case Studies for use by academic instructors to a diverse group of undergraduate, graduate and industry professionals. Specifically, the creation of structured modules for introducing the topic of sustainable manufacturing in the curriculum. The article concludes with examples of case studies developed through the SMART-CN project framework.

A collaborative programme in sustainability and social responsibility / Silvia Albareda Tiana, Azul Alférez Villarreal . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 5, pp. 719-736, 2016
Abstract : This paper examines how students learn and develop competences in sustainability and social responsibility (SSR). It is based on a case study of teacher education at a Spanish university whereby students develop competences in sustainability and social responsibilities as part of their teaching degree. The programme described in this case study includes methodological scenarios that allow students to critically analyse their own

lifestyles and decisions; engages students in their own learning as an innovative strategy to promote change in their behaviour towards more sustainable habits; and implements interdisciplinary and collaborative projects open to the whole university.

An experience-based learning framework : activities for the initial development of sustainability competencies / Guido Caniglia, Beatrice John, Martin Kohler, Leonie Bellina, Arnim Wiek, Christopher Rojas, Manfred D. Laubichler, Daniel Lang . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 6, pp. 827-862, 2016
Abstract : This paper aims to present an experience-based learning framework that provides a bottom-up, student-centered entrance point for the development of systems thinking, normative and collaborative competencies in sustainability. The authors applied the learning framework for student activities in Phoenix/Tempe and Hamburg/Lüneburg as part of The Global Classroom, a project between Arizona State University in the USA and Leuphana University of Lüneburg in Germany. The results demonstrated that the application of the experience-based learning framework led to students developing systems thinking (e.g. understanding urban systems as functional entities and across different domains), normative (e.g. using different sustainability principles) and collaborative (e.g. learning across disciplinary, social and cultural differences) competencies in sustainability.

Integrating sustainability across the university curriculum / Jane Ellen Dmochowski, Dan Garofalo, Sarah Fisher, Ann Greene, Danielle Gambogi . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 5, pp. 652-670, 2016
Abstract : This article summarises the Integrating Sustainability Across the Curriculum (ISAC) programme at a univerisity in the USA, provides an evaluation of its success and guidance to others creating similar programmes. ISAC pairs undergraduate research assistants with instructors in a collaborative effort to incorporate sustainability into courses. In concert with other initiatives, such as faculty discussion groups and a research network, the ISAC programme increases the university's sustainability-related courses and creates dialogue regarding how various disciplines contribute to sustainability.

Plan d'action de développement durable (2016-2020) / Canada. Quebec Province. Ministère de l'éducation et de l'enseignement supérieur . - Ministère de l'éducation et de l'enseignement supérieur, 2016 . - 36 p.
Abstract : This publication details the objectives and actions by the Ministry of Education and Higher Education in Quebec, Canada towards sustainable development.
URL : http://www.education.gouv.qc.ca/fileadmin/site_web/documents/PSG/politiques_orientations/PADD_2016-2020.pdf

Sustainability in education 2016 / Environmental Association for Universities and Colleges [EAUC][UK]; National Union of Students [NUS][UK]; University and College Union [UCU][UK]; Association of Colleges [AoC][UK]; College Development Network [UK] . - Cheltenham, UK : EAUC, 2016 . - 52 p.
Abstract : This report identifies how further and higher education institutions are responding to environmental sustainability and social responsibility challenges, as well as how staff perceive their institution's efforts. It is based on a survey of 12 staff members from universities, colleges and students' unions in the UK with 63 respondents identifying as lead staff members on environmental sustainability and social responsibility on a formal or informal basis.
URL : http://www.eauc.org.uk/2016_the_state_of_sustainability_in_tertiary_e

UE4SD Innovation Report : Year 2 (2014-2015) / University Educators for Sustainable Development [UE4SD] . - UE4SD, 2016 . - 11 p.

Abstract : This Innovation Report is the second annual review of significant developments in Education for Sustainable Development (ESD) in Higher Education (HE), as part of the University Educators for Sustainable Development (UE4SD) project. The UE4SD Consortium involves 52 partners in 33 countries across Europe. The second reports spans international developments during 2015 and the landscape for ESD professional development across the world. It outlines the significant global dialogues, initiatives and platforms on education, sustainable development and higher education that have taken place following the close of the UN Decade of Education for Sustainable Development (DESD) and the launch of the UNESCO Global Action Programme (GAP) on ESD and national responses to this. It reports continued signs of the growth of demand for skills development and university action on ESD among higher education student populations and emerging dialogue on the competences and capabilities relevant to sustainability, both from employers and agencies that are looking for these attributes in higher education graduates, and from educators seeking to support the professional development of university educators.

Determining factors of environmental education in Spanish universities / Manuel Larrán, Javier Andrades. - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 2, pp. 251-271, 2015
ISSN 1467-6370

Abstract : This paper analyses environmental integration in curricula in Spanish universities. The authors conducted web content analysis and statistics of the curricula of undergraduate management degrees at all universities in Spain. One of the main findings is that public universities in Spain are more likely to require an environmental course than private universities. Other factors, such as size, political orientation or chairs/research institutes are not statistically explanatory of environmental education. Another finding is that environmental training in management courses offered by Spanish universities is still relatively underdeveloped. Comparatively, the authors found that the most common method of teaching environmental issues in Spain is by means of embedded subjects (horizontal integration) in comparison with stand-alone subjects (vertical integration). From this perspective, the main topics covered in curriculum are environmental management, sustainable tourism, environmental economy and environmental impact.

Experiential learning for sustainability leadership in higher education / Emma Savage, Tara Tapics, John Evarts, Jeffrey Wilson, Susan Tirone . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 5, pp. 692-705, 2015
ISSN 1467-6370

Abstract : This article describes key design elements of a sustainability leadership certificate programme for undergraduates from various disciplines in Canada. The programme was framed around five key sustainability competencies which were tested in 32 participants using a pre/post self-assessment. The results indicate that the programme participants were generally motivated by the programme's experiential format and supportive community. They felt that they had improved their confidence and competence in the key sustainability competencies. Three themed clusters, community, future and personal development, emerged from the participants' open-ended responses. This supports the programme design and can inform further programme development. The authors note that the importance of the third theme, personal development, as it is not a typical focus of sustainability in higher education, but held high importance to participants.

How an entry-level, interdisciplinary sustainability course revealed the benefits and challenges of a university-wide initiative for sustainability education / Nicholas C. Coops, Jean Marcus, Ileana Construt, Erica Frank, Ron Kellett, Eric Mazzi, Alison Munro, Susan Nesbit, Andrew Riseman, John Robinson, Anneliese Schultz, Yona Sipos . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 5, pp. 729-747, 2015
ISSN 1467-6370

Abstract : In this paper, the authors describe the development, and preliminary implementation, of an entry-level, interdisciplinary sustainability course. They detail the development of a university-wide initiative, the conceptual framework for organising course content and delivery designed to bridge units on campus working and teaching in

sustainability areas, and to promote and support sustainability curriculum development. The authors conclude with an informal assessment of the successes and challenges, and offer learning activities, student assessments and course administration recommendations for consideration when developing courses with similar learning goals.

Reviewing the incidence and status of sustainability in degree programmes at Plymouth University /
Lynne Wyness, Stephen Sterling . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 2, pp. 237-250, 2015
Abstract : This paper presents an overview of the design and implementation of a curriculum review undertaken at Plymouth University, UK, to gauge the incidence and status of sustainability in degree programmes across the curriculum. A top-down approach was avoided, by placing the emphasis on self-evaluation of how the degree programmes were implementing sustainability in a number of broad areas, such as curriculum content, pedagogical approaches and student engagement. A review tool was created and distributed to all undergraduate and postgraduate degree programmes in the university. In particular, the review was designed to contribute the institutional annual submissions to the university's Learning in Future Environments index. The review recognised good practices that exist and, since its completion, the approaches are being used to promote the ongoing development of sustainability in the university.

Are we educating engineers for sustainability?: Comparison between obtained competences and Swedish industry's needs / Andreas Hanning, Anna Priem Abelsson, Ulrika Lundqvist, Magdalena Swanström . - **In:** International Journal of Sustainability in Higher Education, v. 13, no. 3, pp. 1467-6370, 2012
Abstract : This study analysed the content of 70 courses in environment and Sustainable development at a Swedish university, the views of students and alumni - using questionnaires, and those of representatives from 16 Swedish companies and five organizations using interviews and focus groups. It was found that industry demands a broader range of competences in sustainable development amongst engineers in general than what is currently provided. In total, 35 per cent of alumni claim they encounter sustainability issues from sometimes to daily in their work. However, only half of them believe they possess enough competences to make decisions from a sustainability perspective. Quantity, coverage and the level of integration in the educational programme all appear to be important for the students' perceived competences and for the importance that they put on achieving Sustainable development.
URL : http://www.emeraldinsight.com/journals.htm?issn=1467-6370&volume=13&issue=3&articleid=17042049&show=abstract

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The creation of an integrated sustainability curriculum and student praxis projects / Christopher M. Bacon, Dustin Mulvaney, Tamara B Ball, et al. . - **In:** International Journal of Sustainability in Higher Education, v. 12, no. 2, pp.193-208, 2011
Abstract : The purpose of this paper is to share the content and early results from an interdisciplinary sustainability curriculum in a HEI in the United States that integrates theory and practice (praxis). It shows the development process, design and content of the interdisciplinary sustainability curriculum while enlivening campus-community relationships through student projects. However, the incentives for an integrated sustainability curriculum faced persistent obstacles including the balkanization of academic knowledge, university organizational structure, and the need for additional human and financial investments. At the time of this paper, the authors were designing the second phase of this integration and expanding a social learning network through collaborations with five universities in the Americas and Europe.

Latin America and the Caribbean

Collaborative framework for designing a sustainability science programme : lessons learned at the National Autonomous University of Mexico / Lakshmi Charli-Joseph, Ana E. Escalante, Hallie Eakin, Ma. José Solares, Marisa Mazari-Hiriart, Marcia Nation, Paola Gómez-Priego, César A. Domínguez Pérez-Tejada, Luis A. Bojórquez-Tapia . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 3, pp. 378-403, 2016

Abstract : The authors describe the challenges and opportunities associated with developing an interdisciplinary sustainability programme in an emerging economy and illustrate how these are addressed through the development of the first postgraduate programme (MSc and PhD) in sustainability science at the National Autonomous University of Mexico (UNAM). The implemented collaborative framework enabled a transformation of disciplinary research and teaching at UNAM into a postgraduate programme designed to generate cutting-edge educational and research capabilities. The approach to curriculum and programme design emphasized the process and methodological framework for curriculum development as much as the outcome itself. Several of the challenges faced were related to the nature of the institution (mainly because of the complexity of its organization and the emphasis in maintaining disciplinary boundaries), as well as to the curriculum development and design approach (acceptance of a competency-based programme appropriate for the MSc but considered restrictive for the PhD). The approach enabled the emergence of a shared vision that was appropriated by all the participants. This ultimately empowered them in the presentation of the curriculum to their disciplinary peers. Furthermore, the approach facilitated the creation of a programme that remained salient along the process, while increasingly gained legitimacy and credibility among the academic community.

Economía ecológica y solidaria en el currículo del siglo XXI : el caso de la Maestría en Gestión de Proyectos para el Desarrollo Solidario del IPN / , Mara Rosas Bans, Saniago Jiménez, Maria Evelinda, Lidia A. Juarez Ruiz / Asociación Nacional de Universidades e Instituciones de Educación Superior [ANUIES] . - **In:** Revista de la Educación Superior, v. 43 (2), no. 170, pp. 89-112, abril - junio 2014

Abstract : This paper recommends an ecological and solidarity economy as a cooperative basis to create a curriculum with a trans and interdisciplinary perspective. This approach is based on the Masters in Project management for Solidarity Development at a Mexican higher education institute.
URL : http://publicaciones.anuies.mx/revista/170/2/4/es/economia-ecologica-y-solidaria-en-el-curriculo-del-siglo-xxi-el-caso

La sostenibilidad en la formación universitaria : desafíos y oportunidades / Pilar Aznar Mínguet, Angels Ull, Albert Pinero, Pilar Martínez-Agut / Universidad Nacional de Educación a Distancia [UNED][Spain] . - **In:** Educación XX1, v. 17, no. 1, pp. 133-158, 2014

Abstract : This study aims to integrate the perspective of sustainability in higher education qualifications through the incorporation of activities in the learning process for the development of learning competencies related to sustainability. The study was conducted with a sample of faculty at the University of Valencia, Spain, within the context of the implementation of the university Strategic Plan on sustainability.
URL : http://e-spacio.uned.es/revistasuned/index.php/educacionXX1/article/view/10708

The Methodist university sustainable program : using the earth charter to mainstream sustainability / Waverli Maia Matarazzo-Neuberger, Vicente Manzione Filho . - **In:** Journal of Education for Sustainable Development, v. 4, no. 2, pp. 271-278, September 2010

Abstract : This article describes a pioneering initiative of a Brazilian university to introduce sustainability in all undergraduate curricula and in its operations. The Methodist University Sustainable Program was developed in a bottom-up way and began with the introduction of sustainability as a core value in the Institutional Political-Pedagogical Plan, followed by the creation of a Sustainability Committee and actions defined in an Education

Program and Structural Diagnosis of three environmental resources: water, energy and greenhouse gas emissions. The first step of the Education Program was to establish how and where sustainability could be included within the curricula of undergraduate courses. The second step was to prepare the professors and lecturers of the identified subjects to mainstream sustainability in their curricula using the Earth Charter as a guideline. The first module of an education leadership programme was conducted and resulted in the Sustainability Academy seed. The second module is already planned and will be implemented soon.

■ Research

International

Climate change research at universities : addressing the mitigation and adaptation challenges / Walter Leal Filho, Ed. . - Cham, Switzerland : Springer International Publishing, 2017 . - 575 p.
Abstract : This book provides a multidisciplinary review of current climate-change research projects at universities around the globe, offering perspectives from the natural and social sciences. It is an outcome of an eponymous symposium held in 2016 under the International Climate Change Information Programme (ICCIP). A diverse range of case studies in India, Sri Lanka, Nigeria, Niger, the Philippines, Germany, Greece, Cote d'Ivore, Chile, South Africa, the Baltic countries and the Arab States demonstrate the impact of the university research in addressing climate change impacts on farming and agriculture, water supply, air and water pollution, emergencies such as landslides, flooding and fires, and carbon emissions. These case studies emphasise the partnerships between universities and local communities, local government, and public and private stakeholders. The book also shows how universities are themselves adapting by mainstreaming climate change in curricula, implementing climate change capacity building for lecturers, and building transdisciplinary climate change research projects.
Classmark : INT-713 LEA

Education and capacity building with research : a possible case for Future Earth / Yasuhiro Fukushima, Gakushi Ishimura, Andrew James Komasinski, Reiko Omoto, Shunsuke Managi . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 2, pp. 263-276, 2017
Abstract : This paper suggests the structure of a platform for education and capacity building for Future Earth, which is a global platform for international scientific collaboration related to Global Environmental Change. It details potential programme structure in the Asia-Pacific policy region ad also suggests competencies, contents and human resources for education and capacity building for Future Earth within the region.
URL : http://www.emeraldinsight.com/doi/full/10.1108/IJSHE-10-2015-0170

Designing an Africa-EU research and innovation collaboration platform on climate change / A. Tostensen, J. Monteverde Haakonsen, M. Hughes, J. A. Haselip, C. Larsen . - CAAST-Net Plus, 2016 . - 25 p.
Abstract : This report is a blueprint for joining up academia, business, civil society, and government in a dedicated platform for improving, for enhancing, and for strengthening the coordination and funding of Africa-EU research and innovation on climate change. The authors show our accumulated findings and recommendations about the research gaps, cooperation constraints and potential solutions in this domain, which were obtained through a research study and through four multi-stakeholder consultation workshops. The platform design proposition, which is based on these findings and recommendations, is expected to confront barriers obstructing joint Africa-EU actions on climate change mitigation, which vary, from capacity issues, to uptake issues, to access to funding.
URL : https://caast-net-plus.org/object/document/1523/attach/TheBergenReport_V6_[WEB_.pdf

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Assessing institutional frameworks of inter- and transdisciplinary research and education / Gerhard Weiss, Regina Steiner, Otto Eckmüllner / International Association of Universities [IAU] . - **In:** Higher Education Policy, v. 24, no. 4, pp. 499-516, December 2011
Abstract : This paper presents a concept for analysing the bearing of institutional settings on inter- and transdisciplinary research and education for sustainable development and applies it to a concrete case example. It asks how far the funding programme requirements and the institutional project arrangements impacted on the research process and project results. The example demonstrates not only the well-known difficulties of inter- and transdisciplinary research, but also steering possibilities. The involvement of co-financing project partners and partners from schools secured the inter- and transdisciplinary project implementation. However, they also

influenced the project outcomes according to their organisational interests. They prioritised economic and ecological over social issues, which in consequence limited the sustainability discourse within the project with regard to its breadth and inclusiveness. The paper concludes that the appropriate selection of research and practice partners as well as the sufficient budget, time and professional resources for inter- and transdisciplinary cooperation management, are crucial for the successful implementation of inter- and transdisciplinary research or educational projects for sustainable development.

Africa

Data networks and sustainability education in African universities : a case study for Sub-Saharan Africa / Gregory D. Bothun . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 2, pp. 246-268, 2016

Abstract : This paper provides a case study report of the development of data networks and initial connectivity in the Sub-Saharan African (SSA) region and how that development evolved into the formation of research and education (R & E) networks that enable new collaborations and curriculum potential. This case study is presented through the past 20 year's operations and field activities of the Network Startup Resource Center (NSRC) at the University of Oregon, who in partnership with the National Science Foundation has worked together to significantly train network engineers in Africa on how to develop regional R & E networks that can link together the various research universities in Sub Saharan Africa. The author shows how the development of these networks have fostered improved collaboration between African and US scientists, particularly around issues that relate to climate change. This paper contains testimonials from both scientists and on-the-ground key directors in Africa about the value of these improved networks. The expansion of regional R & E networks has allowed the Association of African Universities (AAU) to launch sustainable development as one of its new core programs over the period 2013-2017.

Climate change counts: Strengthening SADC universities' contributions to climate compatible development : Final scoping report / Southern African Regional Universities Association [SARUA] . - Johannesburg : SARUA, 2013 . - 25 p.

Abstract : This report describes the scoping stage of the SARUA Climate Change Counts project, one of the key outcomes of which is the development of a transdisciplinary research programme to address climate compatible development needs in the SADC region. The report provides an analysis of workshop design, main outcomes and learning from the scoping stage of the project from consultative workshops conducted in Namibia, Botswana, Mozambique, Swaziland and Zambia.
URL : http://www.sarua.org/?q=publications/climate-change-counts

SARUA Climate Change Counts Mapping Study / Piyushi Kotecha, Ed. . - Johannesburg : SARUA, 2014 . - 1261 p. (Country reports, v. 2)

Abstract : This volume contains a set of 12 Country Reports from the SARUA Climate Change Counts Mapping Study which was conducted in 2014. The countries covered are: Angola, Botswana, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. Each country report brings together background documentation on climate change in relation to the country, insights into knowledge and research needs and capacity gaps(individual and institutional), a mapping of existing university roles and contributions to climate compatible development (CCD); as well as a discussion on possibilities for CCD learning pathways and future collaborative knowledge coproduction and use.
URL : http://www.sarua.org/?q=publications

Undertaking individual transdisciplinary PhD research for sustainable development : case studies from South Africa / John van Breda, Josephine Musango, Alan Brent . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 2, pp. 150-166, 2016

Abstract : This paper aims to improve the understanding of individual transdisciplinary PhD research in a developing country context, focusing on three individual PhD case studies at Stellenbosch University in South Africa. They were coordinated through the TsamaHub, an inter-faculty platform at the University which organises educational modules for transdisciplinary research. Using actual research experiences and reflections of the three individual PhDs. Analysis showed that the central challenge to individual PhD researchers is engagement with non-academic actors to enable joint problem formulation, analysis and transformation. To overcome this, the paper suggests that developing individual epistemic relationships to build "transdisciplinary epistemic communities" should be considered for inclusion as an intentional aspect of transdisciplinary research design.

Asia and the Pacific

Exploring the living learning laboratory : an approach to strengthen campus sustainability initiatives by using sustainability science approach / Irina Safitri Zen . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 6, pp. 939 - 955, 2017
Abstract : The paper analyses the potential of a campus living learning laboratory (LLL) as an integrated mechanism to provide the innovative and creative teaching and learning experiences, robust research output and strengthening the campus sustainability initiatives. It explores the adoption of sustainability in institutions of higher education in Malaysia over the past decade and the application of the living learning laboratories in several universities.

Europe and North America

The interrelations between competences for sustainable development and research competences / Wim Lambrechts, Peter Van Petegem . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 6, pp. 776-795, 2016
Abstract : This paper explore how competences for sustainable development and research interrelate within a context of competence-based higher education. Specific focus is oriented towards strengthening research competences for sustainability. Based on a literature search as well as a detailed case study at a University in Belgium, the paper discusses current issues in the integration of competences and explores the contribution of research-based methods to acquire competences for sustainable development. The analysis shows that research skills are often mentioned to contribute to this acquisition, though from a general perspective, or from the sidelines of the learning process. A holistic view on how both concepts are linked is missing and the authors consider that there is a need to holistically (re-)frame research competences within the concepts of education for sustainable development and, to a wider extent, sustainable development.

Reflections on interdisciplinary sustainability research with undergraduate students / Can Baran Aktas . - In: International Journal of Sustainability in Higher Education, v. 16, no. 3, pp. 354-366, 2015
Abstract : This article examines experiences with involving students in initiating and conducting multiple research projects spanning engineering and sustainability. Three separate research projects in institutions in the United States are used as case studies with specific examples as to how those projects were developed. Results of the three projects indicate that faculty should not refrain from working with students from other disciplines. If successful, bringing different backgrounds and perspectives to a project enables a big picture view of problems at hand and leads to better solutions that are more in line with the three pillars of sustainability, while at the same time providing valuable hands-on experience to undergraduate students.

Contribution des établissements d'enseignement supérieur et de recherche au développement durable et au redressement productif de la France / Conference des Présidents d'Université [CPU][France]; Conférence des grandes écoles [France] . - Paris : CPU, CGE, 2012 . - 4 p.

Abstract : This contribution to the French government *Assises de l'Enseignement supérieur et de la Recherche* in September 2012, describes research on sustainable development in higher education and research institutions.

URL :
http://www.cpu.fr/fileadmin/fichiers/Developpement_durable/VF_propositions_communes_CGE_CPU_DD_assises_V180912_vf__2___2_revu_BP__3_.pdf

■ Partnerships for sustainable cities and regions

Building sustainable learning cities [Special issue] / Raul Valdés-Cotera, Mo Wang, Katharina Lunaron, Eds. / UNESCO Institute for Lifelong Learning. - **In:** International Review of Education, v. 64, no. 3, pp. 287-413, 2018
ISSN 0020-8566 . - Online ISSN 1573-0638
Abstract : The five articles in this special issue capture different aspects of a governance approach based on partnerships to support learning city initiatives in diverse settings in Australia, Hong Kong, UK, USA, Japan and the Republic of Korea. The dimensions discussed include education - sector wide, including higher education and TVET, its system and networks, as well as the involvement of ministries and government agencies. It is rooted in an understanding of lifelong learning, a guiding principle of the Sustainable Development Goals (SDGs).
URL : https://link.springer.com/journal/11159/64/3/page/1

Strengthening sustainability leadership competencies through university internships / Maria Margarita Meza Rios, Irene Marie Herremans, Jean E. Wallace, Norm Althouse, David Lansdale, Manuel Preusser . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 4, pp. 739-755, 2018
ISSN 1467-6370
Abstract : This paper aims to determine whether secondary school students can become agents of change in their local communities by participating in a formal internship programme implemented through a partnership between universities, secondary schools, nonprofit organizations and key community stakeholders. To experience campus as a learning lab, ten students from the Master graduate programme in Sustainable Energy Development at a Canadian university spent a month at three separate locations in Ecuador where they supported local sustainability initiatives related to eco-tourism, energy efficiency, water use and renewable energy. The focus of the current article is to examine the extent to which the Ecuadorian secondary school students, who were mentored by the Canadian university SEDV interns, developed sustainability leadership capabilities. The results of this research show that the secondary school students gained a greater understanding of systems as well as sustainable actions by participating in the programme.

Asia and the Pacific

Social learning as a key factor in sustainability transitions : the case of Okayama City / Robert J. Didham, Paul Ofei-Manu, Masaaki Nagareo / UNESCO Institute for Lifelong Learning . - **In:** International Review of Education, v. 63, no. 6, pp. 829-846, 2017
ISSN 0020-8566 . - Online ISSN 1573-0638
Abstract : The Okayama Education for Sustainable Development (ESD) Project is an ongoing initiative in Okayama City, Japan, established in 2005 by the Regional Centre of Expertise (RCE) Okayama and the Okayama Municipal Government with the aim "to create a community where people learn, think and act together towards realising a sustainable society". With a diverse participant base of over 240 organisations – including community learning centres (kominkans), schools, universities and non-governmental organisations (NGOs) – this initiative has administered numerous programmes. It has engaged a large and diverse group of citizens from Okayama City in exploring sustainability issues through collective discussion, envisioning and practice with the aim of living more sustainable lives. The decade-long experience of the Okayama ESD Project has gained international attention, and the "Okayama Model" is considered an inspiring example of community-based ESD due to the positive changes it has supported. In this article, the Okayama ESD Project is presented as a case study on effective social learning for sustainability. In particular, the practical efforts made are examined to provide insights into how various elements of a social learning process were strengthened and linked to create active learning cycles among community members. In addition, the conditions for creating an effective learning community are investigated, while the practical actions taken are examined in relation to creating an effective social learning process. Finally, this article presents the important role which social learning has played in Okayama City's transition to sustainability and identifies the key efforts made to address and link each of these elements of social learning into a dynamic cycle.

Europe and North America

Training sessions fostering transdisciplinary collaboration for sustainable development : Albania and Kosovo case studies / Jonas Meyer, Marlene Mader, Friedrich Zimmermann, Ketrina Çabiri . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 5, pp. 738-757, 2017
ISSN 1467-6370

Abstract : This paper examines sustainability-related challenges in the two Western Balkan countries – Albania and Kosovo. It discusses the opportunities of local higher education institutions (HEIs) taking responsibility to tackle these challenges by providing professional development through science–society collaboration in innovative training sessions for university educators. The paper starts with a literature review on actual challenges and transformations of higher education for sustainable development (ESD) in Albania and Kosovo. Subsequently, experiences from the on-going European Union (EU) project "ConSus" are used to draw both a competence framework for ESD within science–society collaboration based on the training sessions, as well as possible scaling opportunities. The paper concludes by addressing possible scaling opportunities of the project's activities.

Combining forces: fostering sustainability collaboration between the city of Vancouver and the University of British Columbia / Alison Munro, Jean Marcus, Katie Dolling, John Robinson, Jennifer Wahl . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 6, pp. 812-826, 2016
ISSN 1467-6370

Abstract : This paper describes the sustainability partnership between the City of Vancouver and the University of British Columbia (UBC) and, in particular, the co-curricular Greenest City Scholars graduate student internship programme, which has been developed by the two organisations. Through the programme, UBC graduate students work on projects at the City that help to advance sustainability targets. This case study uses literature and document review, observations, program participant evaluation surveys and project impact survey feedback. The findings indicate that the programme model has contributed to the sustainability goals at the university and the City of Vancouver and has supported the partnership between the two organisations. The programme has grown over its five-year history and is considered to be a central part of the partnership. Breadth of student participants from across the university and high participation from City departments have been achieved. The model is now being adapted to be delivered within other partnerships.

Creating sustainable cities through knowledge exchange : a case study of knowledge transfer partnerships / Alex Hope . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 6, 2016
ISSN 1467-6370

Abstract : This paper examines the use of knowledge transfer partnership (KTP) as a means for universities to generate and exchange knowledge to foster sustainable cities and societies. It reports on a series of separate yet interrelated KTPs between a university and the local authority in the North East of England, designed to enhance the environmental, social and economic performance of a large-scale urban housing procurement project. Results from the partnerships indicate that KTPs may play a crucial role in developing capacity within local authorities tasked with creating sustainable cities and societies, whilst at the same time, enhancing skills and knowledge within the communities whom they represent and their industry partners.

Sustainable Development in the Baltic Sea region – Focus on Education for sustainable development [Whole issue] = Edukacja na rzecz zrównoważonego rozwoju w regionie Morza Bałtyckiego / Arnold Bernaciak, Ed. . - **In:** Studia Periegetica, v. 15, no. 1, pp. 5 - 175, 2016
ISSN 1897-9262

Abstract : This issue focuses on research, practical implementation and educational solutions in education for sustainable development applied in the Baltic Sea Region. Authors of the papers examine the incorporation of sustainable development and environmental education in higher education curriculum, teaching methods, research and e-learning at universities in Latvia, Belarus, the Russian Federation, the Ukraine and Poland. The

papers were first presented during the BUP Teachers Conference in October 2015.
URL : http://www.wydawnictwo.wsb.pl/sites/www.wydawnictwo.wsb.pl/files/czasopisma-tresc/Studia%20P_15_net.pdf

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Environmental awareness raising through universities - city authorities' cooperation / Ksenia D. Shelest, Victor V. Ionov, Leonid Y. Tikhomirov . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 1, pp. 39-49, 2017
ISSN 1467-6370
Abstract : This article explores the cooperation between universities and city authorities in a case study of environmental awareness raising through the students at universities in Saint Petersburg, Russian Federation, who were trained to be environmental volunteers for oil spill response operations in the coastal zone of the Baltic Sea. The programme for environmental volunteers' tuition was created due to mutual cooperation between universities and state authorities. Practical field experience with simulated oil accidents were carried out in situ on the coastal zone of the Gulf of Finland.

Mapping a sustainable future : community learning in dialogue at the science-society interface / Matthias Barth, Daniel J. Lang, Philip Luthardt, Ulli Vilsmaier / UNESCO Institute for Lifelong Learning . - **In:** International Review of Education, v. 63, no. 6, pp. 811-828, 2017
ISSN 0020-8566 . - Online ISSN 1573-0638
Abstract : In 2015, the German Federal Ministry of Education and Research (BMBF) announced that the Science Year 2015 would focus on the "City of the Future". It called for innovative projects from cities and communities in Germany dedicated to exploring future options and scenarios for sustainable development. Among the successful respondents was the city of Lüneburg, located in the north of Germany, which was awarded funding to establish a community learning project to envision a sustainable future ("City of the Future Lüneburg 2030+"). What made Lüneburg's approach unique was that the city itself initiated the project collaboratively with Leuphana University and an umbrella NGO that works in sustainable development. The authors of this article use the project as a blueprint for sustainable city development. They report on the process and outcomes of the project and investigate community learning processes amongst different stakeholders as an opportunity for transformative social learning. .

Sustainable communities : university-community partnership research on social dimensions of sustainable development / Carolyn Kagan, Rebecca Lawthom, Ornette Clennon, Jenny Fisher, John Diamond, Katy Goldstraw . - **In:** Sustainable Development Research at Universities in the United Kingdom . - Springer, Cham, 2017 . - pp 245-262
ISBN 978-3-319-47882-1
Abstract : This paper examines the role that university research can play in sustainable development at the level of community. The methodological approach is action research undertaken in collaboration with voluntary and community organisations, addressing their needs and including high levels of participation. An outline of the nature of sustainable communities and engaged university research, is followed by case examples of five collaborative research projects, each generating different types of qualitative data, which inform sustainable development of communities in diverse ways. The studies indicate that university-community partnerships can provide understanding of the challenges facing people in communities; encourage innovative local action for sustainability; and contribute to policy development at different levels. They do this via the creation of ecological 'edges'. The challenges facing universities doing this kind of research are highlighted.

Universities and smart specialisation strategy : from third mission to sustainable development co-creation / Chiara Rinaldi, Alessio Cavicchi, Francesca Spigarelli, Luigi Lacchè, Arthur Rubens . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 1, pp. 67-84, 2017
ISSN 1467-6370
Abstract : The paper analyses the emerging role of Social Sciences and Humanities (SSH) universities in

contemporary society via third- and fourth-mission activities, particularly in developing and enhancing capacities, supporting the changing conception of innovation coherently through a Smart Specialisation Strategy (S3) approach. The case study presents third- and fourth-mission activities carried out by the University of Macerata (Italy). The activities are framed according to the roles universities could have in supporting S3. The results show that universities can play different and broader roles (generative, absorptive, collaborative and leadership) within third- and fourth-mission activities, which could support regions in designing and implementing S3.

Universities' intermediary role in the "design for sustainability" field : case studies from the Netherlands and Turkey / Elif Küçüksayraç, Renee Wever, Han Brezet . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 3, pp. 455-472, 2017

Abstract : This paper investigates the intermediary role of universities in spreading design for sustainability into industry. Three case studies were undertaken on a Design for Sustainability Programme in a university in The Netherlands; a centre on sustainable consumption and production within a university in Turkey; and an individual scientist within an Environmental Engineering Department in a university in Turkey.

University's multi-scale initiatives for redefining city development / Natalia Ratajczyk, Iwona Wagner, Agnieszka Wolanska-Kaminska, Tomasz Jurczak, Maciej Zalewski . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 1, pp. 50-62, 2017

Abstract : This paper presents the varied roles played by the University of Lódz, Poland, in maintaining and restoring the natural capital of a city as a driver for sustainable city development. It discusses three cases performed by the Faculty of Biology and Environmental Protection, ranging from city-wide to local, e.g. river and green infrastructure, and which vary in character from policy planning to implementation. The results showed that natural capital projects influence city development on different levels: by the initiation of legal protection, by the implementation of rehabilitation concepts for rivers and by influencing the strategic documents for mid-term and long-term urban development. The university has the potential for multidisciplinary engagement in the development of urban sustainability. In large-scale projects, academics play a more conceptual role, in capacity building and knowledge transfer, while in local-scale implementations, their role includes innovation, know-how and technology transfer. Moreover, it may act as a reinforcement hub, by safeguarding and strengthening the natural capital of the city. [Abstract adapted from publisher]

■ Student Engagement

International

The sustainability literacy test : can universities be sure they are producing sustainability literate graduates? / Higher Education Sustainability Initiative . - HESI, 2014 . - 52 p.

Abstract : The Sustainability Literacy Test is a tool created by the academic community to evaluate students' knowledge of key areas of economic, social and environmental sustainability. This report, launched at the UNESCO World Conference on Education for Sustainable Development in Nagoya, Japan, 2014, details the Test and initial results of this pilot version which has been customised in 17 countries and regions and in 8 different languages.

Classmark : INT-73 HESI

URL : http://www.comite21.org/docs/actualites-adherents/2014/sustainability-literacy-test-report---dec-2014.pdf

Africa

Environmental literacy of business students in Ghana / Godfred Matthew Yaw Owusu, Teddy Ossei Kwakye, Edem Emerald Welbeck, Charles Gyamfi Ofori . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 3, pp. 415-435, 2017

ISSN 1467-6370

Abstract : This study examines the multidimensionality of the environmental literacy concept among university business students in Ghana. The study also investigates the relationship between students' interests in environmental issues and knowledge levels of environment and assesses how these two constructs influence students overall environmental behaviour and actions. Using a total of 591 business students at a business school in a university in Ghana, the study examines the multidimensionality of environmental literacy concept. A structural equation modelling-based approach was used to examine the relationship among the study constructs. Based on the factor analysis results, the study documents that environmental literacy concept can be grouped under four distinct factors (general environmental factors; industry-related factors; environmental assessment factors; and accounting-related factors). The results indicate a direct and positive relationship between students' interest in environmental issues and their environmental literacy level. Also, students' interest and their knowledge levels of environmental issues were found to be good predictors of actual students' involvement in activities that promote sustainable environment.

Arab States

The status of education for sustainable development and sustainability knowledge, attitudes, and behaviors of UAE University students / Ali Khalfan Al-Naqbi, Qasim Alshannag . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 3, pp. 566 - 588, 2018

ISSN 1467-6370

Abstract : This study was descriptive in nature, and the data were obtained using a cross-sectional survey. A total of 823 participants responded to an e-education for sustainable development survey. Several data analysis procedures were used, including descriptive analyses, analyses of variance and t-tests. The study revealed that the UAE students showed a high level of understanding, very strong positive attitudes and moderate positive behavior toward ESD and the environment. Findings associated with students' gender, nationality, college, academic level and GPA were also reported and discussed.

Asia and the Pacific

An auto-photographic study of undergraduate students' conceptions of sustainability / Chi-I Lin, Yuh-Yuh Li . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 4, p. 554-575, 2017
Abstract : This paper investigates students' understandings of ocean sustainability and the pedagogical influence of higher education on those conceptions. The conceptions of ocean sustainability of 54 students of various academic disciplines enrolled in the 2014/2015 semester course "Sustainable Oceans" at a university in Taiwan. Students were assessed through use of auto-photography - students were asked to take photos on issues or personal interest representing the concept of "sustainable oceans" at the beginning and end of the course. The findings showed that auto-photography is effective in assessing notions of sustainability. Social and economic dimensions were captured less frequently than environmental aspects in the students' photographs. Overall, students demonstrated vague perceptual awareness about who should take responsibility concerning lifeworld-related issues. Also, their perceptions were affected by their choice of academic discipline. Engaging students in inter-/transdisciplinary learning, integrating the arts, science and community, helped develop a more balanced, action-motivated conception of sustainability.

Developing pro-environmental behaviour : ecotourism fieldtrip and experiences / Ding Hooi Ting, Charles Fang Chin Cheng . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 7, pp. 1212-1229, 2017
Abstract : This study aims to assess the effectiveness of a student participatory approach and assessment to achieve an environmentally friendly behaviour and change strategy. A participatory and experiential case study of ecotourism experiential learning and assessment was carried out using a sample of 100 higher education students at a university in Malaysia. The findings suggest that students' participations through the development, implementation and maintenance of nature-based experiences, combined with professional guides in educating students about sustainable practices has significant and positive effects on pro-environmental behaviour (PEB). The study also reveals that social-psychological constructs (except environmental awareness) and socio-demographic variables account for variances in PEB intentions.

Global consciousness and pillars of sustainable development : a study on self-perceptions of the first-year university students / Tamara Savelyeva, William Douglas . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 2, pp. 218-241, 2017
Abstract : This paper aims to provide data on the self-perceived state of sustainability consciousness of first-year students at a unviersity in Hong Kong. The authors conducted 787 questionnaires and collected 989 reflective narratives of first-year students of a university in Hong Kong, who were enrolled in the General Education course. The quantitative results revealed an increase in the self-perceived knowledge and behavioral aspects of sustainability consciousness of Hong Kong students and their low engagement in sustainability-related civic, campus or action groups. However, qualitative results revealed three aspects of the students' sustainability consciousness: intentionality to make a difference; engagement with complex questions about identity, society and nature; and eschatological perspectives, which included imaginative, future-oriented and action-oriented approaches to critical reflection, supported by the rhetoric of hope, promises and commitment for better future. (Abstract from publisher)
URL : http://www.emeraldinsight.com/doi/full/10.1108/IJSHE-04-2016-0063

Low factual understanding and high anxiety about climate warming impedes university students to become sustainability stewards : an Australian case study / Sebastian Pfautsch, Tonia Gray . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 7, pp. 1157-1175, 2017
Abstract : This study, from a University in Australia, aims to assess the disposition of students towards climate warming (CW) – a key component of sustainability. An online survey, split into three parts, was used to deliver

benchmark data on (I) personal information, (II) factual knowledge and (III) sentiments related to CW. The results indicated that gender and age of students significantly influenced their perception of CW. While self-rated understanding of CW was generally high, factual knowledge about CW was low. Few students recognised that CW was already under way, and that it was mainly caused by human activity. The most prominent emotions were fear, sadness and anger, foretelling widespread disempowerment and fear for the future.
URL : http://www.emeraldinsight.com/doi/full/10.1108/IJSHE-09-2016-0179

The myth of the 'green student' : student involvement in Australian university sustainability programmes / L. But, E.More, G. C. Avery / Society for Research into Higher Education [SRHE][UK] . - **In:** Studies in higher education, v. 39, no. 5, pp. 786-804, June 2014
ISSN 0307-5079 . - Online ISSN 1470-174X

Abstract : The paper questions the prevalence of 'green students' and their impact on decision-making in sustainability programmes in Australian universities. While the universities studied provide numerous opportunities for student involvement in sustainability programmes, comparatively few students actually become involved, making student impact on decision-making in these programmes low. University employees are the primary drivers of university sustainability programmes, with the 'green student' not highly visible in these universities. The paper concludes by suggesting that all four universities in the sample could enhance their sustainability programmes by adopting a more evidence-based understanding of student attitudes towards sustainability. [Abstract from publisher]

Europe and North America

Empowerment for sustainability in higher education through the EYE learning tool / Valentina C. Tassone, Giel Dik, Thekla Anna van Lingen . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 3, pp. 341-358, 2017
ISSN 1467-6370

Abstract : While empowerment for sustainability is considered a major objective within sustainability-oriented educational programs and policies, little is known about the actual process of empowering students for sustainability through higher education. This study aims to explore empowerment for sustainability within sustainability-oriented educational programmes and policies, by introducing the EYE (Educating Yourself in Empowerment) for Sustainability learning tool and by analysing the effects of its application within a university in The Netherlands. Using questionnaire analyses, the authors analysed the effects of the EYE tool on the empowerment process as perceived by the students. The results suggest that the EYE is a comprehensive and adaptive tool, conducive to empowerment for sustainability. The authors note that a key aspect contributing to students' empowerment for sustainability is the development and execution of a real-life project of their own choice. Learning about the diverse worldviews underlying the search for sustainability appears to be an eye opener for the students. Empowerment does not seem to require long-term training. Rather, it emerges and is experienced by university students within a few weeks.

Assessing students' motivation to engage in sustainable engineering / Mary McCormick, Angela R. Bielefeldt, Christopher W. Swan, Kurtis G. Paterson . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 2, pp. 136-154, 2015
ISSN 1467-6370

Abstract : This study designed and used an assessment instrument to evaluate students' attitudes toward sustainable engineering (SE). The survey was undertaken at three diverse universities in the United States with 515 responses from undergraduate and graduate students. The survey instrument was validated and internal reliability was established. The results indicate that participation in more experiential, enriching learning experiences correlated to higher sustainable engineering self-efficacy, value and affect. A number of other variables were linked positively to sustainability beliefs, interest and affective relationship. These include extracurricular club involvement; participation in undergraduate research; participating in internships; volunteering; and academic rank. Female students possessed higher sustainability value and affect than male students, but self-efficacy was not significantly different.

Educating for sustainability in language degrees : a tale of 2 case-studies / Séverine Hubscher-Davidson, Stéphanie Panichelli-Batalla . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 3, pp. 404-416, 2016
ISSN 1467-6370
Abstract : This paper aims to assess language students' understanding of sustainable development issues. Study 1 surveys two cohorts of final-year language students in a university in the United Kingdom about to enter the graduate job market, and Study 2 surveys first-year language students before and after the inclusion of SD content in one of their modules. The questions to the students are provided along with qualitative and quantitative results. Results showed that only 48 per cent of language graduates are currently aware that they will need to take account of the environmental impact of their work as professional practitioners and 52 per cent do not consider it appropriate to learn about sustainable development (SD) during their degree. However, results also suggest that incorporating SD early on in the language curriculum could contribute positively to the development of sustainability literate graduates.

Motivating students and lecturers for education in sustainable development / Karel F. Mulder, Didac Ferrer, Jodi Segalas Coral, Olga Kordas, Eugene Nikiforovich, Kateryna Pereverza . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 3, pp. 385-401, 2015
ISSN 1467-6370
Abstract : This paper aims to identify factors linked students' motivations in sustainable development education. A brief literature review is followed by a report of case studies of elective international project-based programmes in Sustainable development in Barcelona Tech (Spain), Delft University of Technology (Sweden) and Kyiv Polytechnic Institute (Ukraine). The results showed that four motivators for students that had been identified in the literature review - a sense of autonomy, a challenge of reflection on the future role, connection with others, self-fulfillment, focus on the individual learning need - could be observed in the cases of successful SD education, although to various degrees. Individual autonomy in learning was not observed, but group autonomy was present in all cases.

Assessing sustainability knowledge of a student population / Adam Twickle, Tomas M. Koontz, Kristina, M. Slagle, Jeremy T. Bruskotter . - **In:** International Journal of Sustainability in Higher Education, v. 15, no. 4, pp. 375-389, 2014
ISSN 1467-6370
Abstract : This article presents a tool for assessing the sustainability knowledge of an undergraduate population. It was developed within a United States higher education by using expert input, focus groups, pilot testing, and a large-scale online survey. The assessment tool can be used via a campus-wide survey or distributed at the classroom level by institutions to gauge current levels of knowledge and track changes over time, as well as assess the effectiveness of courses and curricula at meeting sustainability knowledge goals.

First-year student attitudes towards, and skills in, sustainable development / Elizabeth Bone, Jamie Agombar / The Higher Education Academy [UK] . - York : Higher Education Academy, 2011 . - 122 p.
Abstract : This is the final report from a project on student attitudes in the Higher education (HE) institutions in the United Kingdom towards, and skills in, sustainable development. The findings result from an online survey of 5,763 first-year HE students, across all four UK member nations to investigate the role of developing skills for sustainability literacy. The overall findings from this research show that sustainability concerns are significant. Additionally, where exposure to sustainable development is greatest within further education (FE) and HE, first-year students place a higher value on skills for sustainable development, believing their role in the university and the graduate workplace to be more significant. 80% of respondents believed sustainability skills are going to be important to their future employers and the majority of first-year students surveyed believe that it is the role of universities and courses to prepare them for graduate employment.
URL :
http://www.heacademy.ac.uk/assets/York/documents/ourwork/sustainability/FirstYearAttitiudes_FinalReport.pdf

Student engagement with sustainability : understanding the value-action gap / Gareth Chaplin, Paul Wyton .
- **In:** International Journal of Sustainability in Higher Education, v. 15, no. 4, pp. 404-417, 2014
Abstract : This paper presents the findings of research that aimed to determine what university students living in student halls of residence in the UK understand about the concept of sustainable living. The research was carried out using semi-structured interviews and focus groups. The results found that students believed sustainable living to be important, yet levels of understanding were very low and there appeared to be a wide value-action gap. Reasons for this are varied; however, there was a very strong association between sustainable living and recycling, which saw the lack of adequate recycling facilities as a significant barrier to sustainable living. There were also issues around a lack of information, cost and respondents' flatmates as further barriers. However, the most significant barrier was the displacement of responsibility for sustainable living to other people or organisations.

Commitment to environmental sustainability in the UK student population / D.R.E. Cotton, Ian Alcock / Society for Research into Higher Education [SRHE][UK] . - **In:** Studies in higher education, v. 38, no. 10, pp. 1457-1471, December 2013
Abstract : Although environmental sustainability is the most frequently identified of the three pillars of sustainability (social and economic sustainability being less widely understood), there has been little previous research which has explored the relationship between university attendance and commitment to environmental sustainability. This article presents the results of an analysis of data from the British Household Panel Survey (BHPS), which compared young adults at UK universities with other respondents of a similar age in order to explore this relationship. Commitment to environmental sustainability was measured on a scale developed from seven questionnaire items, and the relationship between university attendance and subsequent scale scores was examined. Results show that university attendance has a significant positive association with commitment to environmental sustainability over other adult transition pathways, including participation in other forms of full-time education, when gender and social class are taken into account and when prior educational attainment is held constant. Thus, the authors argue that UK universities may have a desirable impact on environmental commitment, and explore possible explanations for these findings.

■ Sustainability evaluation and reporting

International

The state of sustainability reporting in universities / Rodrigo Lozano . - **In:** International Journal of Sustainability in Higher Education, v. 12, no. 1, pp. 67 - 78, 2011
Abstract : This study reports on the performance level of 12 universities' sustainability reports using the Graphical Assessment of Sustainability in Universities tool. The results show that sustainability reporting in universities is still in its early stages (both in numbers of institutions reporting and in level of reporting) when compared to sustainability reporting in corporations. The author suggest that universities could learn from the experiences of corporate sustainability reporting efforts, and incorporate them into their efforts as learning organisations to better align their systems with sustainability.

Assessment tools' indicators for sustainability in universities : an analytical overview / Naif Alghamdi, Alexandra den Heijer, Hans de Jonge . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 1, pp. 84-115, 2017
Abstract : This paper analyses 12 assessment tools of sustainability in universities. The paper further explores how the theoretical concept of a sustainable university is translated into more measurable variables to support practitioners and academics in assessing sustainability in universities. The tools reviewed share similar traits in terms of criteria, sub-criteria and indicators. The authors found that five benchmarks are essential for a holistic framework: management; academia; environment; engagement and innovation.

The comprehensiveness of competing higher education sustainability assessments / Graham Bullock, Nicholas Wilder . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 3, pp. 282-304, 2016
Abstract : The paper uses an evaluation framework (the GRI-HE) consisting of criteria developed by the Global Reporting Initiative and the Association of University Leaders for a Sustainable Future to analyse the comprehensiveness of nine publicly-available frameworks that have been used to assess higher education institution sustainability.While finding that in general these assessments are not comprehensive and particularly lack coverage of the social and economic dimensions of sustainability, the paper identifies the Pacific Sustainability Index and Sustainability Tracking and Assessment Rating System (STARS) as the most comprehensive assessments in the sector. The analysis highlights areas where each HEI sustainability assessment framework can add criteria and improve their comprehensiveness and validity. Future research should explore the causes and relative importance of the gaps in these frameworks.

Evaluating sustainability education : lessons from international development experience / Peter H. Koehn, Juha I. Uitto . - **In:** Higher Education, v. 67, no. 5, pp. 621-635, May 2014
Abstract : This article presents a framework for assessing higher-education curricular, research, and community-outreach programmes devoted to sustainability. The evaluation framework links process, outputs, outcomes, impacts, and continuous programmatic improvement. It engages three core purposes: management evaluation, capacity- and capability-development evaluation, and sustainability evaluation. Evaluation criteria adapted from an assessment of UNDP contributions to national development are embedded into the framework. Examples of sustainability evaluation approaches used by universities in Europe, Japan, and the United States are outlined and graduate competencies from sustainability programmes are identified.

Africa

The application of a resilience assessment approach to promote campus environmental management : a South African case study / Irene Muller, Johann Templehoff . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 2, pp. 228-245, 2016
ISSN 1467-6370

Abstract : This paper outlines the benefits of using resilience assessment to evaluate sustainable campus environments. It details a case study at a university campus in South Africa on the Vaal River. The campus is situated in a nature reserve with various animal and plant species which share the campus habitat with students and university staff. An exploratory mixed-method design was followed for the project. During the first qualitative phase, a historical timeline of the focal system was created. In the quantitative phase, the resilience assessment guided the investigation. Data was gathered from reviewing documents, semi-structured interviews, observations and the systematic implementation of the resilience assessment approach. The authors conclude that the resilience assessment approach enables the environmental status of university campuses to be considered relevant to the local community and immediate environment. Knowledge of the finite resources and their capacity in the context of the social-ecological system may increase the resilience of a campus.

Asia and the Pacific

Transformative learning : innovating sustainability education in built environment / Usha Iyer-Raniga, Mary Myla Andamon . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 1, pp. 105-122, 2016
ISSN 1467-6370

Abstract : This paper reports on the ProSPER.NET project undertaken to integrate sustainability thinking and practice into engineering/built environment curricula in Asia-Pacific universities. The project drew from the experiences of academics in built environment programmes and espoused a collaborative inquiry process wherein the role of the industry was vital. A literature review focusing on sustainability integration into curricula was followed by a workshop which brought together academic and industry participants. The authors noted the slow progress of integration of sustainability in the built environment curricula, despite the general direction of education for sustainability towards integration and innovation. They suggest that this may be due in part to the outcome/practice-led approach of built environment education, which is the hallmark of the discipline and lends to a largely discipline-based curriculum framework.

Europe and North America

A proposal for measuring sustainability in universities : a case study of Spain / Manuel Larrán Jorge, Jesús Herrera Madueño, Yolanda Calzado, Javier Andrades . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 5, pp. 671-697, 2016
ISSN 1467-6370

Abstract : Using as a reference the Spanish university system, this paper outlines the development of a multi-item quantitative tool for measuring sustainability performance at universities. On the basis of an extensive literature review on sustainability assessment in universities, the authors selected a total of 268 items. These items were discussed in a workshop with senior management members from eight Spanish universities with the aim of analyzing the validity and relevance of the items selected. Then, the proposal for measuring sustainability in Spanish universities was composed of a total of 156 relevant items, grouped according to seven different dimensions: corporate governance, students, staff, society, environment, companies and continuous improvement. The authors note that these items were linked to provide more reliable information to assess sustainability in universities.

Applying a transportation rating system to advance sustainability evaluation, planning and partnerships / Elise Barrella, Kelsey Lineburg, Peter Hurley . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 4, pp. 608-626, 2017

Abstract : This paper is to describe a pilot application of the Sustainable Transportation Analysis & Rating System (STARS) in a university in the United States. STARS is an example of a second-generation "green" rating system focused on transportation planning, design, operations and maintenance. The article highlights how a sustainability rating system can be used to promote sustainable urban development through a university–city partnership. The pilot's purposes were to develop attainable transportation-development targets, evaluate infrastructure and programmatic options in the context of a credit-based system and demonstrate a decision-making framework centered on sustainability optimization. The paper provides an overview of the STARS framework and the pilot's collaborations, analysis, findings and recommendations for credits across sustainability dimensions. The research team found that STARS may initially be easier to integrate into a comprehensive transportation planning process than a corridor-level evaluation due to data needs, in-house expertise and planning timelines for campus and city developments. A campus-wide master plan based on STARS would enable a university and a city to apply sustainability principles to their physical and/or policy interfaces to systemically create change and achieve quantifiable targets.

Assessing graduate sustainabiity capability post-degree completion : why is it important and what are the challenges? / Orana Sandri, Sarah Holdsworth, Ian Thomas . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 1, 2017
Abstract : This paper explores the nature of sustainability capabilities and reviews existing approaches to post-degree sustainability capability assessment. The assessment and application of capability in graduates' professional contexts are an important part of closing the loop between learning and teaching in higher education and professional application of this learning.

Ecological regional analysis applied to campus sustainability performance / Shana Weber, Julie Newman, Adam Hill . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 7, pp. 974-994, 2017
Abstract : This paper demonstrates an ecoregions-based analytical approach to evaluating sustainability performance in higher education institutions. Four sustainability metrics across 300 North American institutions are analyzed between 2005 and 2014. The study applies two established regional frameworks to group and assess the institutions: Commission on Environmental Cooperation Ecoregions and WaterStat (water scarcity status). Assessment of significant differences between the groupings of institutions as compared to the North American study population as a whole were carried out. The results indicate that all institutions perform statistically uniformly for most variables when grouped at the broadest (Level I) ecoregional scale. One exception is the Marine West Coast Forest ecoregion where institutions outperformed the North American average for several variables. Only when institutions are grouped at a smaller scale of (Level III) ecoregions do the majority of significant performance patterns emerge.

Opening up the Pandora's box of sustainability league tables of universities : a Kafkaesque perspective / David R. Jones / Society for Research into Higher Education [SRHE][UK] . - **In:** Studies in higher education, v. 42, no. 3, pp. 480-503, March 2017
Abstract : The aim of this paper is to explore the institutional impact of sustainability league tables on current university agendas. It focuses on a narrative critique of one such league table, the UK's 'Green League Table', compiled and reported by the student campaigning NGO, 'People & Planet' annually between 2007 and 2013. Through a Kafkaesque perspective, this paper offers the proposition that such league tables could be acting as an institutional hegemonic mechanism for social legitimacy, through the desire by universities to show that environmental issues are effectively under control. Espoused eco-narratives of the 'carbon targets imperative' and 'engagement' can serve as a form of deception, by merely embracing the narrative as a rhetorical device. Moreover, they can serve the exclusive, particularistic self-interests of a growing legion of 'carbon managers', 'sustainability managers' and 'environmental managers' in satisfying the neo-liberal institutional drive from their vice chancellors.

A methodology for sustainability evaluation and reporting in higher education institutions / Ana C. Madeira, Maria Antonia Carravilla, José F. Oliveira, Carlos A. V. Costa / International Association of Universities [IAU] . - **In:** Higher Education Policy, v. 24, no. 4, pp. 459-479, December 2011

Abstract : The purpose of this paper is to present a methodology that allows higher education institutions (HEIs) to promote, evaluate and report on sustainability. First, a model entitled Sustainability in Higher Education Institutions (SusHEI) that generally describes and characterizes the functioning of an HEI was defined. SusHEI takes into account the core activities of any HEI (education and research), its impacts at economic, environmental and social levels, and the role of its community. SusHEI allowed for the establishment of internal dimensions interrelated to the functioning of an HEI. Then, a matricial representation of the model was developed. The matrix crosses internal dimensions (and eventually sub-dimensions) with sustainability dimensions (and eventually sub-dimensions) and it is quantified through indicators. There is a wide range of possible sustainability indicators that can be chosen, depending on the purpose and the public to whom the indicators/reports are addressed. The methodology is illustrated by a case-study — the Faculty of Engineering of the University of Porto (FEUP) (Portugal).

An integrated decision-making framework for sustainability assessment : a case study of Memorial University / Bushra Waheed, Faisal Khan, Brain Veitch, Hawboldt / International Association of Universities [IAU] . - **In:** Higher Education Policy, v. 24, no. 4, pp. 481-498, December 2011

Abstract : This article presents an overview of the sustainability initiatives at the St. John's campus of Memorial University in Newfoundland and Labrador (Canada). The key initiatives include setting a realistic goal for energy efficiency, becoming carbon neutral, and conducting various research and outreach projects related to sustainability. As sustainability initiatives are relatively new, many recommendations have been made including: the integration of sustainability efforts across campus and lobbying networks in the Atlantic Region with other institutions and to leverage currents assets into further opportunities for research, teaching and institutional development in the Atlantic Region. For developing a more robust and integrated decision-making, a tool based on driving force-pressure-state-exposure-effect-action framework and multi-bottom line approach is introduced. Various aspects of this framework are demonstrated through examples.

Sustaining change on a Canadian campus : preparing Brock University for a sustainability audit / Richard C. Mitchell . - **In:** International Journal of Sustainability in Higher Education, v. 12, no. 1, pp. 7 - 21, 2011

Abstract : An inductive, qualitative approach was undertaken with data comprised of analyses of key stakeholder interviews, a review of literature, and a systematic collation of campus-based sustainability initiatives taking place in 2008 - 2009. The Results showed that even smaller and mid-size Canadian campuses with limited budgets can successfully move forward with sustainability initiatives in multi-systemic, synergistic partnerships that cross-professional and disciplinary boundaries. While most of the sample of interviewees in this exploratory study agreed to be involved in current and future sustainability initiatives, interestingly, there were also concerns that discovery of any negative findings could cast a shadow on "green" efforts already underway. The findings also indicate a number of leading edge initiatives taking place at Brock University including a co-generation power plant, and "green" construction of new buildings as well as those in the planning stages. Without a formal governance structure or a common theoretical framework in place, a broad spectrum of definitions on "sustainability" from key stakeholders was found ranging from an environmental focus to those based solely upon economics, and a combination of the two. The absence of any systemic, coordinated and comprehensive approach on the university's main campus was the main negative finding – one that previously hampered growth of synergistic partnerships.

Stars quarterly review : the role of institutional diversity [Whole Issue] / Association for the Advancement of Sustainability in Higher Education [AASHE] . - Fall 2012

Abstract : This edition of Stars quarterly review highlights case studies in higher education institutions which deal with institutional diversity and how it impacts sustainability performance. The case studies are taken form the participant higher education institutions in the USA and Canada who participate in the Sustainability tracking,

Values as a bridge between sustainability and institutional assessment : a case study from BOKU University / Maria Miguel Ribeiro, Elona Hoover, Gemma Burford, Julia Buchebner, Thomas Lindenthal . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 1, pp. 40-53, 2016

Abstract : This paper examines the use of values-focused assessment for integrating sustainability and institutional performance assessment in universities. It provides results of questionnaires and a workshop to evaluate a pilot project at BOKU University, Vienna. The results indicate that many of the values held by university staff and students are pro-sustainability values. The authors suggest that starting from these values may be a useful way of engaging university stakeholders in sustainability dialogues. The paper illustrates how values-based indicators can be integrated into university performance assessments.

Latin America and the Caribbean

Higher education institution sustainability assessment tools : considerations on their use in Brazil / Heloisa Cronemberger de Araújo Góes, Alessandra Magrini . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 3, pp. 322-341, 2016

Abstract : This paper proposes a sustainability assessment tool (SAT) to be used in higher education institutions (HEIs) in Brazil and the related program to be created for SAT dissemination and monitoring, publication of results and benchmarking. The characteristics of eight sustainability assessment tool were identified, seven of which are applied through widely known international programmes to identify aspects to be considered in the definition of the Brazilian model. This paper provides a base on which to construct SAT and program models tailored for Brazil.

Understanding the limits of assessing sustainability at Universidad San Francisco de Quito USFQ, Ecuador, while reporting for a North American system / Alexandra Velasco, Melanie Valencia, Samantha Morrow, Valeria Ochoa-Herrera . - **In:** International Journal of Sustainability in Higher Education, v. 19, no. 4, pp. 721-738, 2018

Abstract : This study aims to recognize the limitations of applying a North American rating system considering relevant criteria to a South American university and to emphasize the importance and lack of benchmarks available in the region. The Methodology used for this study is based on the Sustainability Tracking Assessment Rating System (STARS). Data collected by Universidad San Francisco de Quito (USFQ) in 2012 and 2013 illustrate how the status of the university as a non-residential, teaching university in Ecuador in a developing country had several challenges while using an evaluation system established for universities within a North American system. The limits of assessing sustainability in South America are associated to its geographical location, the number of students and staff that commute to University and the lack of environmental services and certifications available in Ecuador. There are applicability issues with the use of STARS without performance reports from regional peers that can guide the development of relevant benchmarks for future comparability.

■ Teacher education

Africa

Engaging teacher educators with the sustainability agenda : a case study of a pilot professional development program from Ethiopia / Addise Amado, Aklilu Dalelo, Maik Adomßent, Daniel Fischer . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 5, pp. 715-737, 2017
Abstract : This paper presents a case study from a pilot professional development program (PDP) that sought to implement and mainstream ESD among Ethiopian colleges of teacher education (CTEs) and theological seminaries (TSs). The research analyses the PDP's specific objectives with regard to capacity and structure building, describes major activities implemented and how these relate to the objectives and explores its major outcomes. IT describes a comprehensive training curriculum aimed at addressing ESD in Ethiopian CTEs and TSs in a whole-institution approach. Results suggest that the PDP's approach to combine human capacity and institutional structure building was effective in supporting the implementation and mainstreaming of ESD in CTEs and TSs in Ethiopia.

Asia and the Pacific

Supporting collaborative and continuing professional development in education for sustainability through a communities of practice approach / Kristin Warr Pedersen . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 5, pp 772-797, 2017
Abstract : This paper considers an expanded vision of professional development for embedding education for sustainability (EfS) in a higher education institution. Through an exploration of a community of practice at the University of Tasmania, Australia, this paper examines how collaborative peer learning can sustain and promote continued professional development for staff in higher education who are committed to EfS as an educational paradigm. The research was conducted through a mixed methods investigation that involved participant observation and semi-structured interviews and focus groups. This research reveals that personal values and professional identity were the two driving factors for continued engagement in a collaborative peer learning initiative. Despite institutional challenges and a lack of success of growing membership in the community of practice, participants found a level of job satisfaction and personal connection to the initiative and to each other that has sustained action and impact for this group.

Malaysian teacher trainees' practices on science and the relevance of science education for sustainability / Subadrah Madhawa Nair, Abdul Rashid Mohamed, Nagamah Marimuthu . - **In:** International Journal of Sustainability in Higher Education, v. 14, no. 1, pp. 71-89, 2013
Abstract : This paper investigates the practice of teacher trainees on science teaching and its relevance to understanding science education in a sample of 80 teacher trainees, majoring in Science Education, from a teachers training institute in Malaysia. The teacher trainees were asked to complete a set of questionnaires on the relevance of their content knowledge of science to Science Education; the application of student's home culture in classroom science; and in ethical education in classroom lessons. The results showed gender differences between the teacher trainees: the female trainees' practice of science and Relevance of Science Education (ROSE) are significantly higher than their male counterparts. However, there was no significant difference between the male and female trainees on their practices of students' home culture applied in classroom science and applying ethical education in teaching science. The authors suggest that there is a need to bring in students' home culture into the teaching and learning of science.

Education for sustainable development for changing the climate of teacher education to address sustainability / UNESCO Office Jakarta and Regional Bureau for Science in Asia and the Pacific . - Capacity Development of Teacher Education Institutions (TEIs) of Brunei Darussalam, Indonesia, Malaysia, Philippines and Timor-Leste in Reorienting Teacher Education to Address Sustainability, Jakarta, 2010 . - Jakarta : UNESCO Office Jakarta, 2011 . - 181 p., illus.
(Electronic version) . - ISBN 978-602-98372-5-4
URL : http://unesdoc.unesco.org/images/0021/002152/215227e.pdf

Europe and North America

ESD professional development of university educators in Serbia, Croatia and Macedonia : a comparative analysis / Vesna Nikolic, Slobodan Milutinovic, Pece Nedanovski, Kornelija Mrnjaus . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 6, pp. 923 - 938, 2017
ISSN 1467-6370

Abstract : The paper examines the education for sustainable development (ESD) competences of university educators. It provides a comparative analysis of opportunities for the development of ESD competences in higher education (HE) institutions in Serbia, Croatia and Macedonia. Internet and desktop research was carried out, which was then followed by interviews with key respondents and experts in HE. In addition, information collected from the interviews was compared with both data found in the literature and official documents. The comparative analysis indicated how specific institutional and cultural contexts affect the development of ESD competences in HE in the region. There were differences but also common opportunities for developing the ESD competences of university educators in the countries analysed. For each country, the drivers and barriers, as well as their relevance, were manifested differently and specific key constructs were identified to explain the implementation process for developing ESD competences of university educators.

Reorienting higher education pedagogical and professional development curricula toward sustainability : a Romanian perspective / Daniela Elena Dumitru . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 6, pp. 894 - 907, 2017
ISSN 1467-6370

Abstract : This paper proposes a pedagogical training program from the Romanian mandatory curriculum for higher education (HE) teachers, integrating education for sustainable development (ESD) competencies (UNECE, 2012). It shows how new ESD competencies can be implemented and integrated into existent curricular formulations. A qualitative research design was used using desk research, content analysis, case study and structured interviews with key experts. An assessment of the quality of the Romanian HE pedagogical training programme is presented based on teaching quality assessments from international rankings. The findings suggest that while the Romanian teacher training curriculum does not nurture ESD competencies, it is possible to integrate ESD competencies into the present curriculum without many costs.

Professional development of sustainability competences in higher education : the role of empowerment / Wim Lambrechts, Elli Verhulst, Sara Rymenams . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 5, pp. 697-714, 2017
ISSN 1467-6370

Abstract : This paper combines a literature review, a desk research on key publications and reports and a socio-political analysis to reveal the specific context of sustainable development professional development (PD) in Flanders, Belgium. The paper provides a number of PD initiatives that focus on sustainability in general and in a single higher education institution. Framing such initiatives as an organisational change process offers insights on how elements of empowerment are currently incorporated in PD initiatives and how it can strengthen them to lead to the further integration of sustainability competences in HE.

The European virtual seminar on sustainable development as an opportunity for staff ESD competence development within university curricula / Joop de Kraker, Jana Dlouhá, Laura Machackova Henderson, Dana Kapitulcinová . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 5, pp. 758-771, 2017

Abstract : This paper assesses the current and potential value of the European Virtual Seminar (EVS) on Sustainable Development (EVS) as an opportunity for professional development in Education for Sustainable Development (ESD) for teaching staff at university level. The European Virtual Seminar currently extends to a partnership of ten universities from across Europe. The paper pays particular attention to the development of ESD competences of tutors through participation in EVS, based on the UNECE (2011) competence framework and supported by the results from a small-scale questionnaire. Three major aspects of EVS as a professional opportunity in ESD are elaborated: EVS as an on-the-job training opportunity, EVS as an international staff mobility opportunity and EVS as an active learning and innovation community. The results show that EVS is an effective opportunity for developing a range of ESD competences, especially for junior university staff. The authors conclude that the EVS approach has the potential to be adopted at a much larger scale

Education for sustainable development in Vietnam : lessons learned from teacher education / Thi Kinh Kieu, Jane Singer, Tracey Jean Gannon . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 6, 2016

Abstract : This paper identifies challenges in education for sustainable development (ESD) implementation in teacher education institutions in Vietnam . The authors interviewed ten lecturers and 75 students in five teacher education institutions across Vietnam and organised focus groups to obtain qualitative data to identify themes. The results indicated that ESD-related topics were included in both formal and non-formal education. However, there remains a wide gap between ESD cognition and ESD teaching capacity among teacher trainees due to the prevalence of top-down pedagogy, large classes and poor facilities. The authors suggest that through strengthening collaboration among multiple stakeholders, teacher education institutions should achieve more effective ESD approaches.

Enhancing sustainability curricula through faculty learning communities / L. W. Natkin, Tammy Kolbe . - **In:** International Journal of Sustainability in Higher Education, v. 17, no. 4, pp. 540-558, 2016

Abstract : This paper reports findings from an evaluation of sustainability faculty fellows (SFF) programme in a university in Vermont, USA. It discusses how utilisation-focused programme evaluation is an important tool for developing and improving sustainability-focused faculty learning communities. The programme aims to enhance sustainability education by bringing faculty members together to expand their knowledge of sustainability concepts and offer pedagogical support for integrating those concepts in higher education curricula. The evaluation's findings suggest that the programme expanded faculty understanding of sustainability concepts, encouraged curricular and instructional reform and made progress toward developing a community of faculty interested in sustainability education. The evaluation's utilisation focus was instrumental in providing useful information for improving the programme.

Experiential learning for sustainability leadership in higher education / Emma Savage, Tara Tapics, John Evarts, Jeffrey Wilson, Susan Tirone . - **In:** International Journal of Sustainability in Higher Education, v. 16, no. 5, pp. 692-705, 2015

Abstract : This article describes key design elements of a sustainability leadership certificate programme for undergraduates from various disciplines. The programme was framed around five key sustainability competencies which were tested in 32 participants using a pre/post self-assessment. The results indicate that the programme participants were generally motivated by the programme's experiential format and supportive community. They felt that they had improved their confidence and competence in the key sustainability competencies. Three

themed clusters, community, future and personal development, emerged from the participants' open-ended responses. This supports the programme design and can inform further programme development. The authors note that the importance of the third theme, personal development, as it is not a typical focus of sustainability in higher education, but held high importance to participants.

Mapping opportunities for professional development of university educators in Education for Sustainable Development : a state of the art report across 33 UE4SD partner countries / M. Mader, D. Tilbury, J. Dlouhá, J. Benayas, G. Michelsen, C. Mader, S. Burandt,
A. Ryan, A. Barton, J. Dlouhý, D Alba . - Cheltenham : University of Gloucestershire, 2014 . - 53 p.

Abstract : This report has been developed as part of a three-year project entitled University Educators for Sustainable Development (UE4SD), funded by the European Commission. It captures recent efforts across Europe to support the development of education for sustainable development (ESD) competences of university educators. The aim is to draw on best practices, new initiatives, and usable tools for professional development in ESD for university educators.
URL : http://www.ue4sd.eu/images/2014/UE4SD_State-of-the-art-report_FINAL.pdf

Sustainable consumption : a teaching intervention in higher education / Pedro Alvarez-Suarez, Pedro Vega-Marcote, Ricardo Garcia Mira . - **In:** International Journal of Sustainability in Higher Education, v. 15, no. 1, pp. 3-15, 2014

Abstract : This paper aims to analyse a teaching strategy designed to increase the awareness of trainee teachers and educate them with regard to sustainable consumption. Ninety-four trainee teachers in the University of A Coruña (Spain), enrolled in the subject "teaching environmental education" were assessed on their knowledge of the environmental impacts of consumerism, their attitudes to sustainable consumption and their behavioural intentions before (pre-test) and after (post-test) the teaching intervention took place. Statistical analysis of the results obtained revealed that subjects increased their knowledge of the social and environmental impacts of consumerism, became more aware of the need to take action in this regard, and developed behaviours oriented towards a sustainable model of consumption.

The status of education for sustainability in initial teacher education programmes : a Canadian case study / Thomas Falkenberg, Gary Babiuk . - **In:** International Journal of Sustainability in Higher Education, v. 15, no. 4, pp. 418-430, 2014

Abstract : Education for sustainability is one of the five Priority Action Areas of the Ministry of Education in Manitoba, Canada. This study examined sustainability education in teacher education in the province, drawing on both online information of all initial teacher education programmes (data from 2009-2010) and interviews with a sample of deans and associate deans. The results showed that there was no systematic and focused preparation of teachers for education for sustainability in any of the Manitoba teacher education programmes. Three challenges for mainstreaming of education for sustainability are identified: lack of leadership, an unfavourable view of the role of education for sustainability and the silo-ing within faculties of education.

Education for sustainable development in Canadian faculties of education = L'éducation en vue du développement durable dans les facultés d'éducation au Canada / Canada. Council of Ministers of Education . - Toronto : CMEC, 2012 . - 120 p.

Abstract : This report analyses how Education for Sustainable Development (ESD) is expressed and taught and proposes suggestions for moving forward.
URL : http://www.cmec.ca/Publications/Lists/Publications/Attachments/279/ESD_Dean_reportEN.pdf (English) ; http://www.cmec.ca/Publications/Lists/Publications/Attachments/279/ESD_Dean_reportFR.pdf (French)

Working with the divides : two critical axes in development for transformative professional practices /
Helen Avery, Birgitta Nordén . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 5, pp.
666-680, 2017
Abstract : The paper provides a conceptual map of how to mediate between sustainability theory and practice in higher education and how disciplinary divides can be bridged. It further looks at issues linked to knowledge views and drivers for institutional change that affect opportunities for whole institution development promoting action preparedness. Taking its point of departure the University Educators for Sustainable Development report UE4SD (2014, 2015), the authors also carried out a study of links between teacher education and sustainability environments and two Swedish and two Danish universities. The findings showed that although the literature stresses both action orientation and the need for holistic transdisciplinary approaches, many institutional drivers limit opportunities for more integrating approaches.

Latin America and the Caribbean

Professional development of university educators in ESD : a study from pedagogical styles / Maria
Mercedes Callejas Restrepo, Norka Blanco-Portela, Yolanda Ladino-Ospina, Rosa Nidia Tuay Sigua, Kenneth
Ochoa Vargas . - **In:** International Journal of Sustainability in Higher Education, v. 18, no. 5, pp. 648-665, 2017
Abstract : This paper describes a study in a Higher education institution in Colombia on the effect of department's integration of sustainable Professional Development Programme on academics' self-assessed pedagogical styles. The programme aims to articulate the relationship between ESD processes and university educator training in interdisciplinary groups of educators from different backgrounds.