The 3rd Asian Conference on Business & Public Policy (ACBPP)
The 10th Asian Conference on Sustainability, Energy and the Environment (ACSEE)

Online from Tokyo
November 6-7, 2020

Final Draft Schedule

Please Check & Confirm

Please check that all information pertaining to you is correct
and notify us at support@iafor.org if there is any error.
Please notify us of any corrections by **Sunday, October 18** 18:00 (UTC+9).

Please note that all abstracts are printed as submitted. Any errors, typographical or otherwise, are the authors'.

Final Schedule
After minor changes have been made to the schedule we will send you a link to the final schedule.

The final schedule will contain session information and a detailed day-to-day presentation schedule. This, along with details on how to access the online sessions, will be available on **Tuesday, October 27**.

Friday at a Glance
November 6, 2020

10:00-10:15 Announcements, Recognition of IAFOR Scholarship Winners, & Welcome Address
Joseph Haldane, IAFOR, Japan

10:15-10:30 **Wadaiko Performance**
Students from AIE International High School will be giving an exhilarating Wadaiko drumming performance to open the conference.

10:30-11:15 **Keynote Presentation**
Phiip Sugai, Doshisha Business School, Japan

11:25-11:25 Break

11:25-11:50 IAFOR Documentary Photography Award

11:50-12:00 Break

12:00-12:45 **Keynote Presentation**
Gautam Mahajan, Customer Value Foundation, New Delhi, India

12:45-12:55 Break

12:55-13:40 **Keynote Presentation**

13:45-14:30 Networking Coffee

Saturday at a Glance
November 7, 2020

10:00-10:10	Welcome Address from the Organising Committee
10:10-11:50	Live-Stream Session 1: Business Administration and Business Economics
11:50-12:00	Break
12:00-13:15	Live-Stream Session 2: Economic and Environmental Sustainability
13:15-13:25	Break
13:25-15:05	Live-Stream Session 3: Business Models
15:05-15:15	Break
15:15-16:55	Live-Stream Session 4: Sustainable Land Use
16:55-17:05	Conference Closing Address Joseph Haldane, IAFOR, Japan

Saturday Live Stream Session 1: 10:10-11:50

Session Topic: Business Administration and Business Economics
Session Chair: To be Announced in Final Schedule

58666 10:10-10:35
"Depends on the Consequences": Measuring Consumer Attitudes Towards Manipulative Marketing
Rob Barlow, Hult International Business School, United States
Matt Johnson, Hult International Business School, United States

Academic discussion about the ethics of marketing typically focuses on the role such practices can play in undermining human autonomy through manipulation of the consumer's decision-making processes However, empirical researchers have not explored these issues from the perspective of those who may be targeted by such messages. In this study we use a pair of structured surveys to identify consumer attitudes towards manipulative marketing, focusing specifically on how their views on the use of manipulative marketing tactics may change depending on how they feel about the consequences these tactics will bring about. Study 1 presents respondents with a series of scenarios in which a consumer is presented with marketing messages for a product that will have positive or negative consequences. The respondent is then told that the marketing messages will transform the consumer's preferences with varying degrees of probability. Study 2 repeats the same scenarios, but places responsibility for changes in consumer behavior on being zapped with a hypothetical "marketing ray gun" rather than the persuasiveness of the marketing messages themselves. Preliminary results from Study 1 suggest that consumers are sensitive to manipulative marketing tactics, but only when they dislike the consequences of a campaign's success. Aside from their immediate significance to the marketing literature, these results have implications for an extension of the dual process theory of moral reasoning in two ways: by extending the application of this model for marketing ethics, and by exposing a key way in which rule-based and consequentialist moral values interact.

58939 10:35-11:00
Exploring Sovereign Wealth Fund as an Option to Sustainable Finance in Hong Kong
Tsz Fung Poon, National University of Singapore, Singapore

The tit-for-tat trade war, political crisis and COVID-19 pandemic have resulted in damaging economic consequences for many parts of the world. These included, among other things, a rise in unemployment and deterioration in purchasing power, which is harmful to Hong Kong's economic well-being. Given the overhang of a global economic slowdown and the looming challenges of an ageing population and shrinking workforce, it is imperative that Hong Kong be prepared and careful consideration should be given to the judicious use of our fiscal reserves. This paper explores the option in setting up a sovereign wealth fund to invest part of the government's budget surplus to generate long-term economic benefits and address long-standing social issues. With reference to the examples in Norway, Singapore and the United Arab Emirates, a new model that works closely with the existing Exchange Funds and Future Funds is proposed to generate short, medium and long term financial sustainability in Hong Kong.

58869 11:00-11:25
Opportunity Identification and Exploitation Among Vietnamese Immigrant Entrepreneurs in Japan
Thi Huong Tang, Ritsumeikan Asia Pacific University, Japan
Lailani Alcantara, Ritsumeikan Asia Pacific University, Japan

The unprecedented rise in number of immigrant entrepreneurs has gained attention from both scholars and policy makers. Previous research has suggested differences in opportunity identification between native and immigrant entrepreneurs; and also identified antecedents of immigrant entrepreneurship. However, the process underlying opportunity identification and exploitation remains unexplored. This study examines immigrant entrepreneurs' opportunity and exploitation identification process through in-depth interviews with Vietnamese entrepreneurs who made the transition from organizational employment to entrepreneurship in Japan. Their lived experiences add to the understanding of how immigrant entrepreneurs identify, evaluate and exploit business opportunities in Japan. The study also seeks to determine to what extent socio-cultural identity affects the opportunity identification and exploitation. While previous studies on immigrant entrepreneurship have focused on necessity-based entrepreneurship, this study focuses on

opportunity-based entrepreneurship by Vietnamese immigrants in Japan. By doing so, this study contributes to the literature of immigrant entrepreneurship by providing theoretical implications for how socio-cultural identity impacts the process underlying opportunity identification and exploitation and practical implications for fostering immigrant entrepreneurship in Japan.

58963 11:25-11:50
Transformational Leadership as a Pedagogical Approach in Design Education
Bhagyashri Sharma, Pearl Academy, India

Education leading to wisdom has been acknowledged as a key transformational experience since time immemorial and the process is organic. An ideal interaction between the teacher and the learner has always been that of a mutual experience which impacts and elevates both the stakeholders involved. A natural positive outcome can be of social enhancement and an evolved civilization. A transformed learner further carries forward this legacy to establish an evolved consciousness into our existence. When it comes to design education, educators across the globe constantly experiment with various pedagogical methods, to improve the learning experience of their learners and to ensure that the latter optimally perform to their abilities. Educators hold not only the ability to ensure that their industry domain continues to get equipped with a better talent pool, but also contribute to the upholding of social values. This is where the concept of transformational leadership emerges. It enables an approach that causes an internal change in individuals as well as social systems. This research examines if the method of transformational leadership can practically be used as a pedagogical tool in design education while meeting the formal objectives of higher education in India. The methodology for this study is built around an interactive discussion with all stakeholders and to examine the possibilities. The study aims to review the advantages and challenges of this method, culminating in proposing a model, which can create the possibility to implement this concept at a larger perspective.

Saturday Live Stream Session 2: 12:00-13:15

Session Topic: Economic and Environmental Sustainability
Session Chair: To be Announced in Final Schedule

59078 12:00-12:25
The Response of Corporate Sustainability to Environmental Disasters: Evidence From Wildfires
Ioannis Branikas, University of Oregon, United States
Gabriel Buchbinder, University of Oregon, United States
Yugang Ding, Peking University, China

Environmental disasters are thought to increase the focus on corporate sustainability in the communities where they occur. Extracting data on wildfires (a frequent type of disaster in the U.S.) and the sustainability of publicly traded firms, we study this conjecture. We show that severe wildfires in a county increase significantly the environmental sustainability of local companies in the following year. This effect is not driven by pre-trends, such as the implementation of existing sustainability programs, nor does it exhibit post-trends, such as the further growth of sustainability in later years. It is also robust to considering other variables that might be related to the wildfire severity and corporate environmental sustainability in a county, such as prescribed fires, other natural disasters (e.g., hurricanes), wildfires that take place in neighboring areas, and the attention that locals pay to wildfires as these are occurring. Moreover, we show that there is no spillover or substitution effect on non-environmental aspects of corporate sustainability (e.g., diversity, or human rights). Importantly, the impact on the environmental corporate sustainability that we estimate is not homogeneous across counties: it is significant only in counties where the percentage of climate change believers is high, or where the majority of voters are Democrats. Given the high environmental and economic costs of wildfires, our findings that local corporations respond to them by improving their environmental sustainability provide at least some consolation in the aftermath of such disasters.

58700 12:25-12:50
Effects of Consumers' Concerns Regarding Electric Vehicles on the EV Adoption: The Case in California, USA
Hiroyuki Iseki, University of Maryland, United States

Since the amount of vehicle trips is expected to grow in future, the adoption of alternative fuel vehicles is essential in the reduction of greenhouse gases emissions in the transport sector. Although the governments of Japan, the UK, and several states in the US set policy targets to increase alternative fuel vehicles, the number of electric vehicles (EVs) hasn't increased as expected. This study examines the extent to which consumers' concerns about plug-in-hybrid vehicles (PHEVs) and battery electric vehicles (BEVs) and two policy-related factors are associated with the adoption of EVs, in comparison to conventional hybrid vehicles and internal combustion engine vehicles. In addition to logit and multinomial logit regression models applied to examine the survey data collected in California between 2015 and 2017, principal component analysis was applied to identify three main categories of concerns. The analysis results reveal that concerns about battery and charging issues and general concerns about new technologies substantially lower the likelihood of adopting both PHEVs and BEVs. In contrast, concerns about vehicle capacity/style apply only to BEVs. In addition, although free access to high-occupancy vehicle (HOV) lanes is often mentioned as a strong incentive for consumers to purchase an EV, the analysis found no additional effect after controlling for another policy variable—the density of publicly available EV chargers—and socio-economic and behavioral variables of survey respondents. The study results suggest the importance of addressing the three concern areas, as well as to increase the availability of EV chargers.

58664 12:50-13:15
ASEAN and Environmental Security – to Take Haze Pollution From Indonesia as Example
Yi-Ting Lin, National Taiwan Normal University, Taiwan

In the past, military, economic, trade, and political issues have been the focus of many international organizations, however environmental issues have become increasingly significant, given the impact of environmental factors on issues of both trade and national security. In organizations such as the Association of Southeast Asian Nations (ASEAN), environmental pollution and climate change are becoming prominent

topics of discussion, despite traditionally being limited to areas of scientific research. Indonesia is both the most significant contributor and victim of the Southeast Asian haze. However, haze pollution is a transregional environmental problem affecting all neighboring countries including Malaysia, Singapore, and Vietnam. Many of these countries recognize the importance of organizations such as the ASEAN in addressing these issues and hope that treaties and negotiations can form long term solutions. This paper adopts environmental treaties which belong to the ASEAN framework, including the ASEAN Agreement on Transboundary Haze Pollution (AATHP) and the ASEAN Peatland Management Strategy 2006 – 2020. This study uses a 'level of analysis' system to explain the long-term impact of haze pollution on Southeast Asian countries and proposes further possibilities for transnational cooperation on environmental issues in the ASEAN.

Saturday Live Stream Session 3: 13:25-15:05

Session Topic: Business Models
Session Chair: To be Announced in Final Schedule

59065 13:25-13:50
Guidance From Corporate Philosophy
William Baber, Kyoto University, Japan
Makoto Sarata, Doshisha University, Japan

This presentation shows how a Japanese knowledge-based SME was able to constantly innovate its business models and value propositions over recent decades to become the leading company in its niche. The firm has made incremental transitions since the 1980s and is preparing for a more dramatic move into new business activities. The development of the company is explained using business model tools (Osterwalder, Pigneur, & Tucci, 2005; Rasmusson, 2006). A key factor in understanding the company's ability to develop and overcome challenges is its corporate philosophy (Gray & Balmer, 1998; Ledford, Wendenhof, & Strahley, 1995). The company has been discussed in recent literature (Baber, Sarata, & Tsukamoto, 2020), however this presentation reveals more about the key personalities and the process of developing its business model in recent decades as well as the upcoming leap into a new business model. Internationalization, the establishment of its business in the USA, plays a role. The roles of effectuation (Sarasvathy 2001, 2008), ambidexterity, and exogenous pressures will be also be considered in this presentation.

59052 13:50-14:15
Digital Business Models: Short Video Platforms in China
Chen Yao, Kyoto University, Japan

Speaking of the most popular way of entertainment in China in recent years, it must be watching short videos. Compared to traditional user-generated-content platforms such as Weibo where the content is delivered mainly through text and pictures, it is accepted that short videos are more expressive in telling stories. Considering Kuaishou, one of the most popular short video platforms in China, within just 11 seconds, you can watch a user-generated video of anything from making up to cooking. Originally, the main function of short video apps is to record life and socialize. Users shoot and share short videos on the app, and viewers can like, comment and retweet the content. Most revenue comes from advertising due to the rapidly increasing user base. With the rise of live streaming, users can tip or reward the live stream they enjoy and tipping has become another source of revenue for Kuaishou. Usually Kuaishou will take 50% of the tips as platform income. Due to the real time nature, live streaming is the most preferred form of sales promotion. Therefore, Kuaishou developed e-commerce functions called Kuaishou small shop based on live streaming. Live streamers can display products or just show the manufacturing process via live streaming, and users can place orders through the shopping button linking to payment process This occurs on screen while watching, delivering immediate sales to the streamer and satisfaction to the purchaser. Holding the platform position delivers a considerable proportion of total sales revenue. The platform brings makers and buyers

59068 14:15-14:40
Finding New Business Models
Makoto Sarata, Doshisha University, Japan
William Baber, Kyoto University, Japan

Academics and business people have explored new ways to find and develop businesses ideas as well as to understand them before making major investments. While entrepreneurs seem to favor effectuation (Sarasvathy 2001, 2008), existing business may take other approaches. There is however no accepted general process. Existing tools, such as the Business Model Canvas (Osterwalder, Pigneur, Tucci 2005) and other modeling approaches help to develop these ideas. Yet the core issue, originating a novel idea, remains a challenge. Intuitive understanding and broad overview may help understanding gaps in the industry. Meanwhile, regarding products and services, the concept of Jobs to be Done (Christensen 2004) has born significant fruits for developing new understanding for finding market gaps. Additionally, however,

clear understanding of user needs and experience interacting with a product or service is necessary as is design of product and services. Further, planetary constraints regarding carbon and nitrogen footprints as well as impact on environment need consideration as novel business models are designed. In particular, a Japanese approach that considers impact on environment and future generations, sanpoyoshi, is included.

58693 14:40-15:05
Looking for the Traces of Effectuation Theory in the Example of Internationalized Azerbaijani Startups: A Case Study of Pickvisa.com
Ulkar Garajali, Kyoto University, Japan

There is a lack of sufficient practical and theoretical guidelines for Azerbaijani companies to support them transitioning from local companies to globally successful companies. To this day, we do not have sufficient amount of research done on Azerbaijani startup arena let alone on individual cases. This article aims to shed a light on the individual experience of an exemplary Made in Azerbaijan enterprise. More specifically, his paper aims to understand how a successfully internationalized Azerbaijani enterprise uses effectuation in making operational and strategic decisions. The findings can be used in guiding startups with similar aspirations through various situations. Intrinsic case study design has been chosen to conduct an exploratory research looking for traces of effectuation theory and investigate decision-making models utilized by modern day Azerbaijani enterprise.

Saturday Live Stream Session 4: 15:15-16:55

Session Topic: Sustainable Land Use
Session Chair: To be Announced in Final Schedule

58490 15:15-15:40
Management of Natural Protected Areas Within the Romanian Cities. Case Study: Văcăreşti Protected Landscape and Natura 2000 Sites
Atena-Ioana Gârjoabă, Ion Mincu University of Architecture and Urbanism, Romania
Cerasella Crăciun, Ion Mincu University of Architecture and Urbanism, Romania
Alexandru-Ionut Petrisor, Ion Mincu University of Architecture and Urbanism, Romania

The rapid pace of city expansion is drawing more and more attention to the reconsideration of interest in the city-environment-landscape nexus. Urban planning is one of the main potential tools with a considerable impact on protecting the environment and the landscape. Natural Protected Areas are among the most vulnerable areas and the impact on those in or near urban regions even higher. Natural Protected Areas within the cities may become the topic of a new ecology, but with potential significant effects in reestablishing the anthropic-nature-landscape balance. However, the effects of responsible planning can be strongly influenced by the local community and its degree of awareness and involvement during the preparation of the management plan and its implementation. This paper presents, in parallel, several case studies from Romania, i.e., Natura 2000 sites and a Protected Landscape located in urban areas with a legislative void concerning their status. Their comparison highlights the importance of site location in the conservation process and the particular role of a specific historical evolution and decryption of real and authentic values within an urban area. All these can lead to the evaluation of morpho-typologies and declaration of an urban part of the built-up area as a natural one. The final result is the identification of general urban ecological morpho-typological principles, applicable to other Natural Protected Areas within the cities, the main factors involved in the management process, and the characteristics of the legislation affecting the Natural Protected Areas.

57763 15:40-16:05
The Guidelines for Development of Agricultural Areas Based on Concepts from Participatory Ecological Agriculture to Solve Environmental Problems
Umpa Buarapa, Mahasarakham University, Thailand
Wichanat Tiwasing, Mahasarakham University, Thailand

This project is to design and develop agricultural areas in accordance with the concept of participatory agriculture ecology to solve poverty and protect the environment. Using the study of Landscape ecology and agriculture ecology concepts. In-depth interviews were used to explore the problems and impacts of agriculture affecting the economy Society and Environment of Wapi Pathum District Maha Sarakham Province. The key findings showed that the former agricultural area was all forest area. The forest area was transformed to agriculture area. This community has been doing agriculture for more than 50 years. The farmers have been using fertilizer and chemicals for a long time. This results in reduced agricultural production and environment deterioration. To address these solutions the concept of "New Theory Agriculture" should be introduced to the farmers by focusing on growing a variety of plants for various uses. Also "Khok Nong Na Model" concept should be implemented to help enhance land and water management for agriculture activities throughout the year. Moreover “Agroforestry” together with "Organic agriculture" will help rehabilitate the complete degraded forest area. Also the treatment of soil, water and air with ecological plant could potentially help reduce toxin in the environment. Finally the Principles of landscape agricultural guidelines will help create beautiful agricultural areas, sustainable, suitable for learning resources and tourist attractions. Combining these concept together contributes a new type of agriculture to help and create better quality environment.

58674 16:05-16:30
Spatial Modeling for People Forest by Using Remote Sensing-GIS and AHP to Support Rural Municipal Sustainable Development for the SDGs
Fahrudin Sera'ie, Institute of Technology Bandung, Indonesia
Ketut Wikantika, Institute of Technology Bandung, Indonesia
Albertus Deliar, Institute of Technology Bandung, Indonesia

People forest or non-state forest in rural municipality able to act as lungs that can provide coolness and ensure the sustainability of the surrounding ecosystem. Although there are many levels of importance to land use, land use for people forest area must also be prioritized. So, it needs to support people forest area for sustainable development. Modeling is one of the analytical tools to support the success of rural municipal sustainable development according to local characteristics. Therefore, people forest area plan by using spatial modeling plays an important rule before internalized into spatial regulation. This research is conducted to model people forest in the study area. The methodology used is remote sensing-GIS and AHP. Remote sensing combined with GIS is done for spatial and attribute data processing which is used as input data. AHP is used to analyze the level of importance of space to find the most potential models based on the pairwise comparison technique. Pairwise comparison in AHP can help to minimize land-use conflicts of interest. All pairwise comparisons produced are consistent to gain consistent models for multi-criteria decision making. The output of this study is the most potential model to be chosen as a community forest area in a rural municipality. The selected model can be used for the spatial planning of people forest area to support rural municipal sustainable development for the SDGs.

59067 16:30-16:55
Research on the Evaluation Index of Sustainable Land Use in China Based on Production-living-ecological Space and Land Use Functions
Yilong Li, University of Nottingham Ningbo China, China
Yu-Ting Tang, University of Nottingham Ningbo China, China

Optimizing production-living-ecological space has become one of the cores of China’s ecological civilization and sustainable development strategy, and it is also a crucial goal of land use and management in China. Constructing and identifying a land use evaluation index system based on production-living-ecological space is of great importance to sustainable land use in China. The concept of land use functions can be defined as goods and services provided by different land use types, including production, living, and ecological functions. These functions accord with the purpose of identifying production-living-ecological space. However, few studies have focused on the identification and evaluation of production-living-ecological space from the perspective of land use functions. In this study, literature review methods, comparative analysis, and induction were performed to discusses the logical connection between production-living-ecological space and land use functions, and an index system to evaluate the sustainability of production-living-ecological space was constructed based on the multifunctional land use framework. This study will provide a reference for promoting the coordinated development among production-life-ecological functions and creating an evaluation system for sustainable land use in China.

ACBPP2020: Pre-Recorded Virtual Presentations

58569
Agile Project Management for Digital Innovation and Improved Performance: A Case Study From the Telecommunications Industry
Anshuman Khare, Athabasca University, Canada
Maria Argyropoulou, University of Liverpool, United Kingdom
Dionisia Tzavara, University of Liverpool, United Kingdom
Ioanna Paveli, Hellenic Open University, Greece

The goal of this paper is to explore the impact of Agile Product Development on the financial and non-financial performance of a company operating in the telecommunications industry. Following research hypotheses were framed and tested: H1: There is a positive relationship between Agile New Product Development methodology and organisational performance as expressed by financial measures H2: There is a positive relationship between Agile New Product Development methodology and organisational performance as expressed by non-financial measures. Primary data for this research were collected by means of a web questionnaire that was distributed on May 2019 to a sample of 800 employees working for the case organisation which employs more than 2400 people in Greece. The potential respondents met the profile criteria. To tests our hypotheses, we performed multiple regression analysis. The regression model evaluation was employed using multicollinearity-homescedasticity and normality tests. Statistical analyses and tests were conducted using SPSS. According to our findings, the Agile New Product Development has a statistically significant positive relationship with the financial as well as non-financial organisational performance. Therefore, both hypotheses were accepted. Moreover, the regression analysis spotlighted the Agile Principles that constitute the most important predictors of organisational performance. Our arguments can provide guidance on the managerial implementation considerations necessary to scale up the initial efforts and move toward a well performing organisation.

58816
Factors Contributing to Recommendation Intention on Full-time and Part-time Job Websites
Takumi Kato, Saitama University, Japan

Websites are the gateway to consumers' purchasing behavior in all industries, and effective website design greatly contributes to companies' competitiveness. This tendency is particularly dominant in recruiting human resources. Consumers browse recruitment websites that aggregate information from many companies, then select and apply for jobs. The hypothesis of this study is that the required website elements are different for full-time and part-time job seekers, a topic not extensively discussed in studies. To this end, an online survey was conducted with men and women in their 20s to 50s, who found employment through a recruitment website in Japan. The sample size was 1,000 for each employment type. Gender and age were sampled according to demographic statistics. Factors contributing to the recommendation intention were evaluated using the logistic regression model. As a result, "detailed search according to experience/skills," "detailed search according to work location," and "accuracy of information" in the full-time, and "easy registration," "volume of recruitment," and "security of personal information management" in the part-time were extracted. It is thought that the former should emphasize the recruitment in suitable jobs, and the latter should emphasize the ease of use. If companies are unaware of the important elements, information is congested, making the website difficult for consumers to use. It is important to design such websites based on the implications of this study, as consumers will immediately discontinue using the service if they find it unsuitable.

59070
Value Creation in Photovoltaic Supply Chain Through Market and Product Diversification: Insights From Emerging Building Integrated PV Segment
Marek Kryszak, National Kaoshiung University of Science and Technology, Taiwan
Lai Wang, National Kaoshiung University of Science and Technology, Taiwan

The recent years in the PV industry have been marked with a severe imbalance of manufacturing capacities and demand, which led to abrupt market shocks and end-product price volatility. Moreover, the Chinese fast-follower producers managed to grasp the significant competitive advantages, both, in terms of scale and technological advancements. Under such conditions, the PV segments in originally technologically advanced countries of the West struggle to reinvent their approach to restart, at least. the part of their manufacturing base. The problem is complex while it relates to the domain of policies, technology, product design, logistics, or emerging applications. In this manuscript, the authors proposed a broad reflection on current PV and BIPV trends with a special focus on the value creation in the BIPV supply chain. The reflection was based on the data and know-how derived directly from the industry sources, including the recent PV global events. The discussion leads to the conclusions on the growing importance of the untapped chances resulting from the merging construction and PV industries. The substantial part of the PV value creation is deemed to shift from manufacturing hubs towards the proximity of the projects' locations, which creates chances to increase the balance of the global industry. The topic of the value creation in BIPV is hardly present in the literature therefore the research brings an important contribution, also through the quoted data.

58243
Innovative Teaching and Learning: Mixed Reality Linked Gamification in Secondary Biology
Mei Kuen Florence Tang, The Chinese University of Hong Kong, Hong Kong
Ka Yin Christine Yu, G.T. (Ellen Yeung) College, Hong Kong
Ka Wah Yang, Sing Yin Secondary School, Hong Kong
Ka Lai Roy Chan, Po Leung Kuk Ngan Po Ling College, Hong Kong
Miu Yung Olivia Ngan, Chinese University of Hong Kong, Hong Kong
Wai To Frederic Choi, Chinese University of Hong Kong, Hong Kong

Gamification is one of the recognized educational approaches that improve the motivation and engagement of the students in science learning. The project aims to implement the gamified mixed reality courseware for the enhancement of secondary school students' understanding for the inaccessible conceptual topics of fluid mosaic model of cell membrane, homeostasis of blood glucose level as well as biotechnology and genetically modified organisms. Students always found that it was a daunting task to learn these 3 topics in traditional teaching approach. The participant students were from Grade 10 to 12 classes in Hong Kong secondary schools. The courseware included three mixed reality games, quizzes in conjunction with educational animations. Students learned the topics through the courseware. Then, surveys were conducted to collect feedback from students before and after the use of courseware. The data analysis from the survey was to evaluate the students' learning experience, enjoyment and attitude towards using mixed reality in learning science and the effectiveness of the gamified courseware. Overall, the results showed that students were positive on the usage of gamification in science learning since it was fun, enjoyable and excited. Our findings also revealed that the use of the gamified courseware boosted classroom dynamics.

58692
Australia's Federal Policy Response to the Coronavirus Crisis
Craig Mark, Kyoritsu Women's University, Japan

To coordinate a nationwide response to the coronavirus pandemic, and the resulting impact of Australia's first recession in nearly thirty years, on March 13 the federal government convened the National Cabinet. This comprises the Prime Minister, Scott Morrison, and the eight leaders of the States and Territories. It formally replaced the Council of Australian Governments (COAG) as the principal body for coordinating national policy implementation, including strict quarantine and border control measures. An advisory National COVID-19 Coordination Commission (NCCC) was also formed. This paper will conduct a critical policy analysis of these new institutional structures, and how they have altered the political structure and policy responses of the Australian federal government. This restructuring has allowed a dramatic reversal in fiscal policy. After previously claiming to be on track for a budget surplus, the Morrison government has undertaken massive deficit spending of around A$150 billion, over 10% of GDP. Central to this stimulus has

been the Jobkeeper wage subsidy to over 3 million workers, with unemployment expected to reach 10%, as GDP has fallen by 6%. In monetary policy, the Reserve Bank of Australia (RBA) cut interest rates to record lows, and embraced Quantitative Easing. While these policies have received bipartisan support, the Morrison government has indicated an intention to eventually shift back towards the neoliberal economic policies traditionally favoured by the LNP. This paper will highlight the potential risks of declining government transparency and continuing economic inequality, as parliamentary scrutiny has been disrupted by the pandemic, thus eroding democratic accountability.

59069
The U.S. Commitment to Religious Freedom and Corporate America Under the Trump Administration
Machiko Sato, University of Shizuoka, Japan

This study examines the U.S. commitment to international religious freedom issues globally, particularly under the Trump administration. The Trump administration prioritizes an ethical or moral based diplomacy not only because the majorities of Trump voters are devout conservative Christians but also because religious freedom promotes good business both morally and profitably. The State Department considers the idea of where religious freedom exists stimulates a good business climate. This idea accommodates religious freedom and Corporate America and Conservatives' views. This study depicts how international religious freedom plays a role in the U.S. foreign policy from the Carter through the Trump administration and demonstrates how religious freedom turns to play a central role in the Trump administration, unlike previous administrations. This paper draws that the Trump administration seemingly succeeds in an ethical or moral based diplomacy against authoritarian regimes and at the same time connotates some limits within.

ACSEE2020: Pre-Recorded Virtual Presentations

58347
Developing a Cultural Ecosystem Services Valuation Framework for Enhanced Natural Resource Management for Bangladesh's Forests
Raisa Bashar, University of Surrey, United Kingdom
Stephen Morse, University of Surrey, United Kingdom
Ian Christie, University of Surrey, United Kingdom

From till-date literature review it has been found that there is no universally accepted definition of cultural ecosystem services (CES) and as a result there is no agreed model to incorporate CES valuation into policies. The main reason for this gap is the subjective nature of the sub-categories that make up CES's definitions. Also, such models highlight the costs of conserving ecosystem services and/or are not compatible with national conservation policies, often resulting in higher levels of encroachment of natural resources and lower levels of conservation therein; the nexus between the scientific knowledge generators and the practitioners of the developing countries is also missing. Hence, the research will try to mitigate this issue by aiming to explore the diverse meaning/interpretation of CES in a comprehensive, but efficient manner, creating a model that will reflect the sub-categories of CES (from which the cultural values are derived) as variables from both the local communities' and visitors' (and other stakeholders') perspectives, keeping a developing country scenario in mind, fine-tuning it after discussions with relevant key informants, collecting the data from indigenous communities of chosen sites in Bangladesh and later, developing a framework for assessing the CES. The developed framework will then set on to test the model (1) to check its validity in terms of errors, (2) apply the framework to assess CES at a number of sites, (3) assess its acceptance by Bangladeshi policy makers, communities and the conservation policies/market prices, and (4) explore the usefulness of the framework for policy intervention.

58684
Rethinking Urban Sustainability in Canada
Anshuman Khare, Athabasca University, Canada
Patricia MacNeil, Dalhousie University, Canada

COVID-19 is a devastating public health crisis that is wreaking human, social, and economic havoc. Paradoxically, the environment is flourishing, as greenhouse gases (GHGs), like CO2, have fallen. Canada participates in the United Nations Paris Agreement, a commitment to limit global warming to 1.5°C above pre-industrial levels. Unfortunately, most countries, including Canada, are falling short of their goals — that is, until Covid-19. Global emissions for the first quarter of 2020 were down by 17% in early April 2020, with an 8% decline predicted for the year. Cities are a major source of emissions accounting for 75% of global CO2 emissions. To meet its long-term emission goals, we could press forward with lessons learnt from the pandemic. Emissions will rebound as life gets back to normal. But should we go back to normal, or take a different path? Less travel, less consumption, spending in community, promoting local business, working from home, etc. led to significant gains in reducing emissions. Many cities are already using renewable energy sources and employing techniques like smart technology to enhance performance and quality of life. Cutting emissions further reduces local pollution, improving urban air quality and health. Building urban resilience becomes crucial to avoid human, social, and economic losses that threaten urban sustainability. In this presentation, we will review best practices for urban emissions management and smart growth that emerged due to the pandemic. We then recommend ways Canadian cities can rethink strategies to lower emissions while enhancing sustainability, resilience, and quality of life.

58843
Assessing the Sustainability of Materials Throughout Their Life Cycle Using a Single Methodology
Lucy Smith, University of Sheffield, United Kingdom
Taofeeq Ibn-Mohammed, University of Warwick, United Kingdom
Ian Reaney, University of Sheffield, United Kingdom
S. C. Lenny Koh, University of Sheffield, United Kingdom

The global trading of complex products brings the sustainability of materials to the forefront. Currently, sustainability assessment is disparate, with numerous methodologies available to determine the credentials of specific materials, while a single approach has not yet been developed to ascertain the sustainability of any material throughout its life cycle. This study employs the Delphi methodology to obtain the opinions of sustainability experts to determine “Which indicators should be used to evaluate the sustainability of a material throughout its life cycle?”. This Delphi study uses three district rounds of questioning. The first round aims to identify the impacts relating to material sustainability within the supply chain; the second round then uses a five-point Likert scale to determine which of the impacts identified in round one are “very important” (5) or “not important” (1); the third round uses the Analytic Hierarchy Process to provide the weighting methodology for the chosen indicators. The results of the first round of the Delphi study were inductively coded and identified seven overarching categories; social, socio-economic, economic, enviro-economic, environmental, end of life and second life. Opportunities relating to sustainability measurement were identified as; access to collaborative research, the implementation of Industry 4.0 strategies and sustainable product design. Several challenges to measuring sustainability, such as access to data, reliable assessment methodologies and education throughout the supply chain were also identified. This data provides a platform upon which a robust and meaningful methodology will be developed to assess the sustainability of a material throughout its life cycle.

57826
Development of an Automated Drinking System Using Microcontroller for Broiler Production
Debbie Butch Pequeña, University of the Philippines Los Baños, Philippines
Arthur Fajardo, University of the Philippines Los Baños, Philippines
Omar Zubia, University of the Philippines Los Baños, Philippines
Roger Luyun, University of the Philippines Los Baños, Philippines

Although the broiler industry is one of the fastest growing industry in the Philippines, it still lacks the process of automation. Thus, this study sought to develop an automatic drinking system for broiler production that can monitor, control, record water quality and environmental data parameter. An automated drinking system was designed using the Arduino microcontroller and other electronic components for initial and actual field testing. The initial testing included the calibration and functionality of the system. After which, the system was tested for brooding and near harvest stage at a small broiler house set-up in San Rafael, Bulacan. Water quality parameters, such as the temperature, pH, and turbidity were measured in the study. Results showed that the annual cost difference of broiler production favored the utilization of the automated drinking system, rather than of manual labor. The study recommends that the automated drinking system be tested to larger broiler houses, with an additional alarm system through GSM. Furthermore, monitoring and recording via the internet can improve the automated system.

58310
Environment and Political Preferences: Is Left-wing Liberalism or Conservative Leftism Better for Eco-efficiency?
Anna Matuszczak, Poznan University of Economics and Business, Poland
Łukasz Kryszak, Poznan University of Economics and Business, Poland
Bazyli Czyżewski, Poznan University of Economics and Business, Poland
Artur Łopatka, Institute of Soil Science and Plant Cultivation – State Research Institute, Poland

American literature suggest that when Republicans are in power, the budget for environmental protection is being cut. On the other hand, in US cities where more people vote for Democrats local governments received more energy-efficiency grants and are more likely to adopt environmentally sustainable policy. However, political context of European countries is usually much more complex as there exist different hybrids of economic views and core social values. Furthermore, usually more political parties are involved in competition for power. The main goal of this paper was to estimate the long-term impact of political

preferences on the eco-efficiency level in Polish country districts. The eco-efficiency was calculated as a ratio of economic development (measured by districts own income) and environmental pressure in four dimensions: soil pollution, water pollution, air pollution and bio-uniformity. Double bootstrapped truncated regression on the unique set of data was used to capture the effects of the political views proxied by electoral decisions and individual willingness to adopt agri-environmental schemes. The most important finding was that the rule of local authorities originating from large national parties was positive determinants of eco-efficiency against the background of local committees. Simultaneously, counties where left-wing but market liberal views prevailed were characterized by the highest eco-efficiency level in relation to other options. Higher share of well-educated councilors and high population density were further positive drivers of eco-efficiency level. There is also a strong evidence that transnational environmental payments (i.e. EU Common Agricultural Policy schemes) had also a positive impact on eco-efficiency.

58688
A Strategy to Address the Economic and Environmental Needs of Large Cities by Achieving Building Energy Sustainability
Soojin Shin, University of Delaware, United States
John Byrne, University of Delaware, United States

Achieving energy sustainability in urban areas requires vigorous efforts especially from large cities. Building sector, which mostly existed in large cities, has mainly contributed to the end-use energy consumption and greenhouse gas emission. Therefore, improvement of energy efficiency in built environment is considered as a means to address the economic and environmental needs in large cities. In addition, significant growth in deployment of on-site renewable energy generation gives more opportunities to realize urban energy and environmental sustainability. This paper aims to find a comprehensive and effective strategy to achieve urban sustainability by integrating building energy efficiency technology and rooftop solar photovoltaic (PV). Firstly, this research investigates technical potential of energy efficiency upgrades in large, medium, and small size office buildings in New York City and City of Los Angeles. Selected energy conservation measures examine energy consumption reduction by simulating building energy model provided by U.S. department of energy. Based on the technical potential analysis, this paper investigates technical performance of rooftop solar PV system in each office buildings. Integrating energy conservation measures and rooftop PV shows the synergy of energy efficiency technology and on-site renewable energy to solve urban sustainability issue. Not only technical potential, but economic feasibility of the combination of clean technology and solar PV is critical to implement building energy reduction project. Therefore, this paper conducts scenario analysis with varying conditions to provide policy suggestions for urban decision-makers to consider adopting this principle to achieve urban energy sustainability

58915
The CIGS Building Integrated Photovoltaics: Financial Validity of Façade Applications Under Current Technological and Market Conditions
Marek Kryszak, National Kaoshiung University of Science and Technology, Taiwan
Lai Wang Wang, National Kaoshiung University of Science and Technology, Taiwan

The recent technological shift supported by the growing recognition of the public and policymakers of the renewable energy sources fostered the employments on the uncharted markets. The energy industry increasingly affects the other sectors that were not directly related to the energy generation before. The construction industry which could benefit from the Building Integrated Photovoltaics (BIPV), is such an example. The trend is only to be fostered with the European Union's Energy Performance of Buildings Directive which requires all new buildings to be nearly zero-energy by the end of 2020. The objective of this paper is to analyze the current financial validity of the BIPV façade applications, under the most recent CIGS technological advancements and market state. The topic is approached with the case study to assess the cost of investment and to learn the economic benefits through the installation life-cycle. The research indicated at economical validity of BIPV façade solution, with the IRR values reaching over 10% in the case of the most optimal systems. In relation to traditional façade materials, the CIGS BIPV façade brings substantial economic benefits to the investors, especially while being installed according to the best practices of PV system design (South, then East and West orientation). With the potential market pool of BIPV façade installations, the scale of CO_2 emissions avoidance should not be neglected. In further research, the importance of valid business models could be investigated.

58567
Brownfield Remediation in Austria – Successful Stories
Michael Alexander Birgmayr, Globe Trade Centre Romania, Romania
Alexandru-Ionut Petrisor, Ion Mincu University of Architecture and Urbanism, Romania

Deindustrialization created brownfields throughout all traditional European industrial regions. Their significance is understood due to their adverse socioeconomic impacts. The regeneration of derelict and underused sites for inner urban development can limit the pressure on greenfield sites around cities. The process, involving their reintegration into economy, is a key element of sustainable urban development, tackling environmental, social, economic and cultural issues. Recent European brownfield policies simultaneously address environmental protection and spatial planning. Brownfield sites are an opportunity for saving resources and delivering sustainable urban development. Countries with comparable strong spatial planning institutions (e.g., Austria, the Czech Republic, Italy, Poland, Slovakia or Germany) created and developed specific instruments in order to identify the best practice for sustainable brownfield regeneration by carrying out studies in industrial core regions in which they analyzed the current practices and improved the applied procedures. During the last 50 years, structural changes (e.g., some industrial sectors disappeared, companies merged, and higher quality production is organized on smaller areas) increased the number of brownfields in Austria. Land is a valuable resource and its effective use essential for sustainable development. An important component is the increased number of brownfield sites and complexity of their renewal. This article presents representative Austrian case studies (the Styrian Iron Road, Sargfabrik in Vienna, remediation of the hydrogeological basin unit Mitterndorfer Senke, Tabakfabrik in Linz, Anker Brot Factory, W18 Simmering Gasworks and the Gasometers in Vienna), indicating that brownfield regeneration is a sustainable solution for land and opportunity for introducing sustainable solutions in design.

58702
Get Out of Your Comfort Zone: An Interactive Externalization Pattern Book as an Implementation Tool for Future Designers
Christina Brown, Carnegie Mellon University, United States
Vivian Loftness, Carnegie Mellon University, United States
Erica Cochran, Carnegie Mellon University, United States
Marantha Dawkins, Carnegie Mellon University, United States
Herbert Dreiseitl, Dreiseitl Consulting, Germany
Dana Cupkova, Carnegie Mellon University, United states

As global warming accelerates, buildings currently account for 39% of energy-related carbon dioxide emissions annually. Architecture, however, is increasingly designed as hermetically sealed boxes, requiring mechanical support, which in turn further contributes to the greenhouse gas emissions warming up our planet. In addition to disassociating from the natural environment, this conventional approach also creates spaces where people disconnect themselves from their communities. In this project, I will examine what spaces could be externalized, removed from mechanical support, and how in doing so would provide environmental and social benefits that contribute greatly to the vibrancy and longevity of architecture and its communities. Current literature addresses various aspects of externalization, but most are missing critical vocabulary and design taxonomy. To fill this gap, I aim to develop an online interactive externalization pattern book that can support a user's design process. This pattern book will be developed through the research of four criterias in which the externalization strategies will be evaluated - ecological integration, climatic considerations, social/cultural considerations, and contextual application. The research will analyze each criteria through a series of case studies), literature review, and iterative design process (including simulation and BEM supported decision making). This will result in a holistic set of strategies that can address various contexts and scenarios, and serve as an useful tool when applying externalization strategies into architectural practice. Through this development, architectural practice can be enabled to shift towards a direction that better incorporates social and environmental resiliency through the implementation of building program externalization.

58663
Commuting to Computing: A Perspective on the Effects of Mobility of COVID-19
Anshuman Khare, Athabasca University, Canada
Brian Stewart, University of Alberta, Canada

The COVID-19 virus is continuing to disrupt global activities on an unimagined scale. Industries that were flourishing have for the immediate term been decimated. At the forefront of these are those that are tightly coupled to transportation and transit. The behavioural shifts of working and playing from home that are being experienced will have longer-term effects in shaping the post-pandemic world. For example the reduction in movement-related emissions will benefit from fewer commutes and less long-distance travel, but offset by shifts away from public transit; greater home occupancy will create increased awareness of energy consumption and the potential to offset through conservation and co-generation activities, all while reductions in travel will be compensated by higher computing energy usage. Such movement from “commuting to computing” provides an opportunity to examine a number of consequences of possible impacts to industry sectors both likely to experience and be significantly changed in the mid to longer term. This paper will examine the potential future of these industries with a view to providing scenarios for future states and identify key triggers that will influence the outcomes.