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CONTRIBUTION OF GEOGRAPHY IN SCIENTIFIC UNDERSTANDING

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ABSTRACT

Because the scope of practise for physical geographers is not regulated by any regulatory or academic institution, people's perceptions of the possible contribution that physical geography may make to research on sustainability have been, at best, hazy or informal. This article provides a description of a systematic assessment of research on sustainability that was published in three different physical geography journals. The purpose of this study is to get an understanding of what physical geographers can do to improve sustainability. According to the findings, physical geographers are involved in research on sustainability because they have a geographical perspective, an awareness of how humans interact with the environment, and the capacity to perceive, evaluate, and project environmental change and its effects. A physical geographer's awareness of the natural world, process and system ideas, the ways that systems are connected and interact, and a willingness to use a broad variety of approaches to acquire that information all contribute to the depth of this understanding, which is assisted by a physical geographer's understanding of these things. When assembling interdisciplinary teams, it is crucial to take into consideration the knowledge and experience of physical geographers since they provide a significant contribution to research on sustainability.

Keywords: *physical geography, science, anthropogenic, biodiversity, climate*

Introduction

The study of sustainability benefits greatly from a multidisciplinary, interdisciplinary, or even transdisciplinary perspective. While interdisciplinary teams are an integral aspect of sustainability research, contributions from individual academic fields are equally important.

Understanding the strengths of different fields is essential when putting up research teams. There are circumstances when this is really easy to do. Environmental scientists, geologists, biologists, and other scientists have a scope of practise that is specified by learned organisations and regulatory authorities, but most project directors have a clear knowledge of what geologists and biologists perform. However, physical geographers, although being a sizable and influential group, are not governed by a unified professional organisation or defined by a clear set of standards. Since The Stern Review suggested that human activity is changing Earth's physical geography, it's fair to wonder how much effort physical

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geographers put into studying the root causes, consequences, and potential solutions to these issues, and how much insight they provide into how to achieve environmental sustainability.

Although it is understood that physical geographers cannot and should not operate in a vacuum, it is also understood that sustainability science and Earth system science, without physical geographers, fail to take into account the spatial and temporal complexities of the Earth. Establishing baselines, monitoring change, and providing a wide context have been cited as physical geography's contributions to sustainability. To be sure, is it? If that's the case, then what do these claims really imply?

Geography being what geographers do, looking at what physical geographers do in terms of sustainability may help clarify their function in this field.

OBJECTIVES

1. To study contribution of geography in scientific
2. To study physical geography as a science

Materials and Methods

On the homepages of their respective journals, Geografiska Annaler Series A (published by Wiley and having an ISI 2015 impact value of 1.609), Physical Geography (published by Taylor & Francis and having an ISI impact rating of 0.741), and Progress in Physical Geography (published by Sage and having an ISI impact factor of 3.375) all included searches for "sustainability." These publications were chosen because they each provide an in-depth analysis of physical geography in its whole, as opposed to concentrating on a particular topic within the discipline, such as hydrology or geomorphology. In spite of the fact that writers from all over the globe contribute to these publications, the editorial headquarters of each of these three magazines can be found in the United States. For example, the Swedish publication Geografiska Annaler has a significant number of pieces authored by European authors and edited in Sweden. In a similar vein, the majority of the academic papers that are published in the journal Physical Geography are penned by authors who are based in the United States, however an increasing number of articles are coming from China. The British magazine Progress in Physical Geography has contributions from a significant number of writers from all around the globe. For example, a recent issue had contributions from academics from in the United States, the United Kingdom, China (2), India, Morocco, and India. Only articles published in English have been selected for inclusion in this volume, despite the fact that they represent a broad cross-section of research carried out by physical geographers from all over the globe on a variety of issues pertaining to the preservation of the natural environment. While review articles published in the last 10 years (since 2007) were not taken into consideration, research papers published in

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those years were. It was decided to look at thirty-three different papers from Physical Geography, fifty-six different pieces from Progress in Physical Geography, and four articles from Geografisker Annaler A. After reading or scanning the papers, those that did not seem to have a direct influence on sustainability were discarded. There was little effort put into analysing the shifts that occurred throughout the course of the decade.

The process of examining and interpreting the evidence in order to build a synthesis of the literature that produced the evidence was the technique that was utilised to answer the research question of "how does physical geography contribute to research on sustainability?" It was determined whether or not there was a connection between sustainability and the papers. The researchers looked at every facet of the study, assessing everything from its emphasis and aims to the methodologies it used. It was decided to provide brief descriptions of the investigations and then look for similarities and connections between the various publications. The idea of sustainability has been compared to a moderate amount of unpredictability in certain circles. In this investigation, we use the term "sustainability" in its broadest sense, which means we do not restrict ourselves to one specific definition of the term.

Following an analysis that compared the physical geography textbook definitions found in the United States, the United Kingdom, and Canada, a total of eight fundamental ideas were selected to act as the organisational framework for this study. Fundamental concepts in the discipline of physical geography include a spatial perspective, the concept of a natural world, human impact, process and system conceptions, anthropogenic consequences, environmental change, system connections, and the notion of physical geography as a science. The articles were arranged, often into a large number of separate groups, according to these subjects. Not only was there no assessment of the quality of the study, its completeness, or its importance in terms of citations, but there was also no investigation of the funding sources for the research.

The method that was used in this study does not claim to be a thorough investigation of the work that physical geographers have accomplished in the subject of sustainability that is considered to be the most important or even the most relevant. There has been a significant increase in the amount of research on sustainability that has been submitted by physical geographers to academic journals such as Water Resources Research and Geomorphology. This was not included due to the fact that these magazines also include papers written by academics in other subjects. Attempting to disentangle the work done by geographers from the greater body of research carried out in other subjects is a challenging and perhaps contentious endeavour. These articles are the only ones that are illustrative of the larger body of work that has been categorised as "physical geography" by the editors and authors of the journal, as well as "sustainability-related" by the indexing system of the journal. Because this is a qualitative research, it is unavoidably impacted by the author's knowledge and viewpoint as a physical geographer. This is due to the fact that the nature of the study is qualitative.

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Results

A Spatial Perspective

To differentiate itself from other areas, geographical analysis places a significant emphasis on taking a spatial point of view. Just a few instances of how the spatial perspective presents itself in the works that are being reviewed here include research on studies of locational uniqueness, scale effects, and remote sensing applications for spatial categorization.

The Uniqueness of Places

Physical geographers are fully aware that no one metric can adequately describe the complexity of landscapes since they are aware that landscapes are complex systems. Everything has a distinct taste of its own. Physical geographers are aware that the solutions to the questions they investigate about global occurrences may only be discovered at the local level. Because of this, the approaches that are used to achieve sustainability may differ from one region to the next. In the context of the ecosystem services paradigm, it has been acknowledged that geography may have a special contribution to make in the field of place-based approaches to the structure and dynamics of social-environmental systems. These writers brought attention to the significance of the fact that diverse ecological structures and functions are influenced in a unique manner by different change causes in different geographic regions. Geographers are concerned about global warming as well as the local ramifications of climate change, such as the patterns of temperature change across Wisconsin. As a result, there is a need for design solutions that are suited to the specific locations of metropolitan areas in order to manage urban climates.

Physical geographers are aware of the fact that the interactions between riparian vegetation and fluvial processes are believed to be unique in the tropics when contrasted with the processes that take place in the temperate regions. In both the New World and the Old World, it has been shown that the removal of riparian vegetation and woody debris may have a variety of geomorphic impacts.

An investigation of the high-resolution radar precipitation estimates in the southern United States found differential precipitation features in several drainage basins. This information is valuable in distributed hydrologic models for the planning of water resources. Recognizing the regional differences in precipitation may have a considerable influence on the siting of reservoirs as well as the management of water resources. Researchers in Ethiopia used the GIS-based modelling tool WetSpass to estimate the water balance of a watershed in order to answer the question of how much groundwater may be collected from the watershed without causing any harm. Using multiyear snowfall data from the Colorado Front Range and linking it with elevation, location, slope aspect, solar radiation, temperature, precipitation, and plant cover has been shown to be a viable method for determining which areas are most susceptible to the effects of climate change.

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There are significant environmental linkages that exist across various parts of the world, despite the fact that every place on Earth has its own unique personality. The proximity of moisture sources and the prevailing wind direction both have a role in determining the optimal area for cloud seeding. "Landscape connectivity," a phrase used in biogeography to express how easy it is for species to move from one site to another, is another issue that must be taken into consideration while trying to preserve the diversity of species.

Geographic Scale

Geographers are well aware of the fact that the scale of a phenomenon as well as the conditions for its sustainability may vary. Scale dependence manifests itself in many different ways in many domains, including landscape ecology and ecological biogeography, for example. Some examples of this include study area extent, geographical size, and spatial resolution. Research that indicates the value of geographic scale, spatial resolution, study area extent, and local variances includes research that shows how beneficial plot size is in selecting adequate soil covers to limit soil flow and loss. The Eastern Arc Mountains in Tanzania are home to a diverse range of ecosystems, all of which have a substantial impact on the health and happiness of humans in a variety of different ways and on a range of different levels. It is vital to see the situation from several dimensions when there are many different parties involved since their goals will likely be different.

It's possible that some relationships and explanatory frameworks operate better at particular scales than they do at others. This has been investigated, in part, by looking at the relationship between the size of the window that was used to compute Moran's I, and the results of those calculations. (an measure of spatial autocorrelation). For instance, the ideal spatial resolution for depicting vegetation-temperature links was determined to be 200 metres in a research that investigated the influence that urban vegetation had on the surface temperature. It was shown that tree clusters of this size were more effective in cooling the ground than individual trees located in the same general area.

Use of Remote Sensing to Detect Spatial Differences

Because of the many applications that it has in biogeography and other fields that are closely connected to it, remote sensing has long been of particular interest to physical geographers. Even while fieldwork is still very important, it is often confined to a certain location. The use of remote sensing allows for a more comprehensive analysis. Ecologists that specialise in landscape ecology use remote sensing to assess the health and sustainability of forest ecosystems. This is done by examining spatial patterns and comparing them to biological processes. Estimates of biodiversity resulting from remote sensing are complemented by studies of animal and plant invasions as well as soil organic carbon. These estimates are based on productivity, disturbance, topography, and land cover. In remote sensing evaluations of ecosystem services, some of the groups of variables that may be measured or modelled for usage include plant functional traits, soil properties,

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biogeochemical cycles, and the availability of water. These are only some of the groupings of variables.

Utilizing remote sensing has allowed for an expansion of the range of field surveys that may be conducted in the Canadian boreal forest. The collection of data on seasonal greenness, wetland areas, terrain roughness, and seasonality as typified by spring snow cover, annual minimum cover, autumn snow cover, and yearly productivity has been made possible as a result of this. By employing these criteria, the scientists were able to identify clusters that may be explained by variations in latitude. In addition, spectrometric measurements carried out in a laboratory have been of use in the process of monitoring pioneer vegetation using remote sensing.

Anthropogenic Impacts

Although the majority of those who study physical geography have always had a keen interest in the natural world, in recent years, the study of how humans impact their surroundings has become more significant. Studies that investigate the interactions and feedbacks between people and landscapes, as opposed to only the causes and consequences of such interactions, are becoming increasingly relevant as the field of study evolves. Among the many subjects that have been investigated in the countless works that have been published on the human-landscape system, a few examples include urban settings, farming, impacts on biodiversity, and changes in land cover and use. These are just a few of the topics.

Urban Environments

Cities are becoming an increasingly important topic of discussion among physical geographers, particularly in relation to hydrology and climate. It has been suggested that the amount of paved area may be used as a proxy for the environmental effect that people have. According to the findings of contemporary scientific study, however, urban pavement is not necessarily as impermeable as was previously assumed to be the case. Since infiltration changes throughout the course of time as paved surfaces degrade and are regenerated, it is likely that urban hydrology models, in particular those with a high spatial resolution, should account for the variability that is connected with the age of the paved surface. This is crucial because there has been a recent trend away from emphasising the efficient and prompt removal of surface water. This change has implications for the removal of surface water. Through the implementation of an ecohydrological strategy for the management of stormwater, it may be possible to lessen the likelihood that urban areas would be flooded, enhance the quality of the water, and reap other social advantages. Depending on the specifics of the surrounding environment, the cumulative effects of urbanisation and climate change on hydrographs may either be exaggerated or reduced.

The climates of cities are another topic that fascinates physical geographers. The radiative properties of building materials, reduced evaporative cooling, and aerodynamic alterations all

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contribute to the formation of urban heat islands, which in turn have a negative impact on human health and the availability of water and energy resources. Physical geographers have recently developed an interest in the potential for smart urban design and planning to reduce the negative effects of climate change on cities.

Additional components of the greater climatic setting that pertain to urban areas include the urban carbon flow and its influence on the global carbon cycle.

There has been a commensurate rise in the demand for appropriate urban places in China, where rapid industrialization has led to an increase in urbanisation and produced urban sprawl around existing centres. But at the same time, there are also whole new cities being constructed from the ground up according to plans. A GIS-based back-propagation (BP) neural network model was used to analyse data on geomorphology, slope, soil, and groundwater conditions, in addition to expected geologic risks, in order to establish an appropriate physical site for urbanisation in an area of China.

Agriculture

The assertion that modern agriculture is detrimental to the environment is given further weight by the fact that there is evidence to suggest that pre-Columbian land use did not generate the high levels of soil erosion and floodplain sedimentation that are often attributed with European invasion of North America. However, the vast bulk of physical geographers' research on agricultural repercussions has been performed outside of Europe and North America. The efforts that Ethiopia is making to preserve its water and land have been reviewed. In China's Loess Plateau, studies on the impact of a variety of soil and water conservation strategies, as well as studies on the effectiveness of efforts to restore degraded red soils, have both been carried out. The Black Soil region in Northeast China is experiencing severe gully erosion as a direct result of human activity, which has substantial repercussions for the region's ability to provide sufficient food. On the Loess Plateau in China, radioactive 137Cs, which had been discharged into the environment as fallout from nuclear testing in the middle of the 20th century, was used to estimate the amount of soil that had been eroded away. It has been shown that 137Cs concentrations may be decreased by the process of soil erosion. According to research conducted on the topic, the rate of soil erosion rises when one moves from an old-growth forest to grass, then from young-growth woods to orchard, and finally to agricultural terraces.

To determine whether or not farmed wetland regions in Zimbabwe had the potential to be sustainable over the long term, a scoring system was used that took into account the distribution, intensity, and magnitude of the different land uses. Fieldwork and interviews with local farmers were used to gather information on the geomorphic background, water supply, water-flow pattern across the marsh, soil texture, and wetness. The data on the local temperature and slope were acquired from sources that were open to the public, and satellite imagery was used in the process of mapping the land cover. It was shown that the

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agricultural practises used had an effect on the hydrology of the wetlands, which rendered such practises unsustainable. It has been shown that the physico-chemical properties of the soil play a part in determining the extent to which human activities contribute to soil erosion in Iran. This role plays a function in determining the degree to which human activities contribute to soil erosion in Iran. The mapping of soil erosion was accomplished by establishing a correlation between erosion and land use as well as geology.

Physical geographers have compiled a summary of the contentious GMO agricultural technology. These researchers discovered that conventional crops that were grown close to organic ones had higher yields as a result of improved weed and insect control. The usage of pesticides has been cut down, and as a consequence, there has been less pollution of groundwater and a smaller carbon imprint. On the other hand, there is an accumulation of evidence that suggests weeds and insects are developing a greater tolerance for GMO crop varieties.

Biodiversity

Examples of problems with sustainability that are connected to biodiversity include changes in land use, increases in population numbers, and the introduction of new species. The majority of research on microorganisms and their role in microbial pollution has been carried out by physical geographers in North America and Europe in response to the policy objectives of various governments. Even if a species is not actively exploited by people, it is clear that human activity is closely connected to the depletion and extinction of species on a broader scale. This is the case regardless of whether or not the species is endangered. Although it has gotten less attention than habitat loss and degradation, land-cover change is a significant threat to biodiversity. This is despite the fact that it is a key stressor. Agricultural intensification and climate change both have an impact on land cover, which in turn has repercussions for habitats, particularly those that are used by migratory species. Both climate change and China's land-use policy were found to be having an impact on the vegetation of the nation, according to the findings of another research that examined the topic.

New techniques for monitoring biodiversity, such as terrestrial laser scanning of lichen-covered surfaces, may make it possible to have a better understanding of the impact that people have had on lichens at Shenandoah National Park in the state of Virginia. Long-term monitoring of rock outcrops in regions that are off-limits to the public may be compared to existing climbing routes and hiking pathways in order to assist park authorities in deciding whether or not to release such areas to the public. In order to analyse human impacts on the vegetation that existed on the Qinghai-Tibetan Plateau throughout the middle and late stages of the Holocene, pollen analysis of lake sediment cores and archaeological evidence have been employed.

Conducting a feasibility study on the deployment of multifunctional artificial reefs on small islands would be an effective preventative measure for the protection of natural resources.

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Land Cover, Land-Use Change, and Other Impacts

There is a huge range of additional human activities that may have an effect on sustainability. Landsat photos taken between 1990 and 2015 were used to conduct an analysis of the changing land cover in Bhutan's national parks with the goal of improving forest ecosystem management. In a similar manner, the upper portions of a watershed in New Zealand have been far less impacted by forest clearance and subsequent sequences of land-use change than the lower parts of an urban catchment that drains into the same watershed. This is because the effects of urbanisation were felt most strongly in the lower reaches of the watershed, and because subsequent disturbances in the river's upper reaches continue to have a cumulative impact on the lower reaches. In addition, the cumulative effect of urbanisation was felt most strongly in the lower reaches of the catchment.

Decomposing a time series of decreasing karst spring discharge in China indicated that declines in stream-flow were driven by climate change between 1957 and 1978, but that changes in discharge since then have been caused by both climate change and human activities. This was discovered by decomposing a time series of decreasing karst spring discharge in China. The extraction of groundwater was responsible for 35–52 percent of the declines related with human activity, while coal mining, deforestation, and the construction of dams were responsible for the remaining 48–62 percent of the losses. In order to assess the effect that humans have on karst systems, an evaluation of cave disturbance factors was carried out using a Geographic Information System (GIS) model.

Evaluation of riparian vegetation and quantification of the biogeomorphological consequences of constructing a canal across a desert wash were accomplished with the use of field sedimentology and GIS change-detection applied to aerial photographs. In protected areas, variations in land-surface temperature as well as the impact of variables such as light pollution and fires started by humans may be evaluated using satellite remote sensing. An examination of the impacts of the practises that are now being used for peatland management in the United Kingdom has been spurred as a result of the Water Framework Directive that was passed by the European Union. Mining for sand and gravel on floodplains results in the creation of pits, which have the potential to change the river's planform and hydraulics, as can be seen in satellite imagery and topographic maps.

Impacts on People

The effect of humans on the natural environment is just one of several topics that are studied by physical geographers. This research also shows that environmental influences are relevant to the study of physical geography, as shown by the research. For instance, research conducted on the steppes of Inner Mongolia has shown a relationship between husbandry activities, the health of grasslands, and the price of commodities. The potential of landscapes to offer the sorts of resources, energy, information, circumstances, and efficacy that are significant to humans is taken into consideration in one variation of this technique.

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The "flow and demand" paradigm of sustainability refers to this particular approach. They have suggested using this paradigm in order to determine whether or not a landscape is sustainable.

The most prevalent areas of focus for study into the ways in which the natural environment has an effect on humanity include natural hazards, as well as natural resources, particularly water resources. Some of these studies have concentrated on the topic of climate change, but the vast majority of them have investigated how people interact with and adapt to their environments.

Water Resources

As a direct effect of climate change and changes in land use, researchers in the Phoenix, Arizona, and Indianapolis, Indiana, metropolitan regions examined water usage as well as water availability. Research has also been done to investigate how global warming would affect the distribution of snowpack throughout the Colorado Front Range, which is an important source of water. In addition to the expected relationship between highest daily temperature and water consumption, researchers in Seoul, South Korea, found that wind speed is also an important control due to its impact on evaporative cooling. This was a surprising discovery made as part of their investigation into the connection between the weather and urban water consumption.

Natural Hazards

Physical geographers interested in sustainability have researched the dangers of coastal erosion, landslides, and desertification. To evaluate the risks associated with settlement near the shore, many factors have been taken into consideration. These include the expected future increase in sea level, wave height, tidal range, development along the coastline, elevation, geomorphology, and distance to urban centres. In China, a wide variety of strategies, including check dams, drainage canals, and the planting of vegetation, are being considered as possible ways to lessen the catastrophic potential of debris flows. When compared to studies that looked at the biophysical factors that regulated landslides, there is a paucity of research on the quantitative evaluation of landslide effects, according to the findings of an investigation into methods for lowering the danger of landslides in tropical regions. This responsibility that scientists have to tell policymakers and individuals who could be impacted by landslides of their results is stressed. Scientists have a duty to educate policymakers and people who might be affected by landslides of their findings. This requires expertise with sociopolitical and cultural backgrounds as well as economics, which are often not taken into consideration until the situation calls for the use of an interdisciplinary approach. For instance, GIS modelling of desertification in Iran has been used to analyse the hazards associated with desertification and to generate a zoning map that may be utilised for planning purposes.

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CONCLUSION

Research into climate change, the loss of biodiversity, water resources, pollution, land degradation, food security, and the promotion and preservation of local knowledge are just some of the areas in which physical geographers have been demonstrated to be actively involved. Other topics include the research of water resources, the promotion and preservation of local knowledge, and the loss of biodiversity. It is vital for physical geographers to have the ability to conceptualise spatially and to offer thorough explanations that take into account multiple scales for a broad range of different occurrences. They have the ability to devise answers to very challenging issues, which is an essential ability in the struggle to ensure that mankind will continue to exist on Earth. When it comes to the study of the habitats throughout the globe, physical geographers realise the relevance of scale. They have a wealth of expertise in remote sensing as well as field work in a range of environments, such as agricultural, urban, and natural ones. They are especially concerned about issues pertaining to the viability of water supplies and the effects that natural catastrophes have on people. The emphasis of a physical geographer goes beyond the study of specific systems and processes to include the dynamic relationship that exists between different types of natural phenomena and human endeavours. In the Quaternary, researchers investigate changes in the environment throughout a wide range of historical periods. There are many academics working in the subject of physical geography that dispute the assumptions and boundaries of scientific analysis, despite the fact that the majority of their colleagues acknowledge the legitimacy of scientific research. The discipline of physical geography is not the only one that may provide expertise in environmentally sustainable practises. However, without physical geographers on the team, multidisciplinary research runs the risk of producing interpretations of the phenomena being investigated that are shallow, too generic, and overly simplistic. Studies pertaining to sustainability may benefit from the expertise of physical geographers in a number of different ways.

REFERENCES

[1]. Bailey, J.; Van Ardelan, M.; Hernández, K.L.; González, H.E.; Iriarte, J.L.; Olsen, L.M.; Salgado, H.; Tiller, R. Interdisciplinarity as an Emergent Property: The Research Project CINTERA and the Study of Marine Eutrophication. Sustainability **2015**, 7, 9118–9139.

[2]. Day, T. Core themes in textbook definitions of physical geography. Can. Geogr. **2017**, 61, 28–40.

[3]. Stern, V. The Stern Review; Government Equalities Office, Home Office: London, UK, 2010.

[4]. Ashmore, P.; Dodson, B. Urbanizing physical geography. Can. Geogr. **2017**, 61, 102–106.

[5]. Thornbush, M. Geography, urban geomorphology and sustainability. Area **2015**, 47, 350–353.

[6]. Rasmussen, K.; Arler, F. Interdisciplinarity at the human-environment interface. Geogr. Tidsskr.-Dan. J. Geogr.

[7]. **2010**, 110, 37–45.

[8]. Clifford, N.J. Globalization: A physical geography perspective. Prog. Phys. Geogr. **2009**, 33, 5–16.

[9]. Inkpen, R. Development: Sustainability and physical geography. Key Concepts Geogr. **2009**, 378–391.

[10]. Dale, A. On the Edge; UBC Press: Vancouver, BC, Canada, 2001.

[11]. Christopherson, R.W.; Birkeland, G. Geosystems: An Introduction to Physical Geography; Pearson Education Limited: London, UK, 2015.

[12]. Petersen, J.F.; Sack, D.; Gabler, R.E. Physical Geography; Cengage Learn: Boston, MA, USA, 2017.

[13]. Wang, Q.; George, P. Malanson, G.P. Patterns of correlation among landscape metrics. Phys. Geogr. **2007**, 28, 170–182.

[14]. Potschin, M.B.; Haines-Young, R.H. Ecosystem services: Exploring a geographical perspective.

[15]. Prog. Phys. Geogr. **2011**, 35, 575–594.

[16]. Coutts, A.M.; Tapper, N.J.; Beringer, J.; Loughnan, M.; Demuzere, M. Watering our cities: The capacity for water sensitive urban design to support urban cooling and improve human thermal comfort in the Australian context. Prog. Phys. Geogr. **2013**, 37, 2–28.

[17]. Kucharik, C.J.; Serbin, S.P.; Vavrus, S.; Hopkins, E.J.; Motew, M.M. Patterns of climate change across Wisconsin from 1950 to 2006. Phys. Geogr. **2010**, 31, 1–28.