1 Defining, Initiating, and Reviewing Sustainability and Resilience Planning

"Perhaps the attribute most critical to a learning organization is Experimentation, which is particularly hard for big organizations since they tend to focus on execution rather than innovation." Page 235, Exponential Organizations, Ismail Smail, Malone M.S., Geest, Y. V. (2014)

Key Questions

The first chapter of this book is aimed at answering the following underlying assumptions and inquiries:

- What is sustainability? What is resilience? What are sustainability and resilience planning and the differences and similarities between the two?
- Do sustainability and resilience enhance and support the long-term success of organizations?
- How do sustainability and resilience initiatives support organizational values, missions, and goals?
- Where does organizational leadership begin the planning process for both sustainability and resiliency?
- How might cities and organizations benefit from having sustainability and resiliency plans or a single plan that encompasses both sustainability and resilience?
- When would organizations and communities deploy a sustainability and resilience plan and what the purpose is of the plan?

Introduction

In this chapter, specific terms related to sustainability, history of sustainability and Triple Bottom Line (TBL), Quadruple Bottom Line, and greenhouse gas emissions, climate resilience, and sustainability planning are reviewed. The topics of sustainability and resilience and their impact on local governments and communities warrant persistent exploration, research, understanding, and in-depth analysis. The issue of sustainability is under an incessant review, revision, and inspection, and is often used to describe a prospective positive effect of actions undertaken by organizations and individuals. Frequently, sustainability is mistaken as the treatment of the financial impact of organizations and their corresponding activities and operations. An updated definition of sustainability with an extensive review of current sustainability literature is included. Also, a selective review of successful sustainability plans in various local governments across select communities in the United States is involved. Another critical aspect of sustainability and resilience review is the definition of the Triple Bottom Line and the Quadruple Bottom Line and the historical understanding of sustainability. The book offers reasons and examples for the expansion of the definition of the Triple Bottom Line to include the fourth pillar in understanding of sustainability and resilience planning.

The principal drivers for efficacious sustainability and resilience programs are the aptitude of communities and organizations to adapt to the changes in the environmental, societal, and

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economic conditions surrounding them. Local governments use sustainability to address their constituents' needs and demands. Organizations are engaged in innovation to continue to provide quality of life services as revenues shrink. Local leaders are aware of the complex nature of urban cities and design programs in ways to address cities' sustainability needs and to enhance resiliency efforts of those cities stemming from security threats, emergencies, extreme weather, and climate change. Effective sustainability and resilience planning assists municipal leaders in addressing various internal and external pressures and apprehensions.

A Review of Sustainability, Historical Paths, and Significance

The issue of sustainability and resilience and the influence on local governments warrant exploration, research, appreciation, and in-depth analysis. The topics of sustainability and resilience are under an incessant review, revision, and inspection. Sustainability is often used to describe the combined social, economic, environmental, and governance issues within an organizational framework. Sustainability is regarded from the standpoint of its practicality and commonly misinterpreted as something as an additional burden and cost to the society. Contextually, many local governments around the world claim to use sustainability to further their operational efficiency and to address the economic, environmental, and societal impact of their actions.

As the pressures over the rising cost of energy, climate change politics, and reduced revenues intensify and effect the financial bottom line, the short- and long-term sustainability and resilience planning is seen as a solution to various. To some, the term "sustainability" conveys a certain sense of continuity that withstands the test of time. Slavin (2011) alluded to this sense of endurance in defining sustainability as "the capacity of natural systems to endure, to remain diverse and productive over time" (p. 2). The concepts of sustainability and resilience give equal weight to the environmental, social, and economic issues.

Additionally, equally important for modern organizations is the expansion of the concept of sustainability and framing it through the resilience mechanism to better understand the depth and breadth of climate change and related impacts. Resilience adds furthers the comprehension of sustainability with heightened pressures from the climate change and the effect it has on communities, often reflected through extreme weather events, infrastructure, and pressures on human resources. Resilience may best be described as an added, enhanced level of sustainability planning, by taking into account the issues of climate change.

Sustainable organizations include a commitment to pursue sustainability, a collective understanding of what sustainability constitutes, a leadership endorsement of sustainable practices, and keeping critical stakeholders engaged by maintaining the focus on the broad concept and vision that sustainability is about social, environmental, and economic health (Hitchcock and Willard 2008). More specifically, identification of shared goals and targets will further assist organizations in achieving sustainability.

Theoretical Background

Given the diverging views on sustainability, theories directly or indirectly related to sustainability and resilience are critical to the better understanding of the postulates of sustainability and resilience. Gaertner (2009) described the theory of social choice as "an analysis of the collective decision making" and contemplated aggregation of "individual preference" in the reflection of the general preference of the society (p. 1). Analyzing sustainability and related policies offers a better grasp of the measures undertaken and overall outcomes on the society or organizations. As argued by Elster and Hylland (1989), social choice theory emanated from two different problems, one of which is the

"finding measure for aggregate social welfare" (p. 2). The very idea of sustainability is to find the problematic and hard to define measure, weight, and process of social welfare, through the sustainability-related lens.

Heal (1998) methodically explained the essential axioms of environmental assets, including "a treatment of the present and the future," and recognition of both "how environmental assets contribute to economic well-being" and "the constraints implied by the dynamics of environmental assets" (p. 14). This method emphasizes the environmental benefit as a substance of sustainability and does not delve into the social aspect of the Triple Bottom Line. Solow (1992) also offered a rational policy approach using economic theory to defend the notion of possible improvements to "economy about its endowment of natural resources" (p. 5). Again, the focus is on the environment, but with a clear understanding that improved environment leads to enhanced economic and societal outcomes.

In addition to social choice theory and economic theories, another theoretical framework connected to the issue of sustainability is the system theory. Von Bertalanffy (1950) introduced the idea of a general system theory and deliberated that "general system laws" apply to any system of a certain type, irrespective of the particular properties of the system, or elements involved" (p. 138). Any phenomena may be regarded as the interconnected system of different elements, whether it is sustainable energy or another process. As von Bertalanffy (1950) suggested, general system theory is "applicable to all sciences concerned with systems" (p. 139). In discussing the system theory, Patton (2002) maintained that "a system is a whole that is both greater than and different from its part" (p. 120). Such approach facilitates an explanation of the contested sustainability phenomena and the methods under which underlying elements of environmental, social, governance, and economic components function.

There are varying ideas, concepts, paradigms, and theories used to construct sustainability and sustainable development framework and corresponding economic, social, and environmental bottom line for organizations and society. Heal (1998) interpreted sustainability as "a metaphor for some the most perplexing and consequential issues facing humanity" (p. xi). A body of work from other disciplines including among others, economic, social, environmental, and political, provides a meaningful theoretical definition of sustainability.

Sustainable Development and Triple Bottom Line

The fundamental postulates of sustainability and sustainable development were first established by the United Nations' World Commission on Environment and Development. The United Nations' World Commission on Environment and Development (1987) coined the term sustainable development as the rational management of resources in the present by organizations and individuals without compromising the needs of future generations (p. 4). The Report of the World Commission on Environment and Development, *Our Common Future* from Brundtland Commission, was set up by the United Nations, which provided the original definition of sustainability.

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs," with "two key concepts," where "a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development; and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations."

In the early stages of defining sustainability, the United Nations' World Commission on Environment and Development (1987) established the sustainable development framework keeping future societal needs in mind. However, since the initial platform for sustainability was developed, a significant amount of research was

invested in redefining and refining the sustainability. There are inconsistent interpretations of sustainability and its impact on organizations, communities, and society. Stubbs and Cocklin (2008) put it succinctly how "sustainability itself is a contested concept" and concluded a lack of consensus on the very definition of sustainability (p. 104).

Elkington (1997) provided pioneering and groundbreaking views on sustainability globally with his task to corporations to evaluate the environmental and social impact of their actions. Elkington's classic from 1997 under the title *Cannibals with Forks: The Triple Bottom Line of 21st Century Business* offered the first glimpse of the Triple Bottom Line definition and its potential impact on companies and organizations. Often, the three areas of influence are referred to as the Triple Bottom Line (TBL) (Elkington 1997; Savitz and Webber 2006). The Triple Bottom Line (TBL) relates to initiatives undertaken in each of the areas of economic prosperity, social equity, and environmental integrity.

From TBL to Quadruple Bottom Line (QBL)

An early concept in defining sustainability was the Triple Bottom Line approach to measuring impact from organizations on the society. Savitz and Weber (2006) viewed the Triple Bottom Line as a balanced way "that captures in numbers and words the degree to which any company is or is not creating value for its shareholders and society" (p. xiii). Elkington (1997) created the Triple Bottom Line axiom to seek of corporations, to measure, and to evaluate their social and environmental impact on the society and their environments beyond what they produce for their economic benefit. Sustainability is viewed as an opportunity for organizations and in the milieu of the necessary evolution of society. In the later writings, Elkington (2012) posited that sustainability supports better corporate governance, which in turn builds "genuinely sustainable capitalism" (p. 6).

The imperative posited through Triple Bottom Line was to challenge private sector organizations to implement goals focusing on economic prosperity, environmental protection, and social equity as a necessary objective of achieving success for corporations. Whereas Elkington's (1997) Triple Bottom Line definition focuses on the private sector, its broad application of postulates applies to the public sector organizations. However, as the sustainability evolves, its static description looking through three basic pillars of sustainability needs constant reinvention and revisiting. The proposed Quadruple Bottom Line looks at the issue of sustainability from an added perspective of focusing on governance. An expanded definition of Quadruple Bottom Line is

> Organizational capacity to embed and incorporate a set of definitive policies and programs to address economic, social, environmental, and governance aspects of sustainability, whereas governance is defined through fiscal responsibility and resilience, community engagement for effective service delivery, and transparency and accountability. Alibašić (2017)

The transition from TBL to QBL is best explained visually using the following diagram. Governance is a dynamic component necessary to the successes of sustainability and resilience. Moving to including and assessing the good governance is critical to the evolution of sustainability and resilience (Fig. 1.1).

Sustainability and Resilience of Local Governments

Early roots of the local government involvement in sustainability and a call to action on sustainability can be traced to the United Nations Conference on Environment and Development in 1992 and Report of the United Nations Conference on Environment and Development, Vol. 1, with resolutions adopted by the conference (Agenda 21) in Rio de Janeiro, Brazil. As indicated in the Agenda 21 report, "Rapidly growing cities, unless well-managed, face major environmental problems," and further "the increase in both the number and size of cities

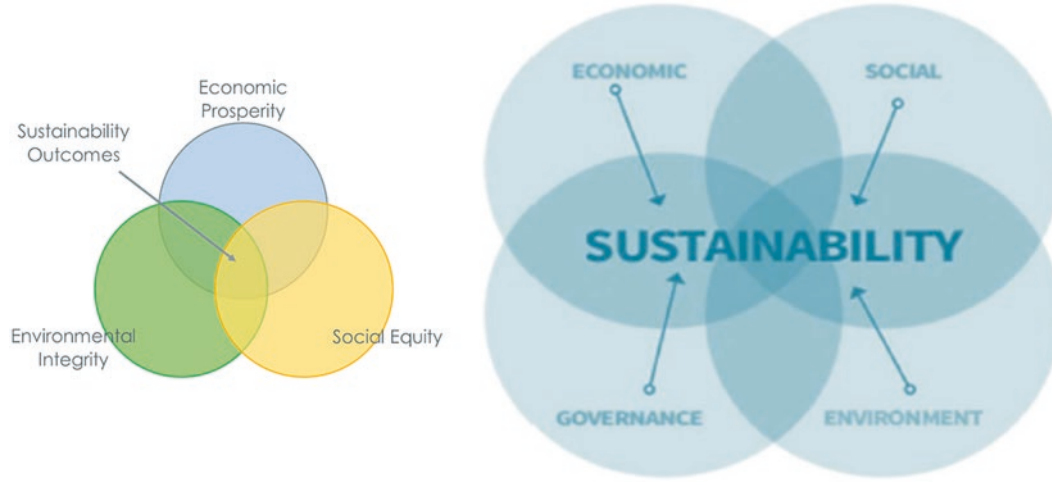

Fig. 1.1 An evolution from Triple Bottom Line to Quadruple Bottom Line

calls for greater attention to issues of local government and municipal management" (p. 1.).

One of the key objectives of Agenda 21 was "to implement policies and strategies that promote adequate levels of funding and focus on integrated human development policies, including income generation, increased local control of resources, local institution-strengthening and capacity-building and greater involvement of non-governmental organizations and local levels of government as delivery mechanisms" (p. 14). Another important aspect of Agenda 21 to the evolution of sustainability is its focus on social equity. As noted in Agenda 21, Principle 1, "Human beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature" (United Nations General Assembly 1992). A balancing of social equity with a clean, healthy environment and a supporting economy create sustainability, taking into account the past, present, and future practices. Conversely, ignoring the needs (especially of our impoverished populations) would have devastating effects on the society as a whole.

More cities focus their efforts on addressing social equity in their sustainability plans:

> Social equity means that all citizens have equal access to goods and services, education, and resources that enable people to have a high-quality life. Public institutions are to provide fair, just, and equitable distribution of public services, while promoting fairness, justice and equity in the formation of public policy (City of Grand Rapids 2011, p. 17).

The goal of sustainability-related efforts is to impact not only the economic, but also the environmental, social, and to a certain extent, the governance aspects of an organization. Moreover, "Ethical implications of sustainability planning and implementing sustainability-related efforts include more just, equitable, healthy, and environmentally resilient communities with an overall positive societal outcome" (Alibašić 2018a, p. 4).

Local governments involved in sustainability are committed to protecting environmental and social resources in delivering the most efficient services. There are connections between the practical and applied implication of sustainable actions, and the impact organizations have on the community and society at large. By actively pursuing investments in renewable energy and energy efficiency, organizations positively impact their economic, social, governance, and environmental bottom line, thus affecting positive social change. Sustainability and resilience outcomes may be more feasible and attainable in cities, at local levels of government which tend to be more homogeneous in their pursuit of policies and programs regardless of political

affiliation. At the very least, gaining consensus on issues at the local level appears to be viable as compared to the state and federal levels of government. The goal of sustainability-related efforts is to impact not only the economic, but also the environmental, social, and to a certain extent, the governance aspects of an organization.

With globalization and increased economic pressures on cities, collaboration is the key to success. More tangibly, elements fostering sustainable communities include cohesive land use policies, sustainability and resilience-driven partnership opportunities with the private sector and academic institutions, and solid strategies and plans in place. Support systems for these elements of sustainability include sustainable water systems, transportation systems, waste management systems, natural resources preservation, and food production (Coyle 2011). Some of the resources that are imperative to sustainable and resilient communities are energy, job opportunities, transportation, and public safety. Intangible resources include collaboration between government, population, private, and nonprofit sectors and that cooperation drives the sustainable growth. Saha (2009) pointed out to the fact that "local government sustainability initiatives have emerged in response to the growing recognition of the importance of taking local action toward global sustainability" (p. 39). Some local governments found the need to fill the void left by national governments in meeting their sustainability-related objectives in the society.

In such an environment, local governments, mainly cities, are faced with challenges that occur as a result of our civilization's dependence on energy. Coupled with the fact that "modern cities function very differently from the way cities did in the past," a very different future scenario is facing the cities and communities (Girardet 2006, p. 11). Girardet (2006) offered further understanding of a sustainable city, identifying their enormous impact on the economy and environment, through positive actions aimed at reduction of the energy demand and energy consumption.

Local governments are faced daily with crucial decisions on providing services and meeting increased demand for services while facing constant and severe budget cuts to staffing and operations. At the same time, city governments are expected to provide the same level of services without additional revenues or resources. Institutionalizing sustainability is an enormous undertaking, which requires leadership and readiness to measure, track, and report progress. Fitzgerald (2010) stated that "we have seen cities link sustainability and climate change initiatives to green job creation and even the development of whole new industries" and "how cities have inspired national policy, after a long period of federal government inaction" (p. 176). When available funding is in peril, local governments' capacity to pursue sustainability becomes an added effort, beyond required tasks to provide services. For sustainability and resilience planning to be fully embedded within organizations, it must become an integral part of the budgeting process, through active pursuit of sustainability and resilience goals and targets.

As a strategic imperative, sustainability planning has become the norm many local governments. Similarly, to Martin et al. (2012), authors Ammons et al. (2012) discussed the new normal for local governments and observed how they "confront multiple points of tension that pull local officials in different directions simultaneously and collectively influence a government's structure, scope of services, and philosophy" (p. 71S). Authors argued the long-lasting impact on local governments and their delivery of services beyond the recent economic recession and downturn in the economy (Martin et al. 2012; Ammons et al. 2012).

Sustainability in Private Sector

The pursuit of sustainability is not constrained to the public sector alone. In making the business case for sustainability for businesses, Werbach (2009) stated "the global economy, our environment, and political institutions are undergoing rapid structural change" (188). Furthermore, Waddock (2009) discussed at length "emerging corporate practices" to support companies' "path toward sustainability," including product account-

ability, life cycle management, and spreading the cost of emissions and benchmarking them with others (p. 303). Sustainability may be observed through a lens of long-term implementation strategy and initiatives by a given organization, with the ultimate objective of providing services and products more sustainably.

Sustainable organizations strive to have the most positive economic and societal impact while at the same time having the least negative impact on the environment. Companies also realize and find the case for sustainability and resilience in knowing the risk of failed cities, communities, infrastructure, and the society for their operations and the bottom line (Alibašić, 2018b). Corporations may be able to quickly adjust and seek opportunities for long-term solutions through ideas tied directly or indirectly to sustainability. On a large scale, problems facing companies and cities appear to be interconnected to the opportunities and woes that exist with the global economy. As the societal paradigms shift, corporations and local governments, as well as other organizations, use sustainability and resilience to support their long-term strategic goals.

Hardjono, Van Marewijk, and de Klein created The European Corporate Sustainability Framework (ECSF), who (as cited by Stubbs and Cocklin, 2008) developed "a set of models, tools, and theories—to help organizations address complex social and environmental sustainability issues" (p. 104). Hardjono et al. (2004) provided a comprehensive methodology for implementation of sustainability in organizations by capitalizing on organizational dynamics. The authors utilized symbolic interaction methodology in a systematic approach to enable companies to employ corporate sustainability and social responsibility methods. Another consistent framework modeling energy supply and demand for sustainable cities was developed by Brownsword et al. (2004) and which analyzes "both technological and socio-economic aspects of domestic and commercial energy-consumption and use the results to produce a model for urban energy-management" (p. 168). The research adds a new dimension to a methodology of evaluating sustainable energy and how it corresponds to sustainable cities. It is an insight into the role of sustainability and practical implications for organizations that organizations can then utilize when it comes to energy planning and planning for sustainability.

There are arguments that organizations, mainly corporations, use the sustainability bottom line to break ranks with the accepted views of businesses and to advocate for societal issues such as climate change and protection of the environment. Bendell and Kearnis (2005) discussed some examples of companies using their economic and business clout to pursue political agenda and to advocate for various sustainability-related issues including the climate change, impacting markets, and the rest of the society. Finally, sustainability demands a collective, collaborative effort by a broad segment of the population, including a commitment by public, nonprofit, and private sectors.

Savitz and Weber (2006) defined the Triple Bottom Line as the element of sustainable businesses. Furthermore, the authors argued, "a sustainable company manages its risks and maximizes its opportunities by identifying key nonfinancial stakeholders and engaging them in matters of mutual interest" (Savitz and Weber 2006, p. 18). Sustainability challenges corporations to assess their social and environmental impact on the society, and not just economic effect, as a collective good, and a maximized business opportunity (Galea 2004, p. 37; Adams et al. 2012, p. 17; Elkington 1997).

Starting Point(s)

Similar to strategic planning, creating a sustainability plan is not an easy and straightforward task. Developing a sustainability plan is an organic, bottom-up, linear, and engaging process. Organizations recognized for successful sustainability and resilience efforts make strategic and budgetary commitments to integrate sustainability into their goals, mission, and values. Sustainability and resilience planning becomes a practical, valued added, and applied strategy for

organizations, with a benefit to the community at large. The process of embedding sustainability at all levels of local government is a long one, and it cannot be done in a vacuum. Several elements contribute to the successful application of sustainability efforts, including but not limited to:

- Internal efficiency and operational improvements using Lean principles.
- Significant policy and planning stages – sustainability plan, renewable energy goals, and green building policy.
- Community's participation and partnerships in pursuit of sustainability.
- Positive engagement of staff and key stakeholders, whether elected or appointed officials in the city hall are critically important.
- Empowering employees to champion sustainability targets.
- Measuring, tracking, and reporting results of the sustainability-related efforts, using sustainability progress reports. As part of such efforts, setting clear goals and objectives is imperative, coupled with specific targets of the plan.
- Connecting targets to the budget and fiscal plans and policies.

Each segment of creating sustainable community feeds into the next. At a minimum, the starting point should include the following list of questions.

- What are the current economic, social, environmental, and governance issues in the organization and the community?
- What projects and issues have the most impact from that organization's perspective?
- How does sustainability align with organizational goals, vision, and mission statements?
- Does the organization measure its gas emissions output, does it have a carbon footprint reduction plan, and if so when was it last updated?
- Who are the major stakeholders in the planning of sustainability?
- How would the management go about engaging stakeholders?

Resilience Planning

Climate change is the most critical issue that cities are facing. While most scientists agree on the causes and impacts of climate change, the inaction on the federal level has left many municipalities to deal with this existential threat on their own. While the perils differ from regions to regions, the continuing studies of climate change indicate explicit threats to cities around the world and in the United States (IPCC 2014; USGCRP 2014).

In 1997, the Kyoto Protocol was adopted as an international agreement to commit participating countries to reduce their greenhouse gas emission (UNFCCC 2014). The United States did not sign the deal, and more recently the United States withdrew from the already signed Paris climate accord, leaving states and communities to deal with the consequences of inaction. On August 4, 2017, in an official communication from the US Department of State, the intent to withdraw from the accord was confirmed with the United States expressing interest in continuing its participation in the ongoing and future international climate change negotiations and summits (US Department of State 2017). The United States' absence from a leadership position in the struggle against the threats and consequences of climate change is an adverse development for many communities, dealing with climate change. The primary cause of climate change is the accumulation of greenhouse gases in the atmosphere, alarmingly escalating over the last several decades due to increased consumption of fossil fuels.

As observed by USCCSP (2009),

> Consensus in the climate science community is that the global climate is changing, mostly due to humankind's increased emissions of greenhouse gases such as carbon dioxide, methane, and nitrous oxide, from burning of fossil fuels and land-use change (measurements show a 25 percent increase in the last century). Warming of the climate system is unequivocal, but the effects of climate change are highly variable across regions and difficult to predict with high confidence based on limited observations over time and space (p. 10).

It has been accurately demonstrated that human activities are the principal contributors to acceler-

ating the increases in greenhouse gas emission. The NASA (2016) has provided a stark warning of consequences of climate change such as

> temperatures will continue to rise; frost-free season will lengthen; changes in precipitation patterns; more droughts and heat waves; hurricanes will become stronger and more intense; sea level will rise 1-4 feet by 2100; and the Arctic is likely to become ice-free.

Focus on the localization of climate change impacts a specific set of recommendations to build resilience in the community, to prepare cities, and to strengthen disaster recovery and resilience by local government. Climate resilience is attributive to an ability of absorption, healing, and adaptation to not only the adverse environmental changes but to the economic and social shocks exacerbated by the advent of climate change. It is vital for cities to possess prevention tools and resources necessary to provide immediate responses to disasters and shocks. For a resilient community, all essential supporting systems need to be adaptable, flexible, and vigilant. Therefore, the idea of resiliency holds dynamic dimension of the endurance of population and nature and allows communities to stay ahead of potential affliction.

This dynamic nature of climate change is best described in the West Michigan Environmental Action Council (2013), describing the impact of it:

> Climate change impacts each sector in isolation, but it also impacts the interaction of each to others and the function of the system as a whole. Therefore, understanding the needs of the community, major relationships between sectors, and the ability of the sectors to provide those needs in a changing climate world is key to building resilience (WMEAC 2013).

Beyond sustainability, local governments in their organizational and leadership capacity continue to deploy resilience planning, to address environmental, social, economic, and governance issues, stemming from climate change and extreme weather. Both climate adaptation and climate mitigation are included in such plans. Most successful sustainability and resilience plans cover all aspects of organizations into those programs. Recognition of climate change threats become a routine component of local planning to create more viable and resilient communities. As the Fig. 1.2 indicates, a choice is not between doing mitigation work and adapting to the change that has already occurred. Out of necessity, local governments deploy both, the climate mitigation and

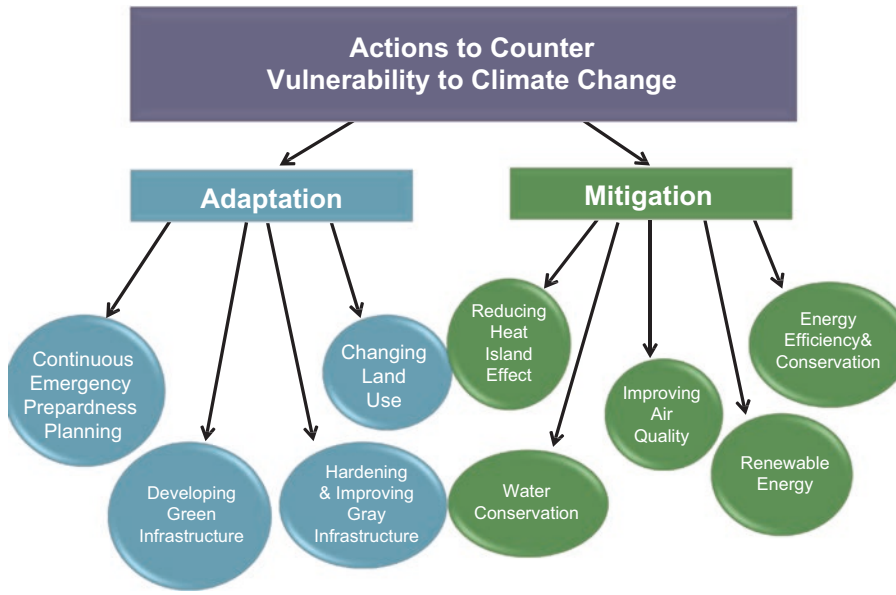

Fig. 1.2 Actions undertaken by organizations to counter climate change vulnerabilities

climate adaptation strategies. All aspects of the built environment need to be incorporated into the resilience planning. Some mitigation strategies may fall into adaptation strategies and vice versa. The preparation must include updating emergency plans to consider climate-vulnerable citizens, developing green infrastructure while hardening and expanding gray infrastructure, and anticipating events never before experienced. Local government planners should consider measures to reduce heat island effects, increase air quality, reduce water usage, and reduce energy consumption in operations.

Definition of Terms

Describing sustainability and resilience using appropriate terminology is quintessential to the embracement of those two concepts. The following are some of the most relevant terms used throughout this book.

Carbon footprint The overall amount of greenhouse gas emissions (GHG) produced by an organization (or individuals) in a given period as a consequence of the power production, heating and cooling, and transportation using fossil fuels, and dietary preferences favoring meat consumption.

Climate Change A scientific fact supported by numerous studies and research proving the climate change is occurring on a global scale and that the leading cause is human actions linked to the exploitation of traditional sources of energy.

Climate Adaptation Strategies deployed by organizations to indicate the need to adapt to changing conditions as a result of climate change.

Climate Mitigation Strategies deployed by organizations to decrease the pollutants by moving away from the use of traditional sources of energy such as coal, oil, gasoline, and natural gas in operations, including transportation.

Climate Preparedness and Readiness An overall strategy deployed by local governments and other organizations to prepare and implement strategies to combat perils stemming from the changing climate and extreme weather.

Energy Efficiency Investments made and activities undertaken to reduce energy consumption and positively impact organizations and individuals paying energy bills.

Feed in Tariff A policy explicitly developed to encourage the use and production of renewable energy, by paying an above the cost price to energy producers for renewable energy production.

Global Warming A scientific body of research showing that Earth's temperature is on the rise since the nineteenth century and is projected to increase further as a result of human activities, causing the global warming effect.

Greenhouse Gas Emissions (GHG Emissions) Gases trapping heat in the atmosphere are considered greenhouse gases (GHG) and include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and fluorinated gases.

Lean (in Government) A strategy employed by organizations focusing on eliminating waste in the processes and improving efficiency and efficacy of service delivery based on manufacturers' approach to streamlining operations.

Peak Oil A scientific argument made by oil and energy experts predicting that the world either reached its daily oil production capacity or will have reached soon, predicting a reversed trend in oil production and causing a future energy crisis.

Renewable Energy Energy produced from sources that appear infinite in its current form, wind, hydro, solar, and geothermal (power from underground Earth's heat).

Renewable Portfolio Standard (RPS) A policy program usually adopted by states to require energy generators/utilities to produce a certain percentage of electricity from renewable energy sources.

Resilience (Climate Resilience) An advanced approach to prepare organizations and communities for threats from climate change and planning for such risks, incorporating various economic, environmental, social, governance, and emergency preparedness strategies into sustainability and resilience planning. Such planning strategies prepare organizations and communities to withstand distresses, shocks, and disasters and to continue to function during and after the adversities.

Sustainability An ability of organizations to provide outcomes and to maintain systems comprehensively with a minimum negative social, economic, environmental, and governance effects on resources, while maximizing positive results.

Sustainable Energy An ability of organizations and society to efficiently impact their bottom line and provide positive social change through reduction in energy consumption, production of renewable energy, and efficient management of energy.

Triple Bottom Line (TBL) A concept which describes how socially responsible organizations consider the negative impact of their actions on social and environmental aspects of society and try to minimize it by using sustainability in its core mission, values, and operations. The same principle applies across sectors, nonprofit and governmental.

Quadruple Bottom Line (QBL) Organizational capacity to embed and incorporate a set of definitive policies and programs to address economic, social, environmental, and governance aspects of sustainability, whereas governance is expressed through fiscal responsibility, community engagement for effective service delivery, transparency, accountability, and more resilient organizations and communities.

Waste Minimization An ability of organizations and communities to reduce the waste designated for landfills by deploying the recycling, reusing, and repurposing strategies to reduce and minimize waste.

Resilient City Spotlight: Replacing a Strategic Plan with the Sustainability Plan

In the past, Grand Rapids had faced severe fiscal challenges, due to a lagging economy, loss of revenues, and the increasing employees costs. As a result of its transformation effort, the city can avoid severe financial issues and close a budget gap in the coming years. Despite its economic afflictions, the city was seen by many national organizations as groundbreaking for innovative efforts in sustainability and energy, a transformative organization and the community (Geary 2011; Svara et al. 2011; Knapp 2011; McCarty 2012).

For years Grand Rapids, MI, operated with its strategic plan. The discussions to introduce sustainability into city strategic planning processes started with efforts to improve internal efficiency and operational improvements using Lean processes. The first conversations about sustainability in Grand Rapids began in early 2004. Around that same time, the city started introducing "the Lean process into operations, which proved extremely valuable to the support of qualitative and quantitative outcomes in sustainability-related efforts" (Alibašić 2013).

At first, the plan was a much more of a blueprint. However, over the next years, from its first reiteration, the program grew into a full strategic plan, thus replacing the strategic plan, tossing out of the window. Through the careful process of developing "a sustainability plan, the city of Grand Rapids, Michigan has become one of the most sustainability planning-oriented communities in the United States" (Alibašić 2013). The change took time and years of planning and changing mindsets of the staff, community members, and elected officials. In his visionary and prophetic talk to the Grand Rapids' local leadership in 2006, Kent Portney stated that Grand Rapids was "poised to enter the real elite of the country – a regional and national leader for mid-sized cities." The city built upon early plans and moved into the national spotlight, focusing on sustainability. Additionally, Portney (2012) in the

annual review of sustainable cities and their climate actions and plans touted Grand Rapids as a success story in the climate action and sustainability.

Goodwin (2012), in the case study for the International City/County Management Association (ICMA), concluded how Grand Rapids' approach to sustainability may not be applicable to all local governments but found it important "how the city developed targets and measures and linked them to the budget that uses Sustainability Plan to drive its budgetary decisions" (p. 3). Geary (2011) also wrote how the city's sustainability plan "connects Grand Rapids' current sustainability initiatives with the goals of different City departments and incorporates ways to measure success" (p. 7).

Over time, the city's efforts started to pay off, and the city began to gain national and international attention for its sustainability efforts. In 2010, the city received the most sustainable midsized community award from the US Chamber of Commerce and Siemens (Beeke 2010). Local media covered extensively sustainability efforts undertaken in Grand Rapids (Boomgaard 2011; Stukkie 2012; Vande Bunte 2012; Wood 2009). The city organization with its 1450 full-time employees and a budget of over $300 million is faced with challenges and constant fiscal, external, and internal pressures. At the same time, the city has significantly reduced its workforce, met lower revenues from property tax collection, and experienced budget cuts (City of Grand Rapids 2011). Moreover, despite concessions made by employees, with significant cuts to benefits, the city has been faced with a budget deficit if it failed to transform (City of Grand Rapids 2011).

In 2012, Grand Rapids received a national recognition by the US Conference of Mayors for its climate protection efforts in the large cities category, as stated by McCarty (2012) in the press release about the award that can serve as a model "for the rest of the country" (p. 25). According to Hess et al. (2010) "Grand Rapids has some of the most aggressive renewable energy goals in the nation" with an eye toward a 100% target by 2020 (p. 67). Grand Rapids committed to purchasing the 20% of its energy from renewable energy sources by 2008, and after meeting the goal, moved it to 100% by 2025 (City of Grand Rapids 2016). Commitment to renewable energy illustrated the city's leadership and the importance of cities in the discussion surrounding sound sustainable energy practices and policies. Additionally, city employees, from various departments and service groups, are directly involved in ensuring the targets, and goals from its annually amended sustainability plan are met (City of Grand Rapids 2016).

Significant Policy and Planning Stages

The city's approach to sustainability and then to planning for resilience deserves a closer historical overview. In 2002, the city adopted the new version of the master plan with substantial public engagement and input. The master plan assisted in establishing the framework for future sustainability plan, made available to the public in August of 2006, and it was intended to move Grand Rapids toward being a sustainable city with the specific policy direction to make service delivery sustainability conscious and driven. Furthermore, as reported by Alibašić (2013), "Subsequently, in 2006, the city passed a resolution establishing a sustainability policy for city-owned buildings, standardizing requirements for construction, renovation, and management, requiring the potential use of the Leadership in Energy and Environmental Design (LEED) principles, water conservation, and energy use reduction." Grand Rapids area is home to a noteworthy concentration of LEED-certified buildings with the first LEED-certified art museum, the city's Water Department's administration building, and others.

The City Remained Engaged on the International Stage In 2007, Grand Rapids was designated a United Nations University Regional Centre of Expertise (RCE) in recognition of its efforts to achieve the goals of the UN Decade of Education for Sustainable Development (DESD 2005–

2014) (UNU 2017). Another milestone was the city's publication of the Triple Bottom Line report in 2008, containing the community-wide triple bottom measurements as a benchmark for assessing progress. Equally important is the city's 2009 Energy Efficiency, and Conservation Strategy financed through Energy Efficiency and Conservation Block Grants (EECBG). The strategy contained not only specific recommendations for the city's energy conservation and efficiency improvements, but it also provided the first community and organizational greenhouse gas emissions report. It has been used ever since as the critical benchmark for measuring the city's carbon footprint (City of Grand Rapids 2009).

The renewable energy goals were intended to initially power 20% of the city's operations with renewable energy by the end of 2008 and then to power 100% of activities by 2025. The goal spurred an internal innovation revolution, as each department sought different solutions to meet the targets. Similar to Lean process and techniques, renewable energy targets drive and motivate city staff to be creative and innovative in finding sustainable measures. Despite the changes in appointed and elected officials, the city continues its commitment to the renewable energy targets and energy efficiency (Steiner 2017).

Community's Participation, Partnerships, and Pursuit of Sustainability

The ability to work in collaboration and conduct sustainability-related activities is what moves the sustainability needle in a positive direction. In 2005, together with four other organizations (Aquinas College, Grand Rapids Community College, Grand Valley State University, Grand Rapids Public Schools, and the City of Grand Rapids), the city created the Grand Rapids Area Community Sustainability Partnership as a diverse, collaborative effort to promote and share best sustainability practices in planning and operations.

From the five original members, the partnership grew to 280 members, including private, public, service, and academic organizations, "committed to work together to restore environmental integrity, improve economic prosperity, and promote social equity in the community with the goal of creating and sustaining a positive quality of life for future generations" (Community Sustainability Partnership 2017).

The city's sustainability plan, while it relates to the city as an organization with its operations and resources, also focuses on the more significant "implication of sustainability in the region and impact on the community. Collaborative efforts in the area of sustainability and resiliency in the region, energy audits, and energy efficiency improvements in neighborhood homes, increased recycling through local economic incentives, and the most recent work on resiliency report" with domestic partners are further evidence of the importance of partnerships to achieve successful sustainability-related outcomes (Alibašić 2013).

Summary

Evaluating the overall effectiveness and efficiency of sustainability and resilience planning, and the impact on social, economic, governance, and environmental bottom line enhances the appreciation of the local governments' service delivery efforts. The positive social and community impacts from sustainability and resilience planning include reduced greenhouse gas emissions resulting from the production of electricity from coal-powered plants, reduced reliance on oil imports, lessened effect on the environment, improved governance, better service delivery, ability to withstand shocks, and other societal benefits.

Cities benefit from a positive social impact as the reduced investment in energy consumption free up capital to be invested into other services provided by local governments, such as street improvements, public safety, parks and recreation to name a few. Once sustainability performance is reported,

measured, and then compared to various outcomes, it assists organizations to assess the positive impact on the overall effectiveness of service delivery of local government. All aspects of societal issues can be evaluated using sustainability as a lens or a conceptual framework. The sustainability and resilience planning process is intentional, inclusive, systematic, and includes all aspects of the organization and community.

Further Discussions

- Define sustainability and resilience and the importance of both.
- Discuss the differences between sustainability planning and resilience planning.
- Explain the history and evolution of sustainability and the next phase of sustainability and resilience planning.
- Analyze the critical characteristics of sustainability efforts and sustainable and resilient organizations.
- Assess the climate change risks to local governments and their effects on operations and service delivery.

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