



Geological Disconnection Between the Academy of Landscape Architecture and Degrading Natural Environment

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Abstract. There is a clear spatial disparity between the locations at which landscape design programs are taught and the locations that have the greatest demand for it from the point of view of biodiversity, which leads to an uneven allocation of educational and social resources and leaves natural resources highly vulnerable to the geo-political contingencies of sovereign rule. This research paper carries out interpretive qualitative research on the impacts and potential educational policies to tackle the disconnection between landscape architecture programs and world biodiversity hotspots. The result shows that it includes incorporating Indigenous (environmental) Knowledge Systems at a macroscopic level and the acupuncture LA education reform of place perception and an emphasis on materiality, which are generally contributive to the long-term ambition of creating a continuous biodiversity hotspot zone that spans the most biologically varied and ecologically fragile regions of the planet, with sufficient administrative oversight and financial backing, a prosperous ecotourism industry, and raised environmental awareness from professionals and the public.

Keywords: Landscape Architecture Education, Curriculum, CEPF, World Biodiversity Hotspots, Critical Regionalism, Knowledge of Professional Accreditation and Policy Context

1 Introduction

Due to their skill in balancing growth and preservation, landscape architects play a crucial role in the development of more biologically varied landscapes. The mission of the International Federation of Landscape Architects (IFLA) is to “create globally sustainable and balanced living environments for the worldwide benefit of mankind,” which is supported by the fact that IFLA members can be found on every continent [1]. Despite the 20th and 21st century being prosperous for landscape architects and their academic counterparts, there is a significant disconnect between the regions where the discipline is taught and the regions where it is most needed from a biodiversity perspective. China is the only country in the last few decades that has responded to the dilemma of a fast declining environment by increasing landscape architecture educa-

tion. While the locations of the BINGOs (big international non-government organizations) demonstrate that the worldwide conservation movement has geographically organized itself more effectively than landscape architecture. The importance of understanding and preserving IKS (Indigenous Knowledge Systems) and traditions in Landscape Architecture is being recognized by an increasing number of institutions, including the Food and Agriculture Organization, the World Health Organization, and non-governmental human rights organizations like the International Work Group for Indigenous Affairs [2]. Therefore, a series of educational policies concerning critical regionalism are discussed as potential ways to close the gap between the Academy of Landscape Architecture's geological separation from the deteriorating environment. These approaches vary from using the macro level incorporation of Indigenous Knowledge Systems to the micro level acupuncture of the LA education curriculum — the envisaged usage of phenomenology and a focus laid on tactile in studios. They display planned and partially built, global landscape linking initiatives. Species migration in response to climate change pressures is a primary goal of many professional programs in the field of landscape architecture, along with restoration, rewilding, and reconnecting fragmented ecosystems, stopping desertification, and providing public amenity. While communities have always taken care of local areas in some fashion, the scope and aim of these connectivity projects is unprecedented and hints that humanity — both professionals and non-professionals — is beginning to appreciate and seek to manage the earth as a garden.

2 Establishment of Landscape Architecture Programs at Universities

As with many other creative disciplines, landscape architecture did not originate in the academy but rather in the field of practice. As a matter of fact, before the 1960s, there were only a handful of programs, often only one in each nation, and only a small number of competent academics to cover all subjects, who were often augmented by visiting lecturers from practice. The first master's program in garden and landscape architecture was founded in 1900 at Harvard Graduate School of Design in the United States, while in Europe, a garden art class was established at the School of Fine Arts in Düsseldorf in 1909 for students who had graduated from high school with a strong artistic background [3]. In 1919, despite the lack of a professorship, the first master's degree was created at the Norwegian University of Agriculture. Long debated, the Berlin University of Agriculture's Department of Horticulture opened its doors in 1929 on the Lehr- und Versuchsanstalt site in Berlin-Dahlem [4]. Former Berlin City Garden Director Erwin Barth (1880-1933) established the first academic garden architecture program on the continent.

2.1 Landscape Architecture Degree Programs in North America

America is the country where the practice of landscape architecture was first established. In the majority of land grant institutions throughout the United States, landscape

architecture was first founded in the College of Agriculture. The first graduate-level academic program in the United States was established at Harvard University in March 1900 [5]. This is the first time that the “New World” had a lengthier scholarly tradition than Europe. Ian McHarg claims that in the United States throughout the twentieth century, “no other profession has achieved as quick a shift from obscurity to societal prominence as landscape architecture”.



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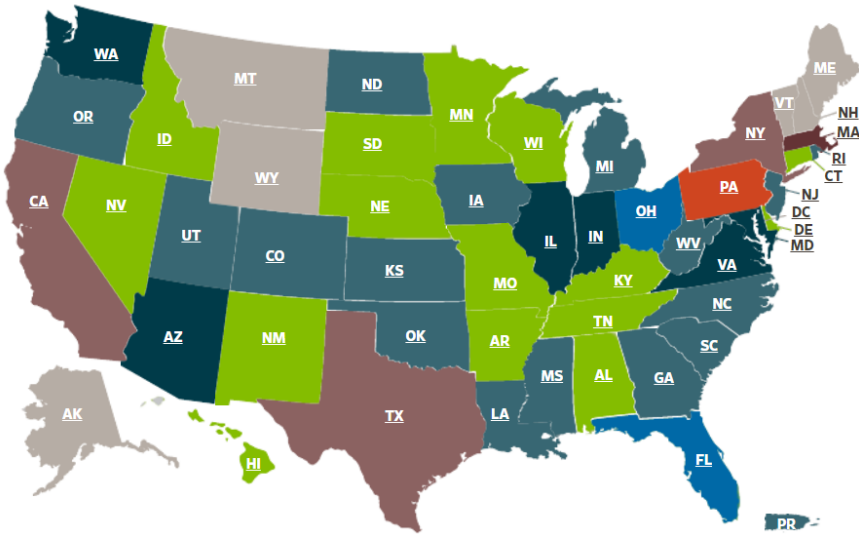


Fig. 1. US LA DEGREE PROGRAMS BY STATE [6]

Figure 2 also provides a clear outline of the composition of the majority of U.S. academic departments that provide degrees in landscape architecture. Pennsylvania offers the largest number of degree programs related to landscape architecture, while there are almost equilibrium conditions among the states of California, Texas, New York and Massachusetts. On the contrary, four states, namely Montana, Wyoming, Maine and Vermont don’t have any landscape architectural education resources.

2.2 Landscape Architecture Degree Programs in Europe

In 1919, the Norwegian University of Life Sciences launched a pioneering landscape education program, marking the beginning of the field in Europe [7]. It was founded in Berlin in 1929, then again in Lisbon in 1941, and finally in Wageningen in 1947. During the 1970s, two major international conferences focused on landscape education were established: the German University Landscape Conference in the late 1970s and the British Landscape Education Group in the early 1970s [8]. As early as 1989, Berlin Technical University hosted the “European Conference on Landscape Higher Education,” the first-ever pan-European gathering of landscape schools.



Fig. 2. LA DEGREE PROGRAMS in Europe [9]

In the 1990s, countries like Spain, Ireland, and Austria among the erstwhile “Eastern Europe” recognized a new generation of landscape architecture curricula. Since then, there have been annual national conferences of academic landscape architects in major European countries. It wasn’t until 1989 in (what was then) West Berlin that academic institutions throughout Europe began working together to share best practices in landscape architecture education [10].

2.3 Landscape Architecture Degree Programs in China

Professional higher education of Landscape architecture in China began in 1930 at Jinling University, Zhejiang University, and Fudan University. The universities offer related courses in ornamental horticulture and gardening, which are more closely related to horticulture in content and are also established internationally. The first true LA discipline in China was founded by Mr. Wu Liangyong and Mr. Wang Juyuan. Landscape architecture was the first major related to landscape architecture design after the founding of the People’s Republic of China, and its establishment in 1951 was supported by Mr. Liang Sicheng and approved by the Education Committee at both Beijing Agricultural University’s Department of Horticulture and Architecture and Tsinghua University [11]. After 1980, LA major entered a stage of rapid development. In addition to the landscape architecture planning and design major set up at Nanjing Forestry University, Northeast Forestry University, and other agricultural and forestry colleges, Tongji University, Tianjin University, Southeast University, and other engineering colleges also set up related majors. Mostly centered on the Bei-

jing-Tianjin-Hebei Area, the Yangtze River Delta, and Central and Southwestern China, the LA disciplinary system has taken its fundamental shape.

2.4 Comparison of the Landscape Architecture Degree Programs in Different Countries

In comparison to North America, Europe has a wider variety of landscape architecture programs to choose from. This is seen by the wide range of European universities that have begun offering courses in landscape architecture. There are universities in Europe that focus on the fine arts, agriculture and forestry, and technology [12]. This variety has only increased since the 1990s, when landscape architecture was included to the curricula of new schools of horticulture, urban planning, and ecology.

However, actual pan-European cooperation faced significant practical barriers until the mid-1980s, when digital communications, cheaper travel, and European Union-funded research and education programs started to facilitate the mobility of both people and ideas. But in the United States, where academic collaboration has flourished since the field's inception thanks to the absence of national borders and language barriers, as well as a broadly shared understanding of the field across a number of schools comparable to those in Europe, things are very different. China's landscape architecture curriculum gets its start later than in other countries. The disciplinary education system is still in its infancy, thus it isn't very solid and has a lot of real-world issues. As a result, it is instructive to study the institutional framework of education in economically advanced nations.

3 Geographical Gap Between Landscape Architecture Degree Programs and Biodiversity Hotspots

The United Nations has designated the period between 2021 and 2030 as the "Decade of Ecosystem Restoration," and member states have committed to restoring at least 1 billion hectares. Converting just 35% of that land could remove 13 to 26 gigatonnes of greenhouse gases from the atmosphere while providing humanity with \$9 trillion in economic and environmental benefits [13]. On top of that, the abundance of life on Earth, or biodiversity, is essential to human survival but is under severe and increasing threat. Consequently, the Critical Ecosystem Partnership Fund (CEPF) was established in 2000 to address this issue [14]. They give civil society in developing nations and transitional economies the tools they need to safeguard the planet's biodiversity hotspots — some of the planet's most biologically diverse yet imperiled terrestrial ecosystems [15].

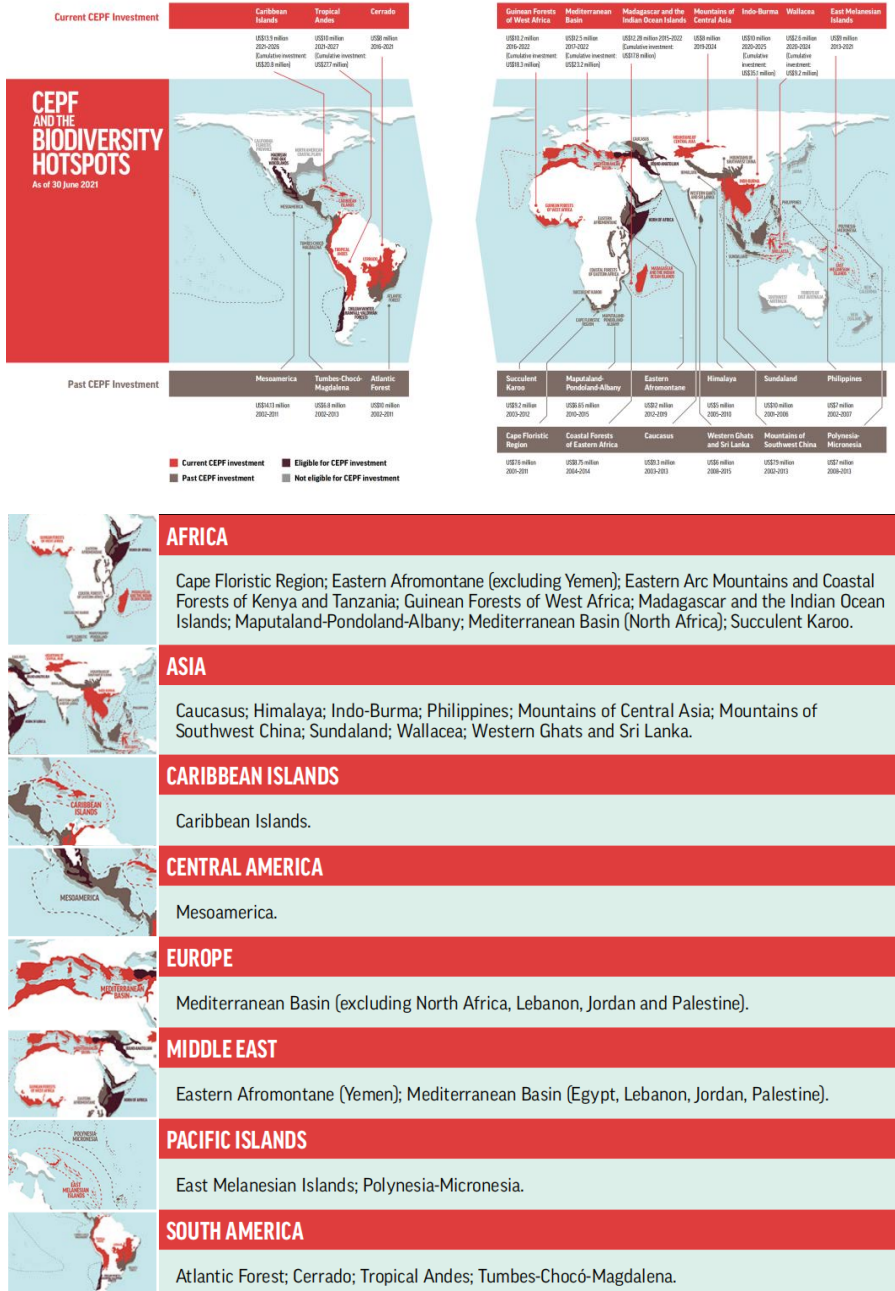


Fig. 3. CEPF and the Biodiversity Hotspots [16]

As is shown in Figure 3, the majority of biodiversity hotspots are located in Asia (Cumulative investment: US\$61.3 million) and Africa (Cumulative investment:

US\$36.1 million), most notably in the areas surrounding the mountains of Central Asia, Indo-Burma, Wallacea, the East Melanesian islands, the Guinean woods of West Africa, Madagascar, and the islands of the Indian Ocean. The biodiversity hotspots near North America are all located in the Southern hemisphere, namely the Caribbean Islands, Tropical Andes, and Cerrado. In the meantime, the Mediterranean Basin is the area where current European biodiversity hotspots are located, with a cumulative investment of only US\$23.2 million.

Despite the fact that both the profession and the academy of landscape design grew in the 20th and early 21st centuries, there is a large geographical gap between the regions where landscape architecture is taught and the places where it is most required from the standpoint of biodiversity. For instance, there are over 100 recorded LA programs in North America, in spite of the increasing threats to biodiversity and humanity that are happening dominantly in the Southern hemisphere, far away from the North America Region. A similar situation goes with the European landscape architecture education systems. Landscape design education is not concentrated in areas with the greatest need for it from a biodiversity perspective. Although landscape design projects in mainland China are increasing, few of them take biodiversity hotspots (the most diverse but threatened terrestrial ecosystem in the world) into account.

4 Critical Regionalism and Future Landscape Architecture Education

Consciousness of the landscape's potential impact on regional development is growing. Frampton argues that "architectural and planning schools throughout the world should give much greater emphasis to the cultivation of landscape as an overarching system rather than focusing exclusively, as they have tended to do in the past, on the design of buildings as aesthetic objects" in his book *Seven Points for the Millennium: An Untimely Manifesto*, which he subtitles "landscape form as a redemptive strategy." [17] Briefly summarized below in relation to the theme of knowledge of professional accreditation and policy context is the incorporation of Indigenous (environmental) Knowledge Systems into mainstream landscape architecture education curricula, a phenomenological approach in LA education, and concern for the tactile and the tectonic in LA studio courses.

4.1 Establishment of Indigenous design + Planning Institute in Biodiversity Hotspots

A paradigm change toward a culturally sensitive and value-centered approach to community development has an impact on indigenous design and planning. In the same area, individuals of different generations have grown up with different perspectives on the world. The immediate impact of exploitative activities and reactive planning has been reduced because to a focus on stewardship and land ownership. Cultural sustainability is another important factor for indigenous tribes to consider when building businesses. Their role in shaping "great" architectural traditions and societies has been

undervalued far too frequently. As a result, indigenous peoples' architectural and planning accomplishments have often been overlooked in favor of more glamorous fields like anthropology and the study of quirky vernacular practices. The trend of younger members of tribal groups away from traditional ways of life and into metropolitan centers is one of the most pressing problems facing indigenous communities today. Urgent action is required to establish social settings that will help them maintain their unique cultural identity.

To combat this, the ID+Pi (Indigenous Design + Planning Institute) will be formed as a major or incorporated into LA educational programmes in places that are currently rich in biodiversity. In doing so, it hopes to better prepare the next generation of architects, planners, and landscape architects to incorporate indigenous practices into their own work. Moreover, very few academic institutions anywhere in the world have attempted to tackle the challenges that indigenous design and planning provide to the field as a whole.

The University of New Mexico in Albuquerque is a leader in this innovative approach to higher education. iD+Pi's work at that institution is dual, including both educational initiatives and technical support. It suggests a course of study for urban planning and design that is rooted on indigenous knowledge systems [18]. In recent years, a variety of courses have been made available on topics including Indigenous Planning (IP), Planning for Tribal Lands, Navajo Design and Planning, Pueblo Design and Planning, and Indigenous Architecture. A new Indigenous planning specialization was included in the Master of Community and Regional Planning (MCRP) program that began in the autumn of 2016. Additionally, both part-time and full-time native faculty members are hired by the university. There are more than thirty native students enrolled in the university, including undergraduates and graduate students. iD + Pi is currently working on, or has just finished, a wide range of projects. Ysleta del Sur Pueblo, Nambe Pueblo, Taos Pueblo, Cochiti Pueblo, Navajo Tourism Department, Santo Domingo Pueblo, and Zuni Pueblo all have cultural corridor plans (ArtPlace America, Zuni Main Street).

4.2 Place Perception in LA Education: Phenomenology

Phenomenology, which stresses the importance of first-hand, introspective experience in landscape architecture education as a means of communicating the uniqueness of a given location, is central to the critical regionalism that underpins this school of thought. Frampton argues that this is one way local contexts might have a greater impact on design, counteracting the globalization of aesthetics [19]. Designers and communities are obligated to and bolstered by an emphasis on qualities that cannot be represented via digital technology to properly honor and appreciate the landscape's inherent diversity. In New Zealand, the 'problem' of ecological aesthetics successfully illustrates this point, since the dominance of the visual and ingrained conceptions of scenic 'beauty' introduced by a colonial culture has led to the loss or compromise of several natural areas.

4.3 Emphasising the Tactile in LA Studio Courses

In a more extreme way than anticipated by the original critical regionalism texts, the dominance of virtual media has reduced the experience of the tactile. Yet this is being faced with pushback or resistance in a number of settings. It was clear during the 2002 Venice Architecture Biennale that there was a shift in emphasis toward a renewed interest in materiality. In recent years, images of buildings have increasingly resembled those of installation art or those dominated by the internet or video. Instead, the tangible, material, and tactile will be highlighted throughout this biennale. Using stone and water to create the atmosphere of a desert wadi in the middle of a courtyard at Ben-Gurion University, landscape architect Shlomo Aronson displays the power of landscape materiality as a catalyst for a critical regionalist reaction [20]. In a same vein, it is important for LA studios to organize field visits to relevant locations of projects in order to infuse tactility into the teaching of theories and practices.

5 Conclusion

Sustainable design can benefit from landscape architecture. Landscape architecture is integrated with local attitudes to housing creation and habitation. As it acknowledges, “indigenous vernacular landscape architecture is an expression of a highly complex and diverse relationship with the natural, social and cosmic environment.” It is speculated that landscape design curricula might benefit from including cultural awareness, cultural sensitivity, and cultural competency, all of which are a part of indigenous knowledge. Everyday local-level decision-making is informed by IKS in a way comparable to modern science, for example in “collection and storage of water; defense against disease and injury; interpretation of meteorological and climatic phenomena; construction and maintenance of shelter; orientation and navigation on land and sea; management of ecological relations of society and nature; adaptation to environmental and social change.” The incorporation of IKS and perspectives into all university curricula to equip students with the knowledge, skills, and understandings for “Indigenocultural Competency” as a formal Graduate Attribute or “Graduate Learning Outcome;” the creation of programs pertaining to Indigenous cultural competency theory and practice; the need to address this in teaching and learning; and the widespread dissemination of these initiatives (GLO). These approaches may be most effective for bridging the gap between the Academy of Landscape Architecture and the deteriorating natural environment, which has been identified as a major problem. Admittedly, programs in landscape architecture have evolved over time, revealing a wide range of perspectives on the field. In certain nations, landscape architecture may be traced all the way back to horticulture, while in others, it evolved from a combination of horticulture, ecology, environmental science, and urban planning. Thus, it’s impossible that prototypical educational policies as discussed in this research can become universal on the one hand and response to the challenges of dynamic local knowledge systems as well. Future research concerning geological disconnection between the Academy of Landscape Architecture and Degrading natural environment could be concentrated on narrowing down the research target countries ,even including nations where landscape

architecture is still uncontrolled are included, as are strategies that include both global best practices and local contexts.

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