



WORLD LIBRARIES

**Volume 26**

**No. 1**

**2022**

[worldlibraries.dom.edu/index.php/worldlib](http://worldlibraries.dom.edu/index.php/worldlib)

# **Advocacy and Action: How Libraries Across the Globe are Addressing Climate Change**

Mike Kornfeind

Dominican University

## **ABSTRACT**

Climate change is arguably the most pressing, devastating and large-scale crisis in modern history. The natural processes associated with climate change are rapidly accelerating due to an excessive use of fossil fuels, which generate greenhouse gas emissions, and increase the temperature of the earth. Libraries are essential stakeholders in global efforts to combat climate change and advance sustainable development principles. As community hubs and

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information centers, libraries disseminate objective knowledge about climate change, spearhead sustainability projects, embody social responsibility by incorporating sustainable practices into library operations, and coordinate with advocacy groups. This paper will examine how libraries across the world are addressing climate change through outreach, programming, instructional services, library operations, design principles and advocacy efforts. The knowledge, resources and services libraries provide are essential and will prove invaluable as communities seek information regarding the complex socioeconomic consequences of the ongoing climate change crisis.

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## INTRODUCTION

Climate change is arguably the most pressing, devastating and large-scale crisis in modern history. The natural processes associated with climate change are rapidly accelerating due to an excessive use of fossil fuels, which generate greenhouse gas emissions, and increase the temperature of the earth. Climate change causes more frequent droughts, wildfires, floods, heatwaves and extreme storms. Melting permafrost layers, rising sea-levels and irreversible damage to ecosystems are further consequences of climate change (United Nations, 2021).

Libraries are essential stakeholders in global efforts to combat climate change and advance sustainable development principles. As community hubs and information centers, libraries disseminate objective knowledge about climate change, spearhead sustainability projects, embody social responsibility by incorporating sustainable practices into library operations, and coordinate with advocacy groups. Many professional organizations in the library and information science (LIS) sphere such as the International Federation of Library Associations and Institutions (IFLA) utilize the Sustainable Development Goals created by the United Nations as a framework for guiding initiatives aimed at counteracting climate change. Key goals from the United Nations agenda informing LIS sustainability projects include affordable and clean

energy, clean water and sanitation, sustainable communities, climate action, responsible management of water resources and sustainably managing ecosystems (United Nations, 2020). This paper will examine how libraries across the world are addressing climate change through outreach, programming, instructional services, library operations, design principles and advocacy efforts.

## **THE GREEN LIBRARY MOVEMENT AND SUSTAINABLE PRACTICES**

Libraries across the world share a common ethos of providing library users with relevant resources and key knowledge. Climate change is one of the most pressing modern issues and impacts communities around the globe. Libraries serve communities and must be able to provide resources to mitigate the devastating socioeconomic impacts of climate change such as pollution, water scarcity, deforestation, rising energy costs, droughts and catastrophic weather events. The Green Library Movement emerged in the 1990s and remains a trend in the LIS profession. Advocates of green libraries promote community awareness of sustainability, climate change and environmental issues. However, green library advocates also focus on constructing green libraries, which incorporate sustainable, energy efficient design and operations practices. This requires using renewable energy sources, energy efficient building materials, smart technologies to automate library systems and green design principles. Green design concepts include using solar power to reduce energy consumption, constructing tree plantations around libraries to combat pollution, switching to light emitting diode (LED) lightbulbs, decreasing water waste by utilizing sensor-based features in restrooms and installing updated, efficient ventilation systems. Libraries are adopting sustainable practices in library operations by introducing recycling policies, encouraging double-sided printing, prioritizing digital resources in collection development policies and installing automated maintenance systems to more efficiently manage lighting, heating and utility networks. Smart technology

provides energy efficient methods for automating lights, heating, fans, ventilation systems, air quality filters, IT equipment and appliances (Gupta, 2020).

Librarians also promote sustainability through collection development practices and programming. Print and digital resources provide updated knowledge regarding climate change, environmental issues and sustainability. Programming events include lectures, exhibits and art competitions based on themes such as green design concepts, sustainability or local environmental issues. Ultimately, green libraries are demonstrating a commitment to social responsibility by embodying sustainable operations practices and disseminating awareness about climate change (Gupta, 2020).

Grassroots efforts in Sri Lankan libraries are currently addressing climate change by auditing green building practices in libraries and launching community awareness campaigns to promote sustainability. Sri Lankan librarians are advocates of the green library movement, which promotes sustainability and environmentally-friendly operations. For example, reducing water consumption, utilizing energy efficient windows, incorporating renewable energy sources such as solar power, automating building maintenance systems and using Leadership in Energy and Environmental Design (LEED) building concepts (Premarathne & Bandara, 2019).

An assessment of sustainable library practices in Sri Lanka illustrates the challenges libraries face when leading climate change awareness programs and spearheading initiatives to increase sustainable practices on local and national levels. Library professionals in Sri Lanka suggest bolstering sustainability by introducing tree planting programs, creating public green spaces adjacent to public libraries and coordinating with government agencies to fund sustainability campaigns. Additionally, libraries should expand awareness initiatives to provide communities

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with knowledge regarding recycling, energy consumption, waste reduction and environmentally-friendly transportation options such as biking (Premarathne & Bandara, 2019).

Projects focusing on green design principles and sustainability are primarily a grassroots effort in Sri Lankan libraries. However, despite limited resources and a lack of formal training many librarians in Sri Lanka are tackling climate change and sustainability in local communities. As Premarathne & Bandara (2019) note, Sri Lankan librarians “are fairly applying the green library concept in their libraries without knowing the green concept. They have applied this concept in the areas of waste disposal, cleaning, energy savings, gardening, natural ventilation methods and lighting in an environmentally friendly way” (p.119).

Green libraries in India are using sustainable design concepts to tackle issues associated with global warming such as water scarcity and increased pollution levels. Locally-sourced materials, mud roofing, timber paneling and solar panels allowed the Perma Karpo Library to reduce costs and adhere to green design principles. The Madras University Library relies on a simple, but effective series of expansive window banks to provide natural lighting and reduce energy consumption. The Anna Centenary Library is LEED certified and utilizes innovative design features to conserve energy resources. For example, a rainwater harvesting system uses a “rainwater sump and percolation pits” (Shukla et al., 2020, p. 223) to collect rainwater. LED lighting, high-efficiency appliances and smart technology provide further energy savings (Shukla et al., 2020).

Climate change is a significant concern in the Philippines, which suffers several devastating typhoons each year. Global warming generates increasingly devastating typhoon seasons which cause widespread damage to farmland, critical infrastructure, property and human life.

Fresnido and Esposito-Betan (2018) surveyed librarians to assess how Philippine libraries are

combating climate change by addressing green library operations metrics like building site sustainability, water efficiency, renewable energy sources, sustainable building materials, air quality and innovative design features. Libraries are ensuring sites are sustainable by reducing the use of toxic pesticides and fertilizers, composting and planting trees. 68.75% of surveyed libraries are near public transportation networks, which helps reduce carbon emissions. Libraries are tackling water scarcity by reducing inefficient irrigation practices, conducting water usage audits, installing high-efficiency bathroom fixtures and using rainwater harvesting systems. Renewable energy sources are rare in the Philippines, but several libraries use renewable power sources, generate onsite electricity, utilize automated building control systems and purchase high-efficiency lightbulbs. Libraries are also purchasing refurbished equipment or appliances, maintaining robust recycling programs, using biodegradable utensils and limiting printing by library users. The majority of surveyed libraries offer programming, workshops and digital content related to sustainability and climate change. Although modest in scale, libraries in the Philippines are adjusting operations and services to counteract challenges stemming from global warming (Fresnido and Esposito-Betan, 2018).

## **GREEN DESIGN PRINCIPLES AND REPURPOSING HISTORIC STRUCTURES**

Libraries across the globe are engaging in innovative design practices to demonstrate an overarching professional commitment to sustainability and green design principles. As Niess (2021) notes, libraries are using urban planning, sustainable design concepts and historic preservation principles to engage in the “adaptive reuse” (p. 7) of old buildings to create new modern libraries. Libraries are able to embody sustainability by converting historic buildings into updated libraries, which is more economical, preserves the built environment, reduces energy consumption and mitigates environmental impacts. Demolishing old or historic structures is costly, inefficient and results in higher costs associated with new construction.

Repurposing old structures to create new libraries is challenging, but preserves character, architectural elements and the cultural heritage of local communities (Niess, 2021).

Modern libraries in converted, historic spaces possess symbolic value, a unique architectural identity and preserve the heritage of local built environments. Challenges such as space constraints, renovation costs, structural issues, fewer windows and accessibility obstacles are common problems libraries encounter when adapting older structures. However, modern libraries across the globe occupy spaces that were formerly manor houses, schools, hospitals or industrial buildings (Romero, 2021).

Modern libraries are spearheading successful reuse projects which use sustainable design concepts, innovative urban planning principles and historic preservation guidelines to promote environmentally-friendly design (Latimer, 2021). In Sydney, Australia a new library was forged on the site of an abandoned hospital. Designers incorporated community input regarding design ideas and preserved elements of the historic hospital structure while including more modern building additions. This allowed the site to become a community hub with a library, public pavilion, art installations, exhibits, green spaces and community rooms. This inclusive, community-oriented approach illustrates how sustainable design practices by libraries can preserve unique historic structures, house modern information services and provide spaces for users to learn, work, play and socialize (Small & McLeod, 2021). In Yantai, China a traditional courtyard house with ramshackle accessory structures was transformed into the Suochengli Neighborhood Library. The library is adjacent to a historic public hall and surrounded by gardens. The building consists of historic bungalows connected by a series of cloisters and courtyards. However, modern updates like a reading room, café, restrooms, exhibition spaces, and sliding doors (creating flexible, multiuse spaces) allow users to access diverse services. Establishing a new library on a cultural heritage site and preserving historic elements spurred a community renaissance, fostered more engagement with library users, increased library usage

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and restored vitality to the neighborhood (Li, 2021). In Germany, a multimedia library housing an event center was created by converting a barn into a community space. This allowed the library to act as a third space for library users by providing a useful space separate from work and home spheres. Open and interactive spaces with architectural details such as stone, wood, concrete and open-beam ceilings provide an inviting space for seniors in the community who typically live in cramped municipal housing. The library doubled active users after renovating and coordinated with public transportation services to facilitate equitable access to library resources (Süppel et al., 2021).

## CLIMATE ACTION PLANS

Public libraries in the United States are tackling climate change by collaborating with municipalities to craft and implement climate action plans. For example, in Alaska the Anchorage Public Library is a key stakeholder in the citywide plan to reduce greenhouse emissions, encourage sustainability and expand renewable energy sources. The climate action plan strives to reduce greenhouse emissions, update building codes with an energy efficient net-zero requirement, construct renewable energy infrastructure and install charging stations for electric vehicles. Librarians helped spearhead the project by hosting public forums, panel discussions and programs focused on environmental issues. The library also installed energy efficient windows with automated smart sensors to regulate heating and cooling. In New Jersey, the Princeton Public Library helped coordinate with the city government to create a climate action plan. The library promoted sustainability by utilizing more energy efficient lightbulbs, purchasing new carpets made from nontoxic materials, using a hybrid vehicle for library operations and repurposing old furniture. The library also hosts a conference series which brings together local stakeholders and scholars to outline ways for the community to reduce carbon and energy footprints (Lawton, 2020).



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## AGRICULTURAL EXTENSION SERVICES

LIS professionals in South Africa are providing resources to help farmers and livestock keepers develop more sustainable agricultural practices to combat obstacles stemming from climate change (Zimu-Bevela, 2016). Livestock keepers face challenges such as drought, insufficient animal feed, depleted grazing lands, water scarcity, high livestock death rates and a lack of dams. Livestock populations are also strained because they are used for diverse purposes such as food security, status symbols, currency or wedding dowries. LIS professionals are engaging in agricultural extension services, which is a process of disseminating innovative and sustainable agricultural information and technology to livestock keepers. Traditional practices used by livestock keepers are unable to combat the impacts of climate change such as drought and livestock ailments. Extension services provided by LIS professionals provide livestock keepers in rural areas with information literacy skills, access to technology and instructional services focusing on topics such as sustainable agricultural methods or livestock vaccinations. Extension officers are working to create village information centers, outline South African property laws, disseminate knowledge about climate change, educate livestock keepers about animal welfare practices and establish disaster preparedness plans (Zimu-Bivela, 2016).

## KNOWLEDGE GAPS IN THE LIS PROFESSION

An online questionnaire distributed to sixty LIS professionals in Africa by Mulumba & Nakazibwe (2017) provides insight into the challenges and knowledge gaps related to climate change issues. All survey respondents identified a robust understanding of environmental degradation sources such as deforestation or air pollution. However, many respondents identified little or no familiarity with the United Nations 2030 Agenda or global sustainability initiatives. Respondents identified planting trees, constructing library gardens, rainwater collection and using natural lighting as the most commonly used sustainable practices. Ultimately, the survey illustrates that LIS professionals in Africa need to expand professional

and community-based environmental literacy campaigns to generate increased knowledge about reducing emissions, ecological impacts, sustainability, waste management and environmental issues. However, librarians in Africa face significant obstacles such as widespread poverty, underfunded library services, conflicting social views regarding land use, ineffective government environmental policies and resistance to climate change theories (Mulumba & Nakazibwe, 2017).

## **INNOVATIVE SUSTAINABILITY AND CLIMATE CHANGE AWARENESS PROGRAMMING**

Highlighting recipients of IFLA's Green Library Award reveals how libraries across the world are demonstrating social responsibility, promoting environmental sustainability, practicing sustainable operations, advancing the Green Library movement and addressing climate change through innovative programming. The Daniel Guillard Public Library in Cali, Colombia created the Gaia project to reduce pollution, spur environmental policy changes, increase sustainable practices and educate city residents about sustainability. Multiple projects, a programming series and outreach initiatives helped promote sustainable development. Examples include cleaning green spaces, tree planting programs at local schools, recycling workshops and using United Nations sustainability resources to launch awareness campaigns (Hauke, 2019).

The National and University Library in Zagreb, Croatia hosted a green festival with lectures spotlighting scientific research about environmental issues, interactive educational programs and film screenings. Attendees were able to interact with experts working in fields like sustainable design, renewable energy and green technology. The Lviv Regional Children's Library in Lviv, Ukraine spearheaded an outreach program in which librarians hosted interactive events to educate preschool and elementary school children about environmental issues. Librarians addressed topics such as safeguarding natural resources, waste reduction and

recycling during thirty-eight events. School children participated in interactive seminars, learned how to sort garbage, competed in drawing contests, attended craft workshops using recycled materials, designed a winter garden, planted trees and completed a park cleanup day (Hauke, 2019).

## **THE ROLE OF CORE VALUES AND TACKLING MISINFORMATION**

Policy recommendations crafted by the Environmental, Sustainability and Libraries Section (ENSULIB) of IFLA highlight how promoting environmental sustainability allows libraries to uphold core values such as social responsibility, community development and advocacy. Libraries are community institutions and should offer services, collections and programs that advance sustainable development because it benefits local communities by spurring socioeconomic growth. Providing diverse, updated and scholarly information about climate change demonstrates social responsibility by providing library users with access to essential knowledge. Libraries should use policy and action statements to explicitly identify climate change and environmental issues as objective facts in order to combat misinformation. Reliable and accessible information resources helps library users by allowing them to make informed, evidence-based decisions regarding climate change. As information hubs and community anchors, libraries need to spearhead outreach efforts to encourage youth advocacy campaigns focused on environmental issues and provide underserved populations with equitable access to information about climate change impacts (Sahavirta, 2020).

## **CONCLUSION**

Ultimately, libraries across the world are combating climate change and increasing awareness of sustainability. LIS professionals are utilizing technology, instructional services and outreach campaigns to counteract increasingly devastating climate change impacts. Libraries are

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educating school children about recycling and climate change, assisting African livestock keepers to develop more sustainable agricultural practices and collaborating with municipal governments to implement climate action plans. Librarians in the Philippines and India are overcoming significant funding and resource challenges to bolster climate change awareness and educate communities about green concepts like renewable energy. Libraries in Europe, Asia, South America and Australia are reshaping modern library operations by implementing innovative green design features, smart technologies, energy efficient building materials and repurposing historic structures.

Strengthening the Green Library movement is particularly important in the near future as climate change impacts like massive wildfires, persistent droughts, widescale floods and catastrophic storm events become more frequent. Coordinating with United Nations sustainable development initiatives, raising awareness of environmental issues and requiring sustainability-based professional development courses for LIS professionals are key ways libraries can further address climate change. The knowledge, resources and services libraries provide are essential and will prove invaluable as communities seek information regarding the complex socioeconomic consequences of the ongoing climate change crisis.

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