



Importance Of Local Governance for Protection and Promotion of Traditional Knowledge at the Grassroots: A Brief Perspective

Mr. Santanu Bhowmick^{1*}, Dr. Inderjeet Singh Sodhi²

¹Ph.D. Student, Department of Local Governance, Rajiv Gandhi National Institute of Youth Development, Sriperumbudur, Tamil Nadu, Email: santanu.buddhist@gmail.com, Contact No: 9836064524

²Professor, Department of Local Governance, Rajiv Gandhi National Institute of Youth Development, Sriperumbudur
E-mail: sodhiresearch@gmail.com, Contact No: 09414064162.

***Corresponding Author:** Mr. Santanu Bhowmick

^{*}Ph.D. Student, Department of Local Governance, Rajiv Gandhi National Institute of Youth Development, Sriperumbudur, Tamil Nadu, Email: santanu.buddhist@gmail.com, Contact No: 9836064524

Abstract:

Protecting and promoting traditional knowledge and biodiversity is essential for ensuring sustainable development goals and the conservation of our biodiversity heritage. Traditional knowledge, held by indigenous and local communities, encompasses a wealth of ecological knowledge, practices, and innovations passed down through generations but in most cases, it has no system of documentation, hence traditional knowledge faces multiple challenges for its preservation and documentation. This knowledge is closely intertwined with biodiversity, as it often offers insights into sustainable resource management, ecosystem conservation, and climate change adaptation. However, both traditional knowledge and biodiversity face numerous challenges, including cultural erosion, unsustainable resource extraction, habitat destruction with rapid urbanization, and increasing trend of unsustainable human behaviour.

To address these challenges, a participatory and inclusive local governance system, which considers bottom-up perspectives, can significantly ensure the active involvement of indigenous and local communities. In addition, at the grassroots level, the Biodiversity Management Committee, Youth Club, Village Health Sanitation Nutrition Committee, local groups etc. can be the key actors in preserving and transmitting traditional knowledge and conserving biodiversity. These organizations may facilitate community-led initiatives, such as knowledge documentation, land stewardship, and sustainable livelihood practices, which contribute towards the purpose of the framework.

The study will explore the role of local governance with a policy perspective from the grassroots in conserving traditional knowledge and biodiversity with a special emphasis on existing Acts, Rules, guidelines, and policies related to local government and biodiversity management. This paper takes a descriptive research approach to secondary and primary data, emphasizing the researcher's experiences.

In conclusion, the protection and promotion of traditional knowledge and biodiversity require the maximum utilization of existing local governance frameworks, with the participation of people and the implementation of relevant policies at the grassroots.

Keywords:

Traditional Knowledge, Local Governance, Grassroots, Policy

Introduction:

In the diverse rural landscapes of India, traditional knowledge plays a crucial role in maintaining a harmonious relationship between communities and their natural environment (Whyte, 2013, p. xx). Passed down through generations, this indigenous wisdom comprises a treasure trove of insights, innovations, and practices that have evolved over centuries to adapt to local cultures and surroundings. Covering a wide range of domains, including agriculture, fisheries, health, forestry, and environmental management, traditional knowledge is a vital resource for sustainable biodiversity and natural resource management (Chakrabarty & Kaur, 2021, p. xx).

However, in the face of rapid globalization and urbanization, traditional knowledge faces challenges (Arjona-García et al., 2021, p. xx). Modern lifestyles and education have led younger generations to drift away from their cultural heritage and traditional practices. This decline in traditional knowledge hinders the understanding of its significance in promoting a balanced coexistence with the ecosystem and preserving sustainable living practices (Wu et al., 2016, p. xx).

To address this critical issue, active involvement from various stakeholders is necessary, both within and beyond rural communities (Wang, 2017, p. xx). The local governance framework emerges as a pivotal force, encompassing diverse institutions such as youth clubs, Self-Help Groups (SHGs), Mahila Mandals (women's groups), Non-Governmental Organizations (NGOs), Gram Panchayats (village councils), statutory bodies like Biodiversity Management Committee (BMC), Village Health Sanitation Nutrition Committee (VHSNC) etc. These grassroots entities possess the potential to reignite the essence of traditional knowledge and spearhead efforts for its safeguarding and advancement ("Indigenous perspective on the WIPO IGC," 2017, p. xx) & (<https://plus.google.com/+UNESCO>, 2022). These community-level

institutions, deeply rooted in local culture, can bridge the information gap between older generations holding traditional knowledge and the younger generation, often disconnected from their heritage. In same way, by actively involving the youth and fostering pride in cultural legacy, these entities can become catalysts for reviving and documenting traditional knowledge.

The 73rd & 74th constitutional amendments of 1992 bestowed local governance institutions in India with autonomy and responsibilities for grassroots-level administration. While environment and biodiversity were not explicitly listed in the functions of rural local governments, their vital role cannot be understated. In the same line, Biological Diversity Act of 2002 and its pertaining rules 2004, have recognized the significance of traditional knowledge and established the Biodiversity Management Committee (BMC) as a statutory body under local governments. The act aims to conserve biological diversity, promote sustainable resource utilization, and protect traditional knowledge through BMCs.

Focusing on the preservation of traditional knowledge and available biological resources, the local governance system holds the potential to catalyze sustainable socio-ecological development in rural areas. So, safeguarding traditional knowledge in rural areas is not merely an obligation but a crucial step towards maintaining a delicate balance between society and the ecosystem. Empowering local governance institutions to champion this cause instills a sense of pride and responsibility in the younger generation, securing a future where sustainable living thrives, and traditional wisdom endures. Through collaborative efforts and collective commitment, we can build a bridge between the past and the future, enriching our cultural heritage while nurturing the environment for generations to come.

Review of Literature and Background of the study:

Local government, as a grassroots-level public administrative platform, is considered the last mile constitutional organ designed to holistically look after public welfare at the local level. Its multidisciplinary role encompasses a wide range of contexts, including environmental management, local ecosystem preservation, and biodiversity conservation. In the same context, the 73rd and 74th Constitutional Amendments (CA) are being passed by the Parliament of India for rural and urban areas respectively where 11th is schedule under 73rd CA consists of 29 subjects and 12th schedule under 74th CA consists of 18th subjects. But it is a fact and lacuna of the schedule that the local environment or ecosystem has not been listed among 29 subjects. There are indeed multiple subjects which directly linked with environment and ecosystem so the role of local government cannot be denied. In another side, agriculture and agricultural expansion is the first subject among 29 subjects of the 11th Schedule of the Indian Constitution. However, various people and communities have diverse perspectives on their local biodiversity and its management, making it imperative for the local government to tailor its actions based on the needs and concerns of the local population.

Biodiversity, a crucial component of Earth's ecological balance, faces critical threats, and the active participation of local communities, particularly indigenous people, becomes paramount in conservation efforts. Indigenous communities, constituting 5% of the world's population, are at the forefront of biodiversity conservation and protect approximately 80% of the Earth's biodiversity (Convention on Biological Diversity - CBD). Despite their significant contribution, global biodiversity loss remains rampant, with one million of the estimated eight million plant and animal species facing extinction (Ruiz-Mallén, 2016, p. xx).

The rate of environmental degradation can knock down the whole environment very soon (Anup 2015). In the other side, (Shah, 2005) stated that, if the concerns of the environment have not addressed urgently, the effects of environmental degradation can demolish the whole environment. In the same way, another researcher Kennedy M. (2015) warned that the exploitation of our planet and degradation of our environment have gone up at an alarming rate such that concerted efforts must be applied to enhance environmental sustainability. Hereafter to tackle various issues of environmental degradation (Obiora & Emeka 2015) jointly talk about interdisciplinary and multidimensional approaches. The alarming status of biodiversity loss and the inadequacy of ground-level implementation highlight the need for effective action. Various treaties, agreements, policies, acts, and guidelines exist at global, national, and regional levels to safeguard biodiversity, traditional knowledge, and indigenous people's rights. However, bridging the gap between policy and action requires the full and effective participation of local and indigenous communities in decision-making processes (Ancrenaz et al., 2011, p. xx).

To ensure the protection and promotion of traditional knowledge and management of biodiversity, it is crucial to integrate the concerns of indigenous and local communities (Luz & Ruiz-Mallén, 2020, p. xx) & (Berkes, 2007, p. xx).. Researchers assert that the local government and its associated grassroots governance framework offer an efficient means to achieve this The Uttarakhand High Court's landmark judgment recognizing biological resources as the property of both nations and the indigenous and local communities who have conserved them further emphasizes the need to empower local communities in conservation efforts (McArdle, 2016).

Local government's role as an institutional framework to address risks and climate change is underscored by its pluralistic, contextual, and adaptive nature (Warren et al., 1995). Local, indigenous, or traditional knowledge, developed not by experts but by people living in and utilizing their environment, plays a pivotal role in ecological understanding and resource management (Evans, 2004).

So, the protection and optimal management of biodiversity and traditional knowledge are essential and should be localized to harness their full potential. Local government's unquestioned and unavoidable role in this context makes it the ideal entity to address biodiversity and TKS management at the grassroots level. While international communities and governments emphasize the importance of protecting and promoting traditional knowledge in the context of Sustainable

Development Goals (SDGs) with a major focus on the environment and local ecosystems, there is a lack of Standard Operating Procedures (SOP) to ensure its conservation ("Protection of traditional expressions and cultural knowledge in India," n.d.). This highlights the significance of local governance, which is the closest constitutional organ capable of facilitating people's welfare by addressing their needs and concerns.

So, the active involvement of local government in biodiversity and traditional knowledge conservation is crucial and there is very limited study being found in the direction of local governance role for the protection and promotion of traditional knowledge. This study aims to explore the prospects and challenges of local government in managing biodiversity and traditional knowledge and identifying strategies to promote sustainable development and protect the environment.

Significance of the study:

This study holds immense significance in the context of biodiversity conservation, traditional knowledge preservation, and sustainable development at the grassroots level. By examining the role of local government in managing biodiversity and traditional knowledge system (TKS), the research aims to shed light on practical strategies to protect the environment and promote the well-being of local communities.

The study acknowledges the valuable knowledge and stewardship of indigenous and local communities, recognizing the strong nexus between local communities, traditional knowledge, and biodiversity. The existing treaties, policies, and guidelines at various levels emphasize the importance of biodiversity protection and traditional knowledge. However, the gap between these policies and on-ground implementation necessitates a deeper investigation into the role of local government as a key institutional framework to bridge this gap.

The research findings will contribute to the achieving the Sustainable Development Goals (SDGs), with a major focus on environmental sustainability and local ecosystems. By identifying challenges faced by local government in biodiversity and TKS management, the study will offer valuable insights to policymakers and stakeholders, fostering effective conservation measures.

Ultimately, empowering local governance to address biodiversity and traditional knowledge concerns can lead to improved welfare and sustainable development for communities. Through collective efforts and engagement with indigenous and local communities, the study aims to facilitate a more holistic approach to nature conservation, where local perspectives and traditional knowledge play a vital role in shaping environmental policies and actions.

The significance of this study lies in its potential to enhance the understanding of local government's role in protecting and promoting biodiversity and traditional knowledge. By empowering local communities and involving them in decision-making processes, this research can contribute to a more inclusive, informed, and effective approach to biodiversity conservation, environmental governance, and sustainable living.

Objectives of the study:

- ✓ To explore the existing policies, acts, and guidelines that contribute to the protection and promotion of traditional knowledge at the grassroots.
- ✓ To identify and analyze the probable role of local governance for the holistic welfare of traditional knowledge at the grassroots.
- ✓ To propose recommendations to further strengthen the local governance system.

Methodology of the study:

Descriptive research methodology has been followed for this study by using secondary evidence. To understand the probable role of the local governance system the researcher had a thorough review of policies/acts such as the 73rd and 74th constitutional amendments, 11th and 12th schedule, Biological Diversity Act 2002 & Rules 2004 and others.

Traditional Knowledge Associated Policies, Act and Guidelines:

In India, the protection and promotion of traditional knowledge often involve a combination of national and local-level initiatives. While national laws and policies set the framework, local governments play a crucial role in implementing and customizing these measures to suit the specific needs and context of their regions. Here are some relevant acts, policies, and guidelines in India where local governments have a larger role to play in the protection and promotion of traditional knowledge:

1. Biodiversity Management Act 2002:

The BD Act 2002 section 21 (6) The main function of the BMC is to prepare the People's Biodiversity Register in consultation with local people. The Register shall contain comprehensive information on the availability and knowledge of local biological resources, their medicinal or any other, use, or any other traditional knowledge associated with them.

Pertaining to the act Biological Diversity Rules 2004 also came into action and both documents emphasize the involvement of local government and BMC for the protection and scientific management of biodiversity and traditional knowledge.

Some of the major work which needs to be conducted regularly by the BMC and local government are as follows:

- } Maintain the procedure for access to biological resources and associated traditional Knowledge.
- } Take steps to build up a database and to create an information and documentation system for biological resources and associated traditional knowledge through bio-diversity registers and electronics databases, to ensure effective

management, promotion, and sustainable uses; Description of the biological resources and traditional knowledge including accompanying information.

-] Restriction to transfer the accessed biological resources and traditional knowledge to any third party without prior approval of the state and central Authority.
-] The committee shall also maintain a register giving information about the details of the access to biological resources and traditional knowledge granted, details of the collection fee imposed, and details of the benefits derived and the mode of their sharing.

So, all these above works are huge for the BMC and local government to regularly conduct with true spirit. So, the proper functioning of BMC is very much required for the management and conservation of biodiversity and TK at the local level.

2. National Biodiversity Authority (NBA) and State Biodiversity Boards (SBBs):

NBA and SBBs work at the national and state levels, respectively, to regulate access to biological resources and traditional knowledge. They involve local communities in decision-making processes.

3. Traditional Knowledge Digital Library (TKDL):

India's TKDL is a repository of traditional knowledge related to various fields, including medicine and agriculture. It is used to prevent the misappropriation of traditional knowledge by documenting it in patent applications. Local practitioners and experts contribute to the documentation of traditional knowledge in the TKDL.

4. Community Forest Rights (Recognition of Forest Rights) Act, 2006:

This act recognizes the rights of forest-dwelling communities, including the right to protect, regenerate, and conserve their traditional knowledge and cultural heritage related to forests. Local bodies and gram sabhas (village councils) have a role in determining and implementing forest rights.

5. Panchayats (Extension to Scheduled Areas) Act, 1996 (PESA):

PESA empowers local self-governments in tribal areas, allowing them to regulate the use of minor forest produce and protect traditional customs, cultural identity, and community resources.

6. Protection of Plant Varieties and Farmers' Rights Act, 2001:

This act aims to protect plant varieties, provide rights to farmers and local communities over their contributions to plant breeding, and promote the conservation of plant genetic resources. Local farmers and communities play a role in the conservation and use of traditional plant varieties.

7. National Mission on Sustainable Habitat:

This mission aims to promote sustainable urbanization and environmentally friendly urban practices. Local governance in urban areas, represented by Municipalities, can actively participate in implementing sustainable habitat practices that respect and preserve local traditional knowledge.

State Policies and Initiatives:

Many states in India have developed their own policies and initiatives to promote and protect traditional knowledge and cultural heritage, often involving local governments and communities.

Sustainable Agriculture and Agro-Biodiversity Management:

Many local governments in India are involved in promoting sustainable agricultural practices and agro-biodiversity management, which often includes the preservation of traditional farming knowledge.

Local governments in India often collaborate with local communities, indigenous groups, and other stakeholders to implement these measures effectively. The involvement of local bodies ensures that traditional knowledge protection and promotion efforts are contextually relevant and aligned with the needs and aspirations of the communities.

Role and Importance of Local Governance:

The local governance system plays a crucial role in protecting and promoting traditional knowledge at the grassroots level. Here are some important ways in which local governance can help:

- ✓ **Formation of BMC:** The local government can take the lead in establishing the Biodiversity Management Committee (BMC) and ensure its smooth functioning. They can carefully select members and appoint a knowledgeable chairman, including traditional healers and medicine practitioners to represent traditional knowledge. The BMC may lack necessary facilities and resources. The local government can step in by providing office space and basic infrastructure for the committee to function efficiently.
- ✓ **Creating Local Biodiversity Fund and preparation of local biodiversity Profile:** To strengthen the BMC financially, the local government can establish a Local Biodiversity Fund. They can use funds from the 15th Finance Commission or generate revenue locally.
- ✓ **Preparation of People's Biodiversity Register and its regular updation:** The local government plays a pivotal role in the preparation and continuous upkeep of People's Biodiversity Registers (PBRs). It is responsible for raising awareness and mobilizing community participation, forming Biodiversity Management Committees (BMCs), providing technical support and training, facilitating data collection and documentation, ensuring validation and approvals, integrating PBR information into local development plans, advocating for recognition, and safeguarding

intellectual property rights. The local government's active engagement ensures that PBRs comprehensively capture and protect biodiversity and traditional knowledge while promoting sustainable practices and community well-being.

- ✓ **Engaging Local Communities:** Local government needs to actively involve local and indigenous communities in biodiversity and traditional knowledge management. They can hold discussions in community meetings and development plans, encouraging the participation of all, including youth and women.
- ✓ **Bringing Different Initiatives Together:** Local government can adopt a convergence approach by integrating BMC efforts with other government programs and committees related to agriculture, environment, and natural resource management.
- ✓ **Tailoring to Local Needs:** The local government must consider the specific conditions of the area, whether it's tribal or has unique environmental features like rivers. They should gather and share the concerns of local communities with the BMC for better planning.
- ✓ Elected Panchayat Raj Institutions (PRIs) members and Government functionaries need to work together for the conservation of the local ecosystem with the promotion of traditional knowledge in their concerned area.
- ✓ Local Government should ensure awareness among the community and various influential groups of the society for the conservation of the ecosystem and traditional knowledge.
- ✓ The Panchayat may develop standard procedures and protocols for rational utilization and conservation of the local knowledge.
- ✓ Good and sustainable practices in other areas must be followed and replicated by the Panchayat.
- ✓ Project development and proper planning for conservation and optimal utilization of environmental resources and traditional knowledge of the concerned area.

By actively supporting these initiatives, the local governance framework can empower traditional knowledge holders, involve the community, and ensure the conservation and sustainable use of biodiversity and traditional knowledge. This collective effort will bridge the gap between policies and practice, securing the protection and promotion of traditional knowledge for the benefit of current and future generations.

Challenges:

- ✓ Lack and unavailability of technical support organizations and experts who may support the local government to ensure the conservation of biodiversity and management of traditional knowledge at the local level.
- ✓ No separate fund is being given to the panchayat so that they can create a local biodiversity fund and dedicatedly spend it for the protection of local biodiversity and traditional knowledge.
- ✓ There is no follow-up from the district or block about the protection and promotion of traditional knowledge.

Suggestions:

- ✓ Local Government and all its functionaries (elected representatives and government functionaries) need to act proactively to address various issues of the local ecosystem and promotion of traditional knowledge as a sustainable practice.
- ✓ Environment, agriculture, and related issues of traditional knowledge need to be prioritized and included in Gram Panchayat Development Plan (GPDP) activities.
- ✓ Schools, NGOs, SHGs, other grassroots level organizations, Youth of the area, and other influential people like community leaders & religious leaders, political leaders, social workers, Anganwadi Workers, and ASHA workers also need to work together for the promotion and protection of traditional knowledge.
- ✓ Discussion on traditional knowledge can be initiated in the Gram Sabha meeting as it may create awareness among villagers.
- ✓ Capacity Building especially on the importance of traditional knowledge and biodiversity of local elected representatives and BMC members is very much required.
- ✓ Need to ensure participation from the youth community and they must understand the importance of TK and biodiversity.
- ✓ Promotion of traditional healthy food and local products may lead to the protection of biodiversity and TK as most of the traditional food practices and their materials are grown locally.

Conclusion:

Protection and promotion of traditional knowledge and biodiversity are essential for sustainable local development. Managing biodiversity and local knowledge is a complex task, but it becomes possible with the proactive role of local government and active participation from local and indigenous communities. The environment, natural resources, and knowledge systems of a local area are crucial assets that demand full attention from the local government as it holds the responsibility of ensuring the full potential of traditional knowledge systems and local biodiversity.

To achieve this, collective responsibility is required at the local level. Local and indigenous communities must actively participate in the decision-making processes, and the functionaries of Panchayati Raj Institutions (PRI) should work collaboratively, involving other stakeholders such as NGOs, Community-Based Organizations (CBOs), Youth clubs, Joint Forest Management Committees (JFMC), and Biodiversity Management Committees (BMC).

By fostering active collaboration and meaningful engagement among all stakeholders, local governance can effectively protect and promote traditional knowledge and biodiversity. The preservation of these valuable assets will contribute to

sustainable development, enriching local culture and ecosystems for the well-being of present and future generations. Emphasizing the vital role of local governance in this endeavor, we can pave the way for a harmonious coexistence with the environment and the preservation of our valuable cultural heritage.

Limitations and further study:

The study only focused on the positive aspects of traditional knowledge and the role of local governance but in some cases, there are negative aspects of traditional knowledge where a lot of superstitions still prevailed among communities. So, further study may be done more deeply on that.

Author Contributions

Mr. Santanu Bhowmick the 1st author and Dr. Inderjeet Singh Sodhi 2nd author of the paper, conceived and designed the methods, and wrote the paper.

Conflicts of Interest

The authors declare no conflict of interest.

References

1. Ancrenaz, M., Dabek, L., & O'Neil, S. (2011). Role for local communities in biodiversity conservation. *Ecotourism and Sustainable Tourism*, 73-82. <https://doi.org/10.1201/b12233-8>
2. Arjona-García, C., Blancas, J., Beltrán-Rodríguez, L., López Binnquist, C., Colín Bahena, H., Moreno-Calles, A. I., Sierra-Huelsz, J. A., & López-Medellín, X. (2021). How does urbanization affect perceptions and traditional knowledge of medicinal plants? *Journal of Ethnobiology and Ethnomedicine*, 17(1). <https://doi.org/10.1186/s13002-021-00473-w>
3. Berkes, F. (2007). undefined. *Proceedings of the National Academy of Sciences*, 104(39), 15188-15193. <https://doi.org/10.1073/pnas.0702098104>
4. Chakrabarty, S. P., & Kaur, R. (2021). A primer to traditional knowledge protection in India: The road ahead. *Liverpool Law Review*, 42(3), 401-427. <https://doi.org/10.1007/s10991-021-09281-4>
5. (n.d.). EAC-PM. <https://eacpm.gov.in/wp-content/uploads/2022/12/Documenting-Traditional-Knowledge-2.pdf>
6. <https://plus.google.com/+UNESCO>. (2022, January 6). Local and Indigenous knowledge systems (LINKS). UNESCO. <https://en.unesco.org/links>
7. An Indigenous perspective on the WIPO IGC. (2017). *Protecting Traditional Knowledge*, 219-229. <https://doi.org/10.4324/9781315666358-11>
8. Luz, A. C., & Ruiz-Mallén, I. (2020). Community-based management and research to forest conservation. *Encyclopedia of the UN Sustainable Development Goals*, 148-161. https://doi.org/10.1007/978-3-319-95981-8_133
9. Protection of traditional expressions and cultural knowledge in India. (n.d.). IP Helpdesk. https://intellectual-property-helpdesk.ec.europa.eu/news-events/news/protection-traditional-expressions-and-cultural-knowledge-india-2022-09-26_en
10. Ruiz-Mallén, I. (2016). Communicating biodiversity conservation research through dialogue and mutual learning in rural and Indigenous communities. *Biodiversity and Education for Sustainable Development*, 155-168. https://doi.org/10.1007/978-3-319-32318-3_10
11. Wang, D. (2017). Local governance and local knowledge. *Open Journal of Business and Management*, 05(03), 415-419. <https://doi.org/10.4236/ojbm.2017.53035>
12. Whyte, K. P. (2013). On the role of traditional ecological knowledge as a collaborative concept: A philosophical study. *Ecological Processes*, 2(1). <https://doi.org/10.1186/2192-1709-2-7>
13. Wu, T., Perrings, C., Kinzig, A., Collins, J. P., Minter, B. A., & Daszak, P. (2016). Economic growth, urbanization, globalization, and the risks of emerging infectious diseases in China: A review. *Ambio*, 46(1), 18-29. <https://doi.org/10.1007/s13280-016-0809-2>
14. Constitution of India. 73rd and 74th Constitutional Amendments Act (1992).
15. Biological Diversity Act (2002) and Rules 2004.
16. CBD (2021). Convention on Biological Diversity. Retrieved from <https://www.cbd.int/>
17. Convention on Biological Diversity (CBD). (n.d.). Retrieved from <https://www.cbd.int/>
18. Evans, M. (2004). *Environmental Governance*. Routledge.
19. McArdle, J. (2016). Local Environmental Governance. In J. D. Wright (Ed.), *International Encyclopedia of the Social & Behavioral Sciences (Second Edition)* (pp. 571-576). Elsevier.
20. Warren, A., Birks, T., & Bonnell, P. (1995). Local Government and the Management of Risk. *Local Government Studies*, 21(3), 351-367.