
UNIT 13 RESPONSE OF SUBNATIONAL GOVERNMENT

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13.1 INTRODUCTION

In recent decades, there has been a considerable restructuring of the institutional arrangements for sustainable human development. Concurrently, there has been an increasing global concern towards re-examining the economic development with regard to depletion of natural resources. The Intergovernmental Panel on Climate Change (IPCC, 2007) stated that although the impacts of anthropogenic climate change are evident across the world, most of the impacts are likely to unfold in the coming decades. In this context, the role of governments, both national and subnational (state actors) are vital in combating climate change. While national governments across the world are making efforts to mitigate GHG emissions, a growing number of climate initiatives are being evolved in subnational governments, such as, states, provinces, and municipalities. Indeed, research and social experiments carried out in different parts of the world have highlighted the transformative role of subnational governments in climate change action (Pablo, et.al, 2018). In this Unit, the response of subnational government in tackling climate change shall be discussed. For the understanding of the learner, the term ‘subnational’ government refers to states/provinces/departments, counties, municipalities, villages, etc.

13.2 OBJECTIVES

After studying this unit, you should be able to:

- explain the role of subnational government in combating climate change;
- analyse various empirical evidences pertaining to subnational climate agenda;
- justify the need for networks and alliances in subnational response; and
- examine the General Behavioural Model of Local Government with reference to renewable energy.

13.3 SETTING THE CONTEXT

Smith et.al (2011) observes that there was a growing environmental consciousness since the late 1960s and early 1970s. Due to human-nature interaction, the environmental issues emerged as an important element of the geo-political agenda. In 1972, the ‘United Nations Conference on the Human Environment’ was held in Stockholm to engage policymakers in simultaneous promotion of development and environment outcomes. Mrs. Indira Gandhi, the erstwhile Prime Minister of India in her keynote address at the conference insisted that: “...*modern man must re-establish an unbroken link with nature and with life*” (DeLoughrey and Handley, 2011). Indeed, it was a first of its kind conference that had put environment on the political agenda by inviting leaders from across the world.

In this line of logic, various research studies reveal that the dominant cause of the observed warming since the mid-20th century is burning of fossil fuels and clearing forests. Indeed, the World Bank’s Report on ‘Little Green Data Book 2014’ (Jitendra, 2015) indicates that the natural resources of the world, such as, forests, minerals, energy, agricultural land and protected areas are getting depleted at a faster rate of 45 percent in a year. Experts anticipate that climate change could cause risks to social and natural systems, which may create stress to the vulnerable and marginalised communities. Therefore, the need of the hour

is to align climate policy with sustainable development in terms of mitigation and adaptation to the effects.

13.3.1 Potential role of Subnational Governments

The Brundtland Report, 1987, incorporated a chapter on the environmental issues faced by the cities. Also, a global plan of action for sustainable development was adopted to conserve environment (Ozdemir, 2013) in the Earth Summit (1992) through ‘Rio Declaration on Environment and Development’ and ‘Agenda 21’. Subsequently, the European Union (EU) gave a clarion call to the local authorities to establish Local Agenda 21 (LA21) in Chapter 28 of the Agenda 21. Through this LA21, the EU seeks to establish community participation, cooperation, and coordination between local authorities at the global level (Betsill M. and Bulkeley, 2006). At the global level, United Nations Framework Convention on Climate Change (UNFCCC) highlighted the need for development and implementation of educational and public awareness programmes on climate change (UNFCCC, 1992). In line with such environment perspectives, the role of subnational governments as agents of change has grown substantially in recent years. Let us understand this perspective in subsequent paragraphs.

In response to UNFCCC, a coalition of local government networks was envisioned to recognise, engage, and empower the subnational governments (WMCCC, 2010) towards energy conservation, citizen participation, and promotion of renewable energy. For instance, in the 13th Conference of Paris (COP-13) held in Bali (2007), the signatories of the World Mayors and Local Government Climate Protection Agreement called upon national governments to: (a) “*measure and report on annual reductions of greenhouse gas emissions*”; and (b) “*act and reduce emissions consistent with a 60% global reduction in greenhouse gas emissions by 2050*” (REN21, 2011).

Indeed, interdependence between the state entities, that is, from ‘federal’ to ‘state’ to ‘local’ is relevant for *climate resilience* vis-a-vis planning, organizing, coordinating, building capacities, learning and sharing of best practices. To illustrate, the government of Colombia has evolved a vertically integrated climate change system to articulate the priorities of national, regional, and local governments. Primarily, it has been conceived to foster *sustainable cities* and to reconcile *bottom-up* and *top-down* climate change strategies. Capizzi et.al, (2017) reports that the Colombian Federation of Municipalities organises workshops, capacity building programmes, and updates about new legal obligations etc. for its municipalities. It is becoming increasingly evident that nations across the world would be unable to engage in international climate obligations without explicit involvement of subnational action (Betsill M. and Bulkeley, 2006). From the above discussions, we can understand the potential role of subnational governments in tackling climate change.

13.4 ALIGNING SUBNATIONAL GOALS WITH NATIONAL AND INTERNATIONAL COMMITMENTS

With the aim to respond effectively to the environmental issues related to resource depletion, deforestation, biodiversity, reef systems, fisheries, energy security, etc., the process of dialogue and cooperation among state as well as non-state actors

has been judiciously acknowledged at both local and global platforms. In fact, the role of non-state actors has become a core feature of climate governance that they carry out a multitude of roles, such as, information-sharing, capacity building, policy advocacy, etc. Consequently, the increasing collaborations between state and non-state actors have led to increase in legislations, policies, and social experiments at all levels of government, irrespective of the country-context. To illustrate, a Report on the ‘Global Trends in Climate Change Legislation and Litigation’ states that when the *Kyoto Protocol* was signed, there were only 72 climate laws and policies across the world. However, as of 2018, there are 1,500 climate laws and policies which denote a twentyfold increase in a span of more than two decades (Nachmany and Setzer, 2018). The climate policies and laws are related to *carbon pricing*, *renewable energy schemes*, and *vehicle emissions standards*.

13.4.1 Subnational Global Climate Leadership

A Memorandum of Understanding on ‘Subnational Global Climate Leadership’ was signed in May, 2015, by a group of 12 state governments from seven countries vis-à-vis California, Oregon, Vermont and Washington (USA), Acre (Brazil), Baden-Wurttemberg (Germany), Baja California and Jalisco (Mexico), Catalonia (Spain), Ontario and British Columbia (Canada) and Wales (UK). In order to promote climate action at their level of jurisdiction and to contribute to national government targets, the memorandum seeks to fix the emission limits to *below 1990 levels* by the year 2050 (UNFCCC, 2015). The signatories (The Climate Group, 2015) seeks to cooperate and coordinate in the issues of common interest like renewable energy; zero emission vehicles, alternate modes of transport – public transit, biking, walking; public outreach; consistent monitoring, reporting, and verification across jurisdictions, etc. In the ensuing paragraph, let us discuss about the state of California in combating climate change.

Case Example: Cap and Trade Program (The state of California)

Let us discuss about one of the successful climate initiatives of California. Under the Cap and Trade Program, the state of California in 2006 unanimously resolved, that by the year 2020, the GHG emissions would be within the 1990 levels. Cap and Trade is one of the major forms of *emissions trading* which fixes a cap (limit) on emissions and regulates market to comply within the prescribed limits. This includes reduction of GHG emissions from all domains of economic activity such as, power plants, manufacturers, refineries, and other polluting industries. To illustrate, an industry which could manufacture more goods with low carbon emissions is rewarded in the form of earning allowances (credits). The concerned industry has two options at this level, either to sell (through auction) the allowances to the most polluted industry or save these allowances for their future emissions (EDF, n. a).

Ward (2017) points out that through the auction of allowances, the companies could raise more than 4 billion dollars since 2013 and majority of the revenue has been invested to further cut emissions under the Greenhouse Gas Reduction Fund. Indeed, the revenue has multiplied since inception that according to the International Carbon Action Partnership (2019), the total revenue for the year 2018 was 3.02 billion dollars, out of which 35% has been allocated for the welfare of disadvantaged and low-income communities of California.

13.4.2 The Paris Agreement, 2015

With the aim to foster climate resilience, a long term goal was chalked out by 196 entities in the Paris Agreement (2015). Primarily, this was signed to safeguard livelihoods and food security and nutrition and to increase the adaptive capacity of people and institutions (UNFCCC, 2015). The Agreement entrusted the responsibility of the world nations to decide their own climate targets through *Nationally Determined Contributions* (NDCs). 62 countries including India account for 52 percent of global GHG emissions had signed the agreement (Koshy, 2016). In tune with NDCs, India, in its climate action plan pledged to reduce its carbon emissions per unit of the Gross Domestic Product (GDP) to 33 percent by 2030. In response to global climate action, the Agreement aimed to involve subnational governments in evolving policies and implementation strategies.

In the climate negotiations the preamble acknowledges *“the importance of the engagement of all levels of government and various actors in accordance with respective national legislations of Parties, in addressing climate change”* (The Paris Agreement, 2015). Subnational governments were not signatories to the agreement, yet, Article 7(2) signifies that climate change *“adaptation is a global challenge faced by all with local, sub-national, national, regional and international dimensions...and makes a contribution to the long-term global response to climate change to protect people, livelihoods and ecosystems”* (The Paris Agreement, 2015). Pablo et.al (2018) points out that despite the fact that United States of America (USA) withdrew from the Paris Agreement, the state of California (USA) extended its support to global climate action. Such efforts intend to align subnational climate interventions with the global climate agreements, thus, making meaningful contribution in combating climate change.

Check Your Progress 1

Note: a) Use the space given below for your answers.
b) Check your answers with those given at the end of the unit.

1) Explain the potential role of subnational government in combating climate change.

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2) Describe the cap and trade program of the state of California.

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3) Give a brief account on the Paris Agreement, 2015.

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13.5 POLITICAL CHAMPIONS AS PROACTIVE AGENTS OF CHANGE: EMPIRICAL EVIDENCES

In this section let us look into the role of individual champions (political) who have had made a positive impact in climate action.

13.5.1 Peter Vadasz (Austria)

In the late 1980s, the city of Gussing, Austria, encountered a lot of social and economic problems, such as, inadequate industrial growth, high unemployment rates, migration, poor infrastructure facilities, inflation, etc (Joanneum Research, 2015). To resolve the problems, the city strategised to become 100% fossil fuel free and energy self-sufficient. Eventually, this could map Gussing as a success model for sustainable energy supply of a city (Joanneum Research 2015). One of the crucial factors of success in Gussing's success model of renewable energy was its Mayor Peter Vadasz. To overcome the problem of economic crisis in the city it was aimed to: (a) optimum utilisation of local resources; (b) creation of new job market; and (c) increase in regional added value through renewable energy (European Centre for Renewable Energy, 2011).

Due to the strong political will from the Mayor, in 1993, the local council adopted a resolution to draft an energy study on the future energy supply. In 1996, a biomass district heating plant was constructed to cater to the energy needs of 4,000 inhabitants and as a first step all the public buildings of Gussing were connected to the grid. Later, other key stakeholders teamed up in this project like European Centre for Renewable Energy (German abbreviation EEE), European Union, Austria, Burgenland Province, companies, national and international research institutes working in the field of renewable energy, and the citizens of Gussing (European Centre for Renewable Energy, 2011).

The impact is worth emulating as the city has achieved its 100% energy self-sufficient (excluding industrial energy consumption) and reduction of carbon emissions from 37,000 tons in 1996 to 22,500 tons in 2009. It attracted more than 50 new companies and created more than 1,000 new job opportunities for its inhabitants (Joanneum Research, 2015). According to European Centre for Renewable Energy, 2011, the municipal revenue increased from 340,000 Euros in 1993 to 1.5 million Euros in 2009. Indeed, the success factors of Gussing model began includes strong political and administrative commitment, increased economic value, high citizen participation, and wider publicity.

13.5.2 Maurizio Caranza (Italy)

Varese Ligure, a municipality situated in the province of La Spezia, Italy, aimed to develop a renewable energy supply at an affordable cost to its inhabitants. The '100%-Renewable Energy-region project' in Europe was an opportunity for the village to transform itself into a sustainable community. The project indicated that to access the funds from European Union (EU) the locals were to renovate their houses. The funds were utilised for installation of wind turbines and solar photovoltaic cells, and local water supply. In fact, Beermann (2009) while citing the work of Giovanna Dunmall accounts that the former political head-Mayor Maurizio Caranza viewed the "*structural conditions of the*

mountainous municipality vis-à-vis geographical isolation, lack of modern industry, the run-down property and outdated farming techniques as a chance for renewal rather than a reason for resignation”.

Initially, the challenge was to convince people but later the local political head could manage to win the trust of the inhabitants by establishing a sustainable tourist destination through organic farming and renewable energy. To illustrate, in 1996, the Environment Education Centre was started to educate children about sustainable agriculture, energy consumption and climate change (Guevara-Stone, 2014). Guevara-Stone (2014) reports that since the late 1990s, “*there has been a 500 percent increase in tourists, an additional 514,000 dollars in annual tax revenues, 140 new jobs and a stable population*”. With the pioneering efforts of the Mayor, the municipality could meet its energy needs as well as sell the surplus to the national grid at an annual profit of 30,000 Euros (Beermann, 2009).

13.5.3 Rangaswamy Shanmugam (India)

In 1996, the Odanthurai gram panchayat commenced its green initiative by installing solar street lighting. To become self-sufficient in energy sector, the panchayat took a step forward by investing in wind mill. The erstwhile gram panchayat leader Rangaswamy Shanmugam had a vision to make the village community as owners of natural resources in terms of land and wind. Under the Remunerative Enterprises Scheme, in 2006, the Tamil Nadu state government sanctioned the project which was first of its kind to be undertaken by a local body in India (Down to Earth, n. d.). Since Odanthurai is located close to the wind turbines, the panchayat leader aspired to utilise the resources for the common good. Consequently, with a cost of Rs. 1.53 crores, a 350-kw wind power generator was installed with an estimated average of 9.0 lakh units of energy per annum (Palanithurai G., et.al, 2008).

In a bid to reduce the carbon consumption, he procured solar lights for the panchayat and thus saved about fifty thousand rupees annually to the village panchayat (Palanithurai G., et.al, 2008). Indeed, the sustainable practices had made professionals and government officials to pay frequent visits to Odanthurai and the local leader was invited to share his sustainable practices with rural institutions like State Institute of Rural Development (SIRD), Kerala Institute of Local Administration (KILA), Renewable Energy Training Centre (RETC), Gandhigram Rural University and alike (Palanithurai G., et.al, 2008). As of 2018, the panchayat receives an annual income of 1.9 million by selling surplus energy to the grid (Balasubramaniam, 2018).

Given the empirical evidences on human-induced climate change, the policy deliberations on renewable energy at the international forums have been influencing the policies and actions of local government. From the above evidences, we can understand the indispensable role of political champions of subnational governments in reducing GHG emissions and promotion of renewable energy.

13.6 CLIMATE NETWORKS AND SUBNATIONAL SUSTAINABILITY

In this section, we shall discuss the intercontinental climate networks towards subnational sustainability.

13.6.1 The Mexican City Pact

In 2010, with the ambition to take concrete steps in climate change mitigation and adaptation, the Mexican City Pact (MCP) was signed by mayors of 138 cities. This Pact is also known as the ‘Global Cities Covenant on Climate and Energy’. Significantly, it intended to create a platform for cities and subnational governments for direct access of financial resources with different institutions vis-à-vis regional, national, and transnational. As climate change management became a priority at the regional level, local governments voluntarily came forward for measurable, reportable, and verifiable climate action by launching the Carbon n Cities Climate Registry (cCCR). The following are the ten action points adopted by the city mayors (Climate Initiatives Platform, 2018):

- a. Voluntarily reduce their GHG emissions;
- b. Adopt and implement local measures of climate mitigation;
- c. Development of local strategies for adaptation;
- d. Register the climate commitments, measures and actions;
- e. Spur the creation of mechanisms for direct access to the international funding for the local climate actions;
- f. To establish the secretariat of the MCP;
- g. To promote the civil society inclusion in the fight against climate change;
- h. Search of alliances with multilateral institutions and national governments for the local climate actions;
- i. Promote alliances and cooperation among cities; and
- j. Disseminate the message of the MCP.

Consequently, the cities have been working on the following areas using various strategies (Climate Initiatives Platform, 2018): energy, transportation and mobility, water, carbon finance, soil use/zoning, urban development, public policy, biodiversity, air quality and GHG emissions, wastes, education, health, studies, plans and inventories, and agriculture. With the objective to build climate resilient society, thousands of cities across the world have resolved to reduce carbon emissions by diversifying their options in renewable energy (Global Covenant of Mayors, 2019).

From Table 13.1, we can infer that in the European Union (EU) and Western Europe the commitment of the cities have been exuberant. To illustrate, in the city of Basel, Switzerland, green roofs have been implemented as a climate adaptation measure for the reduction of indoor temperatures, absorption of rainwater, prevention of urban floods, protection of micro-climatic conditions, etc. Owing to introduction of subsidies as well as incentive programmes, green roofs became a viable financial alternative.

Table 13.1: Cities committed to combat climate change in different regions

Region	Number of Cities Committed
Sub Saharan Africa	113
East Asia	33
European Union and Western Europe	7316
Latin America and Caribbean	200
Middle East and North Africa	53
North America	177
Oceania	35
South Asia	16
Southeast Asia	63

Source: Website of Global Covenant of Mayors (As on April, 2019)

In order to promote green roofs, the *canton* of Basel-Stadt came up with a 5% levy on energy bills for its customers under the Energy Saving Fund. In 2002, an amendment was made to the Building and Construction law of Basel that “*all new and renovated flat roofs must be greened and designed to improve biodiversity*”, thus, making the city of Basel as “*one of the world’s largest areas of green roofs per capita*” (Climate-ADAPT, 2018).

13.6.2 Local Governments for Sustainability (ICLEI)

In 1990, with the objective to promote sustainable urban development and to represent environment concerns of local governments in global platforms, Local Governments for Sustainability (ICLEI) was formed. It is an intercontinental network comprising of 1,750 local and regional governments. Previously known as International Coalition for Local Environmental Initiatives, ICLEI acts as a facilitator in influencing sustainable policies and establishing linkages across subnational and national governments, global policy actors, and stakeholder group vis-à-vis city-to-city, city-to-region, local-to-global, and local-to-national networks. One of the core missions of ICLEI is to foster a global movement of local governments for a sustainable future through collective action. ICLEI steers to bring sustainable change in five development pathways, in terms of “low-emission, nature-based, equitable, resilient, and people-centric development” (ICLEI, 2018).

13.6.3 C40 Cities

With the objective to reduce carbon emissions, the erstwhile Mayor of London Ken Livingstone convened representatives from 18 megacities in the year 2005 to form ‘C20’. One of the notable initiatives was to create policies and strategies for renewable energy market. Within a year of its inception, it had grown up to 40 cities and thus came to be known as C40. The core mission of C40

is to conduct workshops amongst the member cities and to exchange best practices on what was done and what was learnt as part of combating climate change. The development of C40 into a strong network of city governance came under the guidance of Mayor David Miller of Toronto (Canada) who had chaired C40 Chair during 2008-2010. In 2009, UN climate talks held in Copenhagen (Denmark) acknowledged the potential role of cities in influencing climate strategies.

One of the milestones in the development of C40 was its formal merger with Cities Programme of the Clinton Climate Initiative (CCI). This step intended to strengthen mutual partnership in reducing GHG emissions in realising climate goals, such as, *Climate Positive Development Programme* and the *Carbon Finance Capacity Building Programme*. To illustrate, in 2011, to promote climate action in cities, the C40 personnel teamed up with CCI City Directors and relevant programme officers (C40, 2019). The former New York Mayor Bloomberg (past Chair of C40) commented that the C40 had taken “*more than 4,700 actions to tackle climate change and the will to do more are stronger than ever*” (Knapp, 2013). Further, C40 entered into partnerships with the World Bank and ICLEI in order to streamline the process of climate financing.

13.6.4 Governors’ Climate and Forests Task Force (GCFTF)

With the objective to realise policy innovations and leadership at the subnational level, Governors’ Climate and Forests Task Force (GCFTF) was launched in the year 2008. Initially, Memorandum of Understanding on climate and forests cooperation was signed among nine governors from Brazil, Indonesia, and USA. By 2009, the membership grew up to 38 and unveiled its subnational presence in ten countries vis-à-vis Brazil, Colombia, Ecuador, Indonesia, Ivory Coast, Mexico, Nigeria, Peru, Spain and USA. Primarily, the aim of GCFTF was to design innovative approaches to low emissions development and Reducing Emissions from Deforestation and forest Degradation (REDD+) and implement at the respective subnational levels. Apart from responding effectively to the adversary impacts of tropical deforestation and climate change, GCFTF aims to take action against ecological disruption, biodiversity loss, food/energy/water insecurity, and rural poverty (GCFTF, 2019).

One of the notable working cultures of GCFTF is to encourage its respective country coordinators to: (a) identify good practices; (b) share experiences to the wider public domain; and (c) develop common outlook. Another noteworthy approach of GCFTF is to seek solutions as a *jurisdiction-wide approach* and not as an individual project approach. Due to the commonality of problems in people’s livelihood and similarity of environmental hazards, this network seeks to provide comprehensive response to: (a) evolve cross-sectoral policies; (b) stimulate learning and training; (c) support policy innovations; (d) involve civil servants and civil society; and (e) promote collaborations from all levels of government and different stakeholders (GCFTF, 2019).

13.6.5 Under2 Coalition

Under2 Coalition comprises of over 220 governments that account for 1.3 billion people in the world (Under2 Coalition, 2019). In line with global frameworks on climate change, the chief objective of this endeavour is to form networks

with proactive state and regional governments to evolve and execute climate policies. Let us look into one of the examples in the subsequent paragraph.

Case Example: The case of Bio Bus Project in Santa Fe (Argentina)

In 2018, the province of Santa Fe (Argentina) started a green innovation ‘Bio Bus’ project in urban transport which includes electric buses that run on solar energy and biodiesel. As part of Under2 Coalition project, the Bio Bus is an exemplary initiative of powering public transport by using renewable energy in place of fossil fuels. In an effort to create sustainable mobility, few of the conventional buses in the city of Rosario in Santa Fe have been converted to *hybrid bus* and it has made substantial impact in terms of both costs and carbon emissions. For instance, the hybrid buses consume 30% less fuel compared to conventional fuel (Under2 Coalition, 2019). The Under2 Coalition (2019) reports the potential impact of bio bus: (a) economic impact – promotes investments in solar energy; (b) social impact – generation of green jobs, improves public health in urban areas; (c) environmental impact – clean and green environment leads to local biodiversity.

13.6.6 Action on Climate Today (ACT)

Funded by the UK Department for International Development (DFID) Action on Climate Today (ACT) is a five year initiative that seeks to build resilience with governments of South Asia vis-à-vis Afghanistan, Bangladesh, Nepal, Pakistan, and Indian states – Assam, Bihar, Chhattisgarh, Kerala, and Maharashtra. Let us look into one of its initiatives in Kerala (ACT, 2019).

Case Example: The state of Kerala

Since 2016, ACT has been supporting the following activities: (a) climate change priorities into the state’s planning board; (b) assessment of vulnerabilities among coastal communities; (c) evolve a budgeting tool for State Action Plan Financing Framework (SAPFIN) at all levels of government; and (d) technical assistance to the Climate Change Cell (ACT, 2018). ACT along with ‘Climate and Development Knowledge Network’ has also been instrumental in developing a policy brief on ‘Gender Policy Framework for State Action Plans on Climate Change’ (SAPCC). It was submitted to the Ministry of Environment, Forestry, and Climate Change by the end of 2018. Indeed, based on Kerala’s initiative, the Ministry has requested all the states in India to examine their respective SAPCC from gender perspectives (India Environment Portal, 2018).

At the state level, ACT has accelerated the state’s capacity to access national and international funds. To illustrate, in order to promote integrated farming in the coastal wetlands, the fisheries department could access climate finance of Rs. 125 crores from National Adaptation Fund on Climate Change (NAFCC). Secondly, by establishing networks with Kerala Institute of Local Administration (KILA) and Directorate of Environment and Climate Change, ACT has so far trained 330 Gram Panchayats to evolve Local Action Plan on Climate Change (LAPCC) (ACT, 2018).

Owing to the complexity of the environment problems, the number of alliances and networks has been multiplying in the recent years, such as, U.S. Conference of Mayors Climate Protection Agreement, European Covenant of Mayors and

alike. From the empirical evidences cited in this section, the need for interface between subnational governments and global municipal networks could be gauged.

Check Your Progress 2

Note: a) Use the space given below for your answers.

b) Check your answers with those given at the end of the unit.

- 1) Describe the renewable efforts taken up by the local political leaders' with examples.

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- 2) Give an account on the Mexican City Pact.

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- 3) Highlight the role of 'Action on Climate Today (ACT)' in Indian context.

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13.7 POLICY ENTREPRENEURS IN CLIMATE ACTION

Policy entrepreneurs are a variety of actors spread across different institutions who usually express concern about a common problem and calls for prompt action of policy makers. According to Kingdon's Model of Policy Streams, "*policy entrepreneurs are key figures active in the policy community, who invest their time, energy and resources...* (Kingdon, 1995)". In fact, Kingdon identifies "policy entrepreneurs" as individual actors, such as, cabinet secretaries, senators, economists, and others. Rinfret, et.al (2018) classifies policy entrepreneurs as political/bureaucratic champions, parliamentarians/congressmen, scientists who promote their research agenda, and members of interests group or organisations. A key figure in policy entrepreneurship to illustrate is the former Vice President of USA, Al Gore who supports legislative efforts to combat climate change in both USA as well as in other countries (Rinfret, et.al, 2018). The chief activities associated with policy entrepreneurs are as follows (Taliawi, 2017):

13.7.1 Strategic Activities

It include evolving operational roadmap, long and short term goals, etc. For example, Soren Hermansen, a native of Samsø (an island village in Denmark) could transform a fossil fuel dependent village into a model renewable energy village within a decade, that is, 1997-2007. As a result, in comparison to the national average of 6.2 tonnes of *carbon footprint* in a year, the inhabitants

could achieve a *negative carbon footprint* (also known as *climate positive*) of 12 tonnes per person in a year (Lewis, 2017). With his mission to inspire local communities to achieve energy self-sufficiency across the world, Soren's best practices have been used as a sustainable model for projects.

13.7.2 Advocacy

It includes disseminating global concerns on climate change through popular media and mobilising public opinion. Taliawi (2017) asserts the role of UNFCCC as policy entrepreneur in aligning the climate agenda of the signatory countries to the Kyoto Protocol through newsletters, press headlines, speeches, workshops, and others.

13.7.3 Networking

It includes establishing connections with concerned stakeholders and pursuance of climate negotiations. To illustrate, the Climate Alliance is an extensive network of the European Union (EU) comprising of cities, municipalities, districts, provinces, and non-state actors. It is considered as one of the world's largest city network which collaborates in combating climate change with as many as 1,741 members spread across 26 EU countries. Chiefly, the members complement each other in extending support to the administrative and technical structures of local bodies (The Climate Alliance, 2019).

13.7.4 Idea Generation

It includes developing proposals and staying rooted with local concerns. In India, with the objective to tackle water shortage in peak summer, the Ladakh inventor Sonam Wangchuk built a 64 foot ice stupa in 2015. The conical artificial glacier could irrigate 5000 poplar and willow trees in Phyang Monastery in Ladakh (Yashwant, 2016). In recognition of his mountain project, the municipal head of Pontresina (a mountain village in Switzerland) expressed interest to learn this low-technology and high innovation project for sustainable agriculture and tourism (Yashwant, 2016). There have been similar policy entrepreneurs who could make fundamental change in conception and execution of sustainable projects.

13.7.5 Lobbying

It includes mobilising proponents of policies and related stakeholders. For instance, Centre for Science and Environment (CSE), a not for profit organisation has been instrumental in reduction of sulphur content in diesel and petrol, use of Compressed Natural Gas (CNG) in public transport systems, etc (CSE, 2019).

13.7.6 Problem Framing

It includes collecting empirical evidences to substantiate and aligning solutions to the proposed problem. For instance, Mahesh Chandra Mehta's public interest environmental litigation has been instrumental in evolving *environmental jurisprudence* in Indian constitution (MCMEF, 2019). In fact, he interpreted the constitutional right to life as a right to clean and healthy environment and spearheaded the cause of 'polluter pays principle' in India wherein polluters are liable to compensate for their contribution towards environment hazards.

As a result of his petition on protecting Taj Mahal from the nearby refineries and industries in Agra, the Supreme Court passed a landmark judgment to ban the use of coal and coke and instructed industries to use Compressed Natural Gas (CNG) (MCMEF, 2019).

13.7.7 Opportunity Seizing

It includes turning crises into opportunities for promoting the problem agenda. For instance, Dr. Debra Roberts, Head of the Environmental Planning and Climate Protection Department, EThekweni Municipality, Durban (South Africa), has turned environment problems into opportunities in the municipality. She has been a pioneer in climate change adaptation of African cities that the municipality leads grassroots innovations and actions. To illustrate, she has led the municipality in reforestation projects on a massive scale, thus, envisioning it as a resilient city in the long run (EThekweni Municipality Website).

Each policy entrepreneurial activity is mutually dependent and influences the policy process of the governments at all levels. And policy entrepreneurs extend their support depending on their domain expertise.

13.8 A GENERAL BEHAVIOURAL MODEL TOWARDS COMBATING CLIMATE CHANGE

Based on China's local government scenario, Qi et.al (2008) conceptualises a model, *MPC-IC* model to comprehend the response of local government with respect to variables, such as, motivation, power, capacity, incentives, and constraints. The authors are of the opinion that these variables play a crucial role in determining the proactive behaviour of the local government toward climate change. Let us understand the below mentioned variables with special reference to local government institutions of various countries:

13.8.1 Motivation

The model highlights that the government revenue as the major motivating factor that could lead to harmonious development of social equity, stability, and environmental well-being. With economic development as the primary factor to drive in the interest of local government, the model postulates to create a business ecosystem which would generate taxes, fees, and dividends for the local economy. Secondly, the model indicates that the motivation of government at the local level is determined by the motivation of officials at the apex level. Qi et.al (2008) identifies motivation factor as the "collective expression" of key government officials.

Example 1 – The Town of Kuzumaki (Japan)

In an effort to substitute renewable energy for fossil fuels and to protect the town from economic collapse in the late 1990s, the former Mayor of Kuzumaki - Tetsuo Nakamura was able to build eco-consciousness among its inhabitants (Loth, 2007). Through town hall meetings, educational excursions, publishing newsletter, the city council were able to encourage local people to embrace renewable energy. For instance, the farm waste of the town has been used to generate biomass power (REN21, 2011).

13.8.2 Power

The second variable in this model is 'Power'. According to Qi et.al (2008), “*power acts as a key factor in local government behaviour*”. This could be inferred as the power of local government to align plans and actions in tune with government policy and the authority to legislate eco-friendly initiatives as per the local context.

Example 2 - The City of Ashville: Resolution on Renewable Energy

In 2018, the city of Ashville (United States of America), passed a resolution to reduce municipal energy consumption from fossil-fuelled energy and to secure 100% renewable energy by 2030. The resolution intends to ensure that the concerns of the marginalised communities are to be incorporated. Further, it was resolved to co-convene a joint Energy Innovation Task Force (EITF) with Buncombe County for funding renewable energy planning services (Ashville Resolution, 2018).

13.8.3 Capacity

Firstly, this includes the capacity to utilise financial resources allocated for renewable energy and to mobilise human resources for the same. Secondly, this includes the ability of local governance in using its discretion to deal with context-specific issues, such as, choosing the renewable energy options as appropriate to the locality (wind or solar), identifying potential partners and service providers, engaging public in *smart metering technologies*, etc.

Example 3 - The City of Toronto: Reduction in Carbon Emissions

With the ambition to prioritise energy conservation and to reduce greenhouse gas emissions to 30% by 2020, the city of Toronto (Canada), has installed solar plant on all public buildings. Further, to provide finances at low-interest rates for renewable energy projects, it has established a corpus fund of 20 million dollars under the Sustainable Energy Fund. In order to promote innovative modes of community ownership, it has facilitated for 'solar neighbourhood' initiatives. According to The Atmospheric Fund Report, “*Toronto has reduced its carbon emissions in 2016 by 6% and 33% since 1990...*” (Smith, 2019). The report highlights that the city has achieved this target ahead of schedule, that is, before 2020. On an optimistic note, the report suggests that “*Toronto's carbon emissions are continuing to decline and are on the right track to meet its goal of reducing carbon emissions by 80% by 2050*” (Smith, 2019).

13.8.4 Incentives

With the objective to ensure energy security, governments establish benchmarks for the lower level governments for innovation and citizen participation. Primarily, such initiatives have been instituted to provide incentives to those institutions that commit to reduce carbon emissions. The incentives are often in the form of financial incentives that serve as an influential mechanism to take up such alternative sources of energy. To illustrate, the apex department may provide incentives or rewards to the local governments that could comply with environment mandates and standards.

Example 1 - Njeezhoor Gram Panchayat: Renewable Energy Award

With the aim to recognise the eco-friendly attempts initiated by local government, enterprises, organisations, individuals, etc. in renewable energy technologies, the state government of Kerala has instituted the “Kerala State Renewable Energy Awards” in 2017. Indeed, Njeezhoor Gram Panchayat in the Kottayam district of Kerala was honoured with Rs. 1 lakh prize under the local government category (ANERT, 2018) for being self-reliant in solar power generation. By crediting the local government efforts, the state government stay committed to its energy conservation and thus motivates other local governments to emulate sustainable practices.

13.8.5 Constraints

Qi et.al (2008) opines that “*the local governments are confined by their political, legal, administrative and social frameworks...*” However, in China the constraints on local governments are less stringent that often they are not affected by public opinion owing to its top down structure. In Indian context, local governments too face similar constraints, especially, in terms of skilled manpower while implementing sustainable initiatives. As a result, the best practices often function in silos that replication takes time to evolve. To illustrate, establishing wind farms in India requires a whole gamut of administrative and legal processes which includes land acquisition, commissioning of services, operations and maintenance.

Indeed, the tendency of subnational governments to reduce carbon emissions and initiate renewable energy options is largely determined by the efforts of leaders at the local level. On the whole, the model MPC-IC puts forth a broad checklist to understand the status of renewable energy in subnational government. Although, this was conceived by the scholars for the use of local government, this framework could be applied for other subnational governments as the issues are of similar in nature.

Check Your Progress 3

- Note:** a) Use the space given below for your answers.
b) Check your answers with those given at the end of the unit.

1) What do you understand by the term ‘policy entrepreneurs’?

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2) Explain the role of policy entrepreneurship in combating climate change with appropriate examples.

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- 3) Explain the General Behavioural Model of Local Government in terms of 'motivation' and 'power'.

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13.9 LET US SUM UP

Precipitated by the adversary impact of climate change, such as, melting of polar ice sheets, rising sea levels, extreme weather conditions, frequent drought and water crisis, etc., sustainable development initiatives has been integrated into the operations and governing mandate of state and non-state actors. Due to human-nature interaction, the environmental issues emerged as an important element of the geo-political agenda. Experts anticipate that climate change could cause risks to social and natural systems, which may create stress for the vulnerable and the marginalised. In line with such environment perspectives, the role of subnational governments as agents of change has grown substantially in recent years. Subnational governments across the world continue to serve as sustainable models that there has been an increase in intercontinental networks in terms of capacity building, information sharing, mobilising public opinion, policy entrepreneurship. Indeed, scaling up of sustainable climate initiatives from local to global and vice-versa enable to increase the adaptive capability of individuals and institutions.

13.10 KEYWORDS

- Bottom-up Climate Change Strategies** : Climate change strategies are evolved by lower level governments or grassroots champions. It is emulated at the national or international level.
- Carbon Pricing** : It is an instrument that captures the costs of GHG emissions that the citizen is liable to pay, such as, droughts, heat waves, flooding, sea level rise, change in soil chemistry, climate-induced diseases, extreme weather conditions, etc.
- Carbomm Cities Climate Registry (cCCR)** : It is a global mechanism developed for local governments by local governments at the World Mayors Summit in 2010. It enables them to publicly and regularly report their local climate action developments vis-à-vis greenhouse gas (GHG) reduction commitments, emissions inventories, climate mitigation, adaptation actions, targets achieved, etc.
- Carbon Finance Capacity Building Program (CFCB)** : It is a partnership between the World Bank Institute (WBI), Carbon Finance Assist (CF-A) Program and the C40 Cities Initiative

- to assist emerging megacities of developing and emerging countries. Cities under the CFCB programme get support in reducing or avoiding GHGs.
- Climate Positive Development Program** : Under C40's Urban Planning and Development Initiative, the Climate Positive Development Program supports the creation and implementation of large-scale urban communities that reduce GHG emissions and serve as models for cities to grow in environmentally sustainable and economically viable ways.
- Climate Resilience** : According to Intergovernmental Panel on Climate Change, climate resilience is the "capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation."
- Emissions Trading** : It is a market-based approach to control pollution.
- Geo-political Agenda** : It refers to the combination of factors, such as, geography, economics, demography and its impact on politics and policy of a state.
- Governance Innovations** : Governance innovations are novel rules, regulations and approaches that seek to address a public problem in more efficacious and effective ways, lead to better policy outcomes and enhance legitimacy.
- Green Roof** : A green roof system is an extension of the existing roof which involves, at a minimum, high quality water-proofing, root repellent system, drainage system, filter cloth, a lightweight growing medium, and plants.
- Jurisdiction-wide Approach** : Jurisdictional approaches seek to facilitate a consensus among different people, governments and the private sector for sustainable rural development within a jurisdiction. Jurisdictions are selected on the basis of whether they have the authority to address the challenges associated with sustainable rural development.

- Nationally Determined Contributions (NDCs)** : It embodies efforts by each country to reduce national emissions and adapt to the impacts of climate change.
- Negative Carbon Footprint or Climate Positive** : It means that an activity goes beyond achieving net zero carbon emissions to actually create an environmental benefit by removing additional carbon dioxide from the atmosphere. Both the terms are used interchangeably.
- Smart Metering Technologies** : It provides customers reliable information on how they use energy and enable those customers to reduce their excess consumption.
- Solar Neighbourhood** : It provides people with affordable locally produced clean energy without installing any panels on their rooftops. It is a sustainable practice to fight against climate change.
- Top-down Climate Change Strategies** : Climate change strategies are evolved by the national governments or global actors. It is implemented by lower level governments.

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13.12 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

- 1) Your answer should include the following points:
 - (i) International forums had set the stage to strengthen local government capacities.
 - (ii) Subnational networks aim to recognise, engage, and empower the subnational government.
 - (iii) Subnational global climate networks aim to resolve common issues related to energy, emissions reduction, carbon monitoring, etc.
- 2) Your answer should include the following points:
 - (i) The Cap and Trade program of California was started in 2006 with the aim to reduce carbon emissions.
 - (ii) It is one of the major forms of emissions trading which fixes a cap (limit) on emissions and regulates market to comply within the fixed limits.

- (iii) It includes power plants, manufacturers, refineries, and other polluting industries that it approximately covers 80% of the polluting industries of the state.

3) Your answer should include the following points:

- (i) A long term goal was chalked out by 196 parties in the Paris Agreement (2015) to foster climate resilience.
- (ii) It entrusted the responsibility of the world nations to decide their own climate targets through NDCs.
- (iii) It highlighted that the climate change impacts have to be addressed at all levels governments.

Check Your Progress 2

1) Your answer should include the following points:

- (i) The success of Gussing model of renewable energy was due to its Mayor Peter Vadasz.
- (ii) The 100%-RE-region project in Europe was an opportunity for the village to transform itself into a sustainable community.
- (iii) To become self-sufficient in energy sector, the Odanthurai panchayat took a step forward by investing in wind mill.

2) Your answer should include the following points:

- (i) The Mexican City Pact (MCP) was signed by mayors of 138 cities in the World Mayors Summit on Climate.
- (ii) Local governments voluntarily came forward for measurable, reportable, and verifiable climate action by launching the Carbon₇ Cities Climate Registry.
- (iii) The ten action points adopted in the Summit.

3) Your answer should include the following points:

- (i) Action on Climate Today is actively associated with subnational governments of India.
- (ii) It has extended its technical assistance to the state of Kerala in climate adaptation.
- (iii) It has so far trained 330 Gram Panchayats in evolving Local Action Plan on Climate Change.

Check Your Progress 3

1) Your answer should include the following points:

- (i) Policy entrepreneurs are a variety of actors spread across different institutions who usually express concern about a common problem and calls for prompt action of policy makers.
- (ii) Policy entrepreneurs includes individual actors, such as, cabinet secretaries, senators, economists, and others.

- (iii) They may also include political/bureaucratic champions, congressmen, scientists who promote their research agenda, and members of interests group or organisations.
- 2) Your answer should include the following points:
- (i) Policy entrepreneurs are involved in various activities depending on their expertise.
 - (ii) They are involved in activities, such as, evolving roadmaps, policy advocacy, idea generation, lobbying etc.
 - (iii) Each policy entrepreneurial activity are mutually dependent and influences the policy process.
- 3) Your answer should include the following points:
- (i) Government revenue is the major motivating factor that could lead to harmonious development of social equity, stability, and environmental well-being.
 - (ii) It aims to create a business ecosystem which would generate taxes, fees, and dividends for the local economy.
 - (iii) Power acts as a key factor in local government behaviour.

