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**Kanha Shantivanam, a model for urban climate governance:  
Governance and Green city projects: the impact of policy on a green  
village; Kanha Village, Hyderabad, India**

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**Universiteit Leiden**

Bachelor Thesis

**Kanha Shantivanam, a model for urban climate governance**

Governance and Green city projects: the impact of policy on a green village; Kanha Village,  
Hyderabad, India

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## Introduction

The issue of climate change, and of climate adaptation and mitigation affects all sectors and all lives. With significant population movements from rural to urban areas, the issue of adapting our cities to ensure we live in a more sustainable manner is a topic of increasing concern and debate. Much of the literature agrees to consider cities to be an important playing field for the changes that are and will be necessary to respond to the threat of environmental degradation. This same literature looks at urban climate governance as a concept that needs defining and moulding to answer to the needs of our future (Hölscher, 2019; Castan-Broto, 2017; van der Heijden, 2019). In that sense, as will be discussed in the theoretical framework of this paper, different methods of urban climate governance have been observed and evaluated (Kern & Alber, 2009; Carmin *et al.*, 2012, Wolfram *et al.*, 2019). The latest research on the topic has been looking at: collaborative urban climate governance theory as a solution to the best way in which cities can include environmental concerns and solutions to their agenda. The aim of this paper is to test the importance of governmental policy in the success of green city projects, to do so, the theory highlighted will be used. Furthermore the case study of a green village, Kanha Shanti Vanam, in India has been chosen. This case is a right fit considering its beginnings as a private organisation's campus to becoming an actual state recognized village under the Indian and Telangana governments, hence a fair representation of what the relationship between government and local private projects could be. Further, this research comes to fill the gap left by the literature regarding developing countries' cities. Indeed, multiple articles regarding urban climate governance theories have looked at Western pioneer cities (Hofstad, 2021; Aall, Groven, and Linseth, 2007; Urwin & Jordan, 2008; Hölscher, 2019; Bulkeley & Betsill, 2005), but few have studied the developing countries. Moreover, using this case and the theory of collaborative urban climate governance, the question: "To what extent does government policy facilitate the realization of green town projects?" will be answered. This question is important to answer as the urgency of climate change requires to find solutions to adapt cities to its impacts, and the role of governance in this setting matters to find these solutions. Additionally, this question allows this research to fill some gaps in the literature that have been pointed out and are discussed in the main body of this paper. Content analysis has been used to research and answer this question. Interviews have been conducted and policy papers have been assembled, for the content analysis.

Expanding on the case; the village or Gram Panchayat (official term of a small village in India), Kanha Village started as a meditation centre. The lands were bought by the Heartfulness

Institute in 2015 to create new headquarters. The land was arid and the only agriculture around were cotton fields, the aquifers depleted and sandstorms a regular occurrence. Volunteers then started to build what would become Kanha Village. First just as an “ashram” (meditation centre), but as time passed the project grew into a city. In 2018, as the Telangana state government redefined the borders of villages, the Gram Panchayat of Kanha was created, legally recognising Kanha as a village (or Gram Panchayat) with a town council (led by a sarpanch) and collecting taxes. The village is now 1400 acres, hosting the world’s largest meditation centre (30 acres). For this project to actually work the arid land had to be transformed. To do so, tree plantation and transplantation, aquifer replenishing, organic agriculture, rainwater collection, wastewater filtering, sustainable waste management, investment in renewable energy sources was done.



Picture Kanha before and after (2015-2023) – heartfulness.org

The relationship between this pioneer village and both the state and national governments has been analysed and has shown that collaborative urban climate governance theory is applicable and useful to the understanding of the success of the case. However, it has also shown that the success of the case did not depend on governance or on environmental policy. Both have had positive impact, governance more than actual policy, in speeding up the project, but have not facilitated its realisation. It is also noted that the case is a pilot model and that it has made use of bricolage governance to succeed.

This research is presented first by establishing the background on the literature regarding urban climate governance and green cities and using the theory of collaborative urban climate governance to define hypotheses. Additionally, the research design and methodologies used to

make the analysis are presented. After, the results are described. Finally, this paper is concluded with a part of discussion in which ideas for further research are discussed.

## Theoretical Framework

### Collaborative Urban Climate Governance

Collaborative urban climate governance theory comes from the concept of collaborative governance, applied to urban areas and more specifically to the environmental agenda. This theory comes as an answer to previous literature that has pointed out the need for increased partnerships and inclusion of different stakeholders in urban climate governance (Boyd & Juhola, 2014; Ansell & Gash, 2018).

Collaborative governance is a well explored subject by scholars and is increasingly viewed as an important way of governance in order to achieve the goals of today, such as the UN's Agenda as quoted by Ansell and Gash (2018). The theory of collaborative governance has been defined as “the processes and structures of public policy decision making and management that engage people constructively across the boundaries of public agencies, levels of government, and/or the public, private, and civic spheres.” (Emerson, Nabatchi, and Balogh, 2012, p.2).

This theory has been applied to urban climate governance by Hofstad et al. (2021) building on the work of Ansell & Gash (2018). In combination with collaborative governance, Hofstad et al. (2021), have used “three ideal co-creation strategies” (p.2) to establish the theory of collaborative urban climate governance. With this theory, their aim is to address the relationship between not only governor and governed, but all the relevant actors for addressing the complex issue of climate change.

The second half of the theory: co-creation, is an emergent concept that refers to the collaboration of a set of public and/or private actors, this concept points out the need for “*multiple* types of actors’ knowledge, resources and competences” (p. 2) to bring in citizen participation to urban governance. It is therefore a concept that goes beyond citizen participation and co-production between citizens and government, to a process of co-creation between multiple actors. It is “processes in which public and/or private actors attempt to solve a shared public problem or task by exchanging different kinds of resources serving to co-

initiate, co-design and/or co-implement visions, strategies, policies, regulatory frameworks or technological solutions.” (p.2). The three ideal strategies described are: “internal whole of government strategy”, “externally focused stakeholder strategy”, and “externally focused civil society strategy” (pp. 3-4). The first refers to co-creation between public actors or agencies to determine new climate goals and norms. The second demonstrates the co-creation between public actors and private stakeholder organisations to come up with climate change solutions in large sectors. The final one refers to the co-creation that can happen between public actors, local citizens, and civil society organizations for new solutions of urban living. According to the authors the combination of the strategies differs in cities and contexts.

Through the combination of both these concepts, emerged the concept of collaborative urban climate governance. The successful implementation of this theory in cities is possible through the support of two other factors: institutional design and new forms of public leadership (Vedeld et al., 2021). Institutional design and public leadership bring the necessary rules and basic framework for the co-creation strategies to have direction and function together (Brandsen et al., 2018; Sorensen & Bryson, 2021; Torfing 2016; Hofstad et al., 2021).

Overall, through the combination of all these concepts and factors to create their analytical framework, Hofstad et al. (2020) describe collaborative urban climate governance as a theory that emphasizes the importance of collaborating and co-creating, this must be done between different stakeholders, such as citizens, businesses, and government agencies, in order to address climate change in urban areas. They also suggest that effective climate governance requires a shift away from the traditional top-down approaches towards those more collaborative and participatory models in which new stakeholders are included in the decision-making process.

Other authors have criticized the concept of collaborative governance, for example, Cheung and Fuller (2022) argue that although collaboration is “positioned as a mechanism to respond to the needs of different stakeholders by drawing them together, this assumption does not address the rigid power dynamics at play” (p. 415). They also argue that all forms of collaborative governance do not always lead to outcomes that are favourable to climate change.

In their case study of Hong Kong, they argue that even if collaboration is encouraged through everyday forms of participation, all outcomes depend ultimately on the government policies in place. Although these arguments should be considered, the final concept by Hofstad et al. (2020) takes into account the hierarchies of power in place in the three ideal types of co-creation and emphasizes the need for leadership and institutions to combine these ideals when necessary. For the argument regarding the outcomes, it can be argued that these results pertain to the case of Hong Kong, with its complicated governance, and are not applicable outside of it.

### Other Theories

Other theories regarding climate governance have been observed at the urban level. For example, Kern and Alber (2009) have explored statutory power, the importance of institutions or even city-networks as paths through which climate governance could be improved. Statutory power of cities, according to them, is not used to its full potential and should be used further in order to counter climate change. They argue that cities should use more hard regulations and strategic planning. This argument goes against much more current literature that argues for more collaboration and inclusion of stakeholders in the planning of climate change mitigation.

The most common concept that is discussed in literature regarding urban climate governance though, is institutionalism. This school of thought in which institutions shape most things and in this case shape the governance of urban areas is found in a lot of the literature (Kern & Alber, 2009; Castan-Broto, 2017; Anguelovski & Carmin, 2011; Puppim de Oliveira *et al.*, 2013). Indeed, institutions and their necessary shift according to many authors is required for urban governance to respond to the needs of climate change mitigation and adaptation. Kern and Alber (2009), argue that for effective climate change policy, institutions such as steering groups, coordination offices or an overarching climate unit, combined with issue-specific task forces are needed. This argument is taken into account in this paper, but it is considered that the theory of collaborative urban climate governance, by specifying the need for institutions in order for collaboration to happen goes further than only institutionalism can.

On the other hand, some authors, such as Amundsen, Berglund, and Westkog (2010), argue that institutions have weakened due to the delegation of tasks from the national level to

municipalities. They claim that a clear **national** framework is necessary and should give municipalities clearly defined tasks, allowing for more knowledge and expertise to develop in cities. This train of thought is also discussed by Urwin and Jordan (2008). Accordingly, the authors define their ideas as multilevel governance frameworks, in which the levels are the national government and the municipalities, and the hierarchy is very strong, the government sets the agenda, and the municipalities follow it. Similarly, Lankao (2007) argues that decentralization and downsizing of the state has constrained the institutional capacity of the state. This train of thought, although interesting to take into account and the strong hierarchies it refers to should not be ignored, does not seem appropriate to this paper. In fact, this theory seems to overlook the importance of other stakeholders, especially at the city level, and argues for a solely top-down approach which is now criticised by many authors. Although these papers are not incredibly old, literature of the current decade has moved away from this argumentation of top-down, national, and public approaches (Hofstad, 2021; Sorensen & Bryson, 2021).

Another school of thought regarding institutions and urban climate governance is described by Carmin, Anguelovski, and Roberts (2012). In their research, they analyse interviews conducted in Durban and Quito in which institutions were not present and where ‘bricolage’ happened. “*Bricolage* refers to the creation of something new by piecing or stitching together existing materials” (p. 29), Carmin et al. observed the success of this approach, where no regulations, agendas or practices influenced the actions taken, only internal goals and aims. This gave way to the idea that a new policy domain motivated by goals and ambitions rather than institutions and regulations could emerge from the global south. This very niche theory is also applied to this paper, and the emerging policy domain can be found in Kanha Shanti Vanam. It can also be argued that collaborative urban climate governance, also includes this idea, as a component of it, in the private stakeholders’ involvement and local initiatives.

Finally, another concept has been outlined by Sippel and Jenssen (2009), which is the idea of ‘pilot projects’ and their usefulness in demonstrating urban potential. The author(s) argue that through such projects it is indeed possible to make the transition to sustainable living. They make two points, on the one hand that these projects develop the technical and societal solutions for sustainable futures and “prepare the ground for widespread application” (p.52) and on the other, that they nurture the discussions around climate policy by showing that changes are

possible. In this paper, we will extrapolate this concept, to not only small scale projects within a big city, but to city-projects themselves such as the case selected.

## Hypothesis

Looking at these theories, the most applicable and that has been used in this paper is the collaborative urban governance theory adapted to climate change. Indeed, the case of Kanha starting as a private organisation that then became a public institution, allows to compare two types of ideal co-creation types, and to test whether collaboration indeed is an enabler for successful green towns and initiatives. This theory will be combined with the findings by Carmin, Anguelovski, and Roberts (2012) of bricolage. Using this theory, the following hypotheses have been formulated:

H<sub>0</sub>: Through collaborative urban climate governance strategies, government environmental policies have facilitated the realisation of Kanha Shantivanam.

H<sub>1</sub>: Government environmental policies have not facilitated the realisation of Kanha Shantivanam.

## Research design and Methodologies

### Conceptualisation and Operationalisation

There are two main concepts that are integral to this research, the concept of green city and the concept of environmental government policy. The latter is relatively straightforward, the policies looked at in this research are the ones that pertain to environmental issues, especially in urban areas. The policies that are analysed are those of the national government of India as well as the policies of the state of Telangana in which Kanha Village is located. Both are important in this case, due to the federal nature of India, hence the importance of the Telangana government. The policies from both levels are taken as representative of one entity, due to the similarities between them. However, these policies, in the context of this paper, are also associated with the concept of urban climate governance which “refers to the ways in which public, private, and civil society actors and institutions articulate climate goals, exercise influence and authority, and manage urban planning and implementation processes” (Anguelovski, & Carmin, 2011, p.169). This concept allows the environmental policies to be

contextualised in the situation of urban areas and of the different actors that can participate in their creation, utilisation, and implementation.

On the other hand, the concept of green city is more debated (Andersson, 2016), yet the definition that will be used in this case is “a city that is “in balance with nature,” where all forms of nature—from living organisms to their habitats—are highly significant components of the urban form and part of green infrastructure, in a Green City, all forms of nature are respected, maintained, and extended for the benefit of city residents.” (Breuste, 2019, p.1). Furthermore, in this paper the terms eco-town, eco-city, and sustainable town will be used interchangeably with green city or green town/village.

In order to identify whether Kanha fits the description of a green town, a coding frame has been created. The indicators of this frame identify different types of initiatives and projects that are integral to a green city and its success. Most of these indicators can be found in HIS-Green City Conceptual Framework by Brilhante and Klaas (2018). Indeed, they identify: green buildings, environmental quality/water security, greening, urban agriculture, green farms, and others as indicators of a successful green city. These indicators have been translated into the matrix used in this paper as “urban greening”, “waste management”, “water management”, and “energy transition”.

For the policies, the measurement used for analysis is their presence at the state and national levels. Therefore, the same coding frame is used, differently, in order to identify which policies relate to the environment and are relevant to this research. Using the same categories allows the comparison between Kanha and the policies to be possible.

### Case selection

The single case selected is one that can be considered as a test-deviant case, considering its uniqueness as a less than a decade old almost completely sustainable city. Also, looking at its story, as a private organisation project that has grown into a full-fledged town is an interesting

echo to the theory of collaboration between governance and local projects. It is useful to both academia and practitioners of green cities. Indeed, this case can be used as a test to the current literature regarding green towns and governance. Further it is useful for practitioners to look at this case in order to make it a model for future city projects and sustainable urbanisation. It is relevant since it has achieved more ambitious sustainable projects than most green cities, therefore is an appropriate case to make the assumption of whether the government policies can facilitate green cities or not, considering the speed at which this city has developed compared to other cities. Furthermore, a lot of literature (Hölscher *et al.*, 2019; Busch, 2016; Sorensen *et al.*, 2021) observing green towns has focused on cases of the global North, especially literature regarding collaborative urban governance. It has been suggested by many authors studying urban climate governance that gaps regarding this topic are present in the literature, Caston-Broto and Westman (2020) recommend for research to “examine the interactions between multiple policies not only within a municipal plan but also in relation to various actors in the city” (p.11), through the private actor that started the project, this case allows us to look into this gap. van der Heijden (2019) makes a similar observation, that there is a gap between the policy rhetoric and action on the ground and that research should look at understudied areas of urban climate governance, with a case from outside of the developed countries this case fits the understudied criterion and will try to fill the gap mentioned. Hofstad et al. (2021) outline another gap, that the theory of collaborative urban climate governance lacks “robust evidence” (p.2) of its co-creation processes. Overall, their theory indeed has not been researched or applied much yet, as a type of collaborative governance, it is an interesting expansion, and this paper tests the applicability of it. Further, Hofstad et al. (2020) use their framework to explore two cases, Oslo and Copenhagen, but both these cases are from Europe. The case of India explored in this paper allows us to test the efficiency of this framework outside the Western world. Finally, Kanha Shantivanam is considered in this paper as a pilot project of a city and therefore, drawing from the work of Sippel and Jenssen (2009) this paper researches the impact of such a project on other municipalities at the national and international level.

## Methodology

To conduct this research, the materials that are used are interview responses and the environmental policies of the state of Telangana compiled with the policies of the Indian National Government. Interviews have been chosen considering that no literature can yet be found on Kanha Village, therefore this is the best means to get proper information on this case.

To expand on the factual knowledge of the village, certain newspaper articles and town official documentation have been cited, as well as a non-official report made by the author and colleagues of the youth association "Le Tournesol Bleu " about a three-week volunteering expedition to Kanha. Content analysis of both interviews and policies has been done with a matrix and colour coding of the texts and transcripts. Further, coding matrix categories and keywords were established according to the indicators mentioned in the theoretical framework of this paper, and the recording unit is sentences. This matrix is focused on determining whether government environmental policy was useful to the success of the different sustainable town projects and still is. This was done through the analysis of interviews of participants of Kanha Village that have the expertise to answer these questions and have been a part of the project from its start or a few years after. This analysis has also been useful to notice whether collaboration has happened between private or public actors and which ones. On the other hand, the matrix has also been used to code policies to establish what frameworks are available for green town/city/village projects and establish whether government policy is present and (un)used, or if it does not exist yet. The matrix also allowed comparison of the sustainable projects in place in Kanha Shanti Vanam with the government policies present and determining their impact on those projects. The matrix can be found in the annex (see Annex A, Table 1).

### Data collection

For the research itself, the interviews were conducted online and were recorded with permission from the respondents, they were then transcribed through a software (Trint) or directly by the platforms used for the interviews (MS Teams or Zoom) and further reviewed by the researcher. The interviews were planned beforehand, the questions are the same across interviews, the only difference being the added questions or reformulated depending on how the conversation during the interview flowed and the level of English of the interviewee. Therefore, the interviews were semi-formal. One of the interviews was with a town official from the Gram Panchayat (same as an official village council/municipality) who has knowledge of the relationship with the state and the nation more broadly, as well as basic facts about the town itself. Additionally, a participant in charge of the sustainable water management sector and projects in Kanha was interviewed, as he oversees the actual green projects and is the most likely to know how government policy has been applied, as well as the success rate of these projects and whether government policy could have helped. The third participant was a representative of the private actor that started and set most of the goals and ambitions of Kanha village, Heartfulness

Institute. All the interviewees are participants and citizens of Kanha Village. The interviewees were selected beforehand by the researcher after establishing contact with relations and asking about the most relevant people to interview for this research, a question was also added to some interviews asking whether the interviewee had recommendations on who to interview, the selection was therefore made through snowballing. Also, the interviewees all represent a different aspect of the city that is important to the collaborative co-creation strategies (i.e. the new public actor, the private initiating actor, and the initiatives themselves).

Additionally, policies analysed were found through to the governments' websites and with the use of the artificial intelligence ChatGPT to get a list of the policies available in order to download and code them. The compilation of both policies of the state of Telangana and national policies is important considering India is a federal state. The policies selected are the ones that referred to both environmental actions in general and specific ones related to urban sustainable development.

## Results and Analysis

### Results

As mentioned above, three interviews were completed. One interview of the Sarpanch of Kanha Shanti Vanam (mayor), Saritha Challagula, one of the representatives of the Heartfulness Institute (the organisation that started the project), and one project manager of the water management in Kanha Village. All three participants are also citizens of the city. Based on these interviews, three assertions can be inferred: firstly, Kanha Shantivanam is indeed a sustainable green town, secondly, the government's help or support presence in this project is not straightforward; and thirdly, the recognition of Kanha as a legitimate village has had a noticeable influence.

### Kanha: An environmentally sustainable town

Kanha village indeed is a sustainable village, all three interviewees after being questioned on whether they considered kanha to be sustainable answered affirmatively. Vamsi Challagula (secretary of Heartfulness Institute) compared Kanha to the SDGs of the UN and concluded that Kanha had had an impact on surrounding villages as well therefore "if I take the whole

20km radius then we have that impact. [...] in that sense we have followed all the SDGs". Furthermore, the interviewees detailed the multiple sustainable initiatives that make Kanha sustainable. Such as the "solar energy is used heavily in Kanha, and the waste management is done for both solid waste management and liquid waste management" said Saritha Challagula. More detailed on the water management, Sathyan Ana said "[comparing to before they did water projects] now still water is there, we are in the end of summer, we have just one more month, still our ponds have water in them" and "now we are able to get water from open wells because water level is so high [groundwater]". These quotes, alongside others, were coded (see Annex B) and are clear indicators that the green town term can be used to define the Kanha village.

### Government support and assistance

The impact of the support and presence of both the Telangana government and the national government in this project is unclear from the interviews. On the one hand, both Sathyan Ana and Vamsi Challagula both affirmed that the governments had little impact on the success of the initiatives "I would say the only way they supported is they didn't bother us." and "subsidies wouldn't have affected us much [if they had been present]". They also highlighted that their status as a private organisation meant that they were unable to receive government help, stating: "we being an organisation, we cannot claim too many subsidies, given the land chunk is owned by an organisation.". However, the mayor, did not agree with the two, by stating that "since a few years the Telangana Government and the central government they have been encouraging for each village or each gram panchayat to raise their own nurseries" and "Kanha Gram Panchayat receives funding from the central government also every year, and some of those funds are used for if not all of the initiatives"(see Annex B, coded text). This brings us to the third point that came out of the interviews.

### Influence of recognition as a legitimate village

From the consensus that government involvement has had limited impact, it can be inferred that the changing of status from a private organisation to a local administrative body (from only private headquarters to actual Gram Panchayat) led to increased financial government support. This assumption is substantiated by the answer of the mayor regarding whether being Gram

Panchayat allowed them access to government greening initiatives, to which she answered “yeah, becoming a Gram Panchayat has given us access to these initiatives, and that also added to already what was going on in this area”(see Annex B, coded text). Therefore, although the direct interview responses did not come up with a clear view on the actual government involvement, it is assumed that the involvement evolved over time, with the creation of the local government body of Gram Panchayat.

Additionally, from the other type of content that has been explored, it was observed that government environmental policies are present in India and in Telangana. Indeed, different missions and agendas have been coded and analysed, such as the “National Mission for Sustainable Agriculture” or the “National Action Plan on Climate Change” and at the state level, the “Telangana State Biodiversity Strategy and Action Plan” of 2019 to 2024 or the “Telangana State Environmental Policy” of 2016. In those policy papers, different means of conservation of biodiversity are outlined, also the procedures to researching, using, and cultivating endemic species, as well as the patent information and permissions. Some budget allocations are also defined for projects at the national, state, and local levels. From these observations it could be assumed that government environmental policies are very present and useful, as they are structured and have clear and realistic implementation plans, yet from the results of the interviews, this relationship is not as obvious. This will be discussed in the section below that goes further into the analysis of all these results in the context of the current literature surrounding urban climate governance.

### [Analysis](#)

According to these results, the following analysis has been conducted through the application of the ideal co-creation strategies, as well as the approach of collaborative governance that composes the theory of collaborative urban climate governance, and keeping in mind the necessary support from institutions and public leadership. Through this lens we visualise Kanha Shantivanam, before 2018, as a privately owned land and conducted initiative by the Heartfulness Institute, after 2018, Kanha Village was formed as a Gram Panchayat, becoming a public administration. On the other hand, are the Telangana and national governments, which are obviously public administrations. Therefore, we can identify two types of ideal co-creation in this scenario: private actor collaboration with public actors and public actor collaborating

with another public actor, before and after 2018. These two types are otherwise called *external focused stakeholder strategy* and a *whole of government strategy*. The combination of these two strategies is also the one that has been observed by Hofstad et al. (2021) in Oslo and Copenhagen. The concept of pilot model (Sippel& Jenssen, 2009) and the approach of *bricolage* governance (Carmin, Anguelovski, and Roberts, 2012) are also applied to this analysis.

The interesting result to notice is that according to the interviewees' overall responses, before Kanha became a Gram Panchayat, there was no collaboration, therefore, external focused stakeholder strategy did not take place. Only after did co-creation happen in two ways, through the financial help of both national and state governments to the newly established village and between the newly established Gram Panchayat and the private organisation that started the project. Beforehand, there was little to no recognition of the initiative, this can be noticed also in the news articles regarding the town; government officials have started visiting and inaugurating different buildings in Kanha Shantivanam after 2018 (Indian Express, 2020; United News of India, 2023; IBG News, 2023). Although, the foundation of the Gram Panchayat itself is a form of recognition, as it was a decision taken together with the government officials of the state when 'mandals' (local government area) were redefined (interview Vamsi Challagula).

The co-creation processes between the private organisation and the national and state governments before the creation of the Gram Panchayat were close to non-existent and therefore not the focus of this analysis.

Rather, the co-creation strategy between the newly formed Gram Panchayat and the private organisation, is quite interesting to look at. The impact that the creation of this new institution has had is on the one hand financial, from the public administration to the organisation, helping it finance sustainable projects as said by the sarpanch in her interview. While on the other side of the collaboration is the organisation that brings its goals and ambitions, and its ability for *bricolage* that it has developed before the creation of a public institution to support it. In that sense the collaborative urban climate governance is extremely successful, both the

administration and the organisation gain from it and the outcomes are positive for climate change mitigation and adaptation.

The other co-creation strategy that can be identified after the creation of the Gram Panchayat is the now direct relationship between the village and the state and national governments as an administration under them. Yet, this co-creation process is not as successful. It is true that the funds that are then allocated by the local body to green initiatives are government funds, but in the end, the new body has rather allowed for a way to go over the difficulties of the national or state government administrations rather than gained from them. Furthermore, although policies are present both at the national and state level to promote and implement sustainable initiatives, the translation of these missions and policies to the actual projects is not visible. Maybe another bridge is required, between the governments and the local administrations. However, the institutions or boards that have been created for this purpose already do not seem to function. For example, as part of the Mission on Agroforestry, an Inter-Ministerial Committee was formed to implement the mission, yet the only support received for the projects of afforestation and endemic tree conservation projects in Kanha was individual tips and knowledge sharing by some forest officers according to the respondent.

Furthermore, as observed in the policy material, the policies for environmental conservation and sustainable innovation are present both at the national and state levels. Yet, according to the interviews, the promotion of environmental projects has not reached the ears of the project makers. Few policies were known to the practitioners, most help that they received from some of these policies were subsidies and were considered to have had minimal impact by the interviewees. Only did the sarpanch acknowledge that policies were there but did not expand on how these could help other than financially either. The promotion of environmental initiatives and the implementation of the policies therefore is lacking.

Moreover, the administrative struggles remain after recognition of the project and the creation of the Gram Panchayat, M. Challagula said “after looking at what all we are doing here, the government should help us clearing all our permission to build, you know, apartments, houses... It’s still slow, very slow. Again, the red tape right?” illustrating the difficulty of the

collaboration and communication with state government. A similar idea was hinted at by Gerbhardt (2019) when she quoted the deputy mayor of London who talked about “the institutional blockage that participation of citizens is constantly facing” (p.78).

When questioned about the impact that environmental policies and governmental involvement has had or could have had if more present on the goals and ambitions of Kanha, the respondents identified them to be minimal. Furthermore, the only actual impact that they identified from these policies would have been an increase in the speed at which the initiatives could have been realised. This speed would have changed due to more available funding. This shows how little the policies actually are seen as impactful by the respondents.

Therefore, the success of green town projects does not *depend* on government environmental policies in this case. Drawing from the theory of bricolage governance, the success of Kanha did not depend on the institutions that were created, and most importantly the government environmental policies present did not facilitate its realization. Indeed, the interview responses are clear, Kanha would have had the same success, goals, and ambitions, whether or not the Gram Panchayat administration had been created and whether or not subsidies would have been received. Collaborative governance helped speed up the efforts towards attaining these goals, for sure, and that impact is non-negligible; but answering the question of this paper, it did not facilitate the realisation of this green city project, only increased its rate.

Finally, using the idea of pilot models to describe Kanha village, the ideas given by Sippel and Jenssen (2009) on the effects of such models are proven by the case. Indeed, respondents described how the state and national governments used the success of Kanha to claim the successful climate action made by India and Telangana. Moreover, the success story of Kanha made the government officials request Kanha volunteers and creators for their help in creating similar projects all over the country. This can be seen with the project ‘Forests by Kanha’ presented at the COP27 in Egypt, through which they aim to be a model worldwide by planting trees across India, and that is a part of the 4p1000 initiative created at COP21 (2015) (APN News, 2022).

## Discussion

This paper has added to the current literature regarding urban climate governance and its presence and applicability to the developing countries. Indeed, it is an important subject, and it is interesting to note that the theories solely applied to pioneering and/or western cities were more difficult to apply to this case study than the ones found in literature about the global south. This paper also helped fill the gap that was identified by previous authors on the applicability of the newly developed theory of collaborative urban climate governance. Finally, this research has shown the importance of pilot model initiatives to adapt and mitigate climate change in cities and to start collaborations with or even get governments to start initiatives themselves.

Collaborative urban climate governance theory is therefore useful in order to understand the way in which the institution of Gram Panchayat has created a bridge between public administrations and the initiatives by the private actor the Heartfulness Institute. It also highlights the lack of co-creation that was present before the inauguration of Kanha as a Gram Panchayat, and this proves the institutional design and public leadership factors that are said to be required for collaboration to be successful. Finally it also allows visualising how the bridging institutions between the Gram Panchayat and the state and/or national governments are failing at their job of encouraging co-creation between them. An interesting finding as well is the applicability of two other concepts of urban climate governance, the idea of *bricolage* governance, in which the institutions are not necessary to the success of the project, which can be seen since the project's ambitions and implementation were not dependent on the creation of the Gram Panchayat. Further, the concept of pilot model cities, the national and state governments' request for Kanha volunteers to help create similar projects and the ambition of Kanha officials to spread their methods worldwide support the idea of pilot models allowing the realisation of environmentally friendly cities.

## Conclusion

From this research, three final concluding remarks can be formulated. First, the need for more local private initiatives with local knowledge, techniques, and specific and ambitious climate goals should be created worldwide. Their success stories and their recognition by governments

and academics helps the spread of climate action and projects. Secondly, the need for urban governance to adapt to these new initiatives and have institutions and tools ready to help, support and promote these projects. These collaborations are important due to the urgency of climate change action, as they will increase the speed at which private initiatives are able to grow. Finally, literature about urban governance and its adaptation to climate change must shift away from the pioneering cities of the developed countries, to the smaller, local, bricolage-d initiatives that are models for the rest of the world. These initiatives are more pioneers than the so-called pioneering big cities and bring stronger, more effective change. It is a must for academics to switch their focus to them, in order to give even more accurate policy advising.

However, it must be considered that this research has a few limitations. They are as follows, first, there is little information and no literature on the case of Kanha Village yet. This is the reason why the material used to conduct the research here is interviews, and a few news articles, but it must be noted that due to the difficulty in contacting and getting interview responses, only three interviews could be conducted in the end. Furthermore, the website of the Telangana government is not functioning now and has not functioned throughout the duration of the research, this means that less policy papers of the state government were found than expected, yet there were still some available and it was assumed that most national missions that were applied in the state had similar strategies than recommended by the national government. Finally, as with any single case study, it must be considered that one single case might not be applicable everywhere depending on the different factors pertaining to the case. Yet, this case is here to add on to the global south cases and shows similarities with previous research on cases from other developing countries such as Durban, South Africa and Quito, Ecuador.

Finally, this research has spurred new questions and ideas which should be researched by future studies. First, the movement of increasing literature on the cities of the developing world should not be stopped, more research regarding urban climate governance in these cities is required. Especially considering the findings of this research that open the door to questioning the ideas of governance proposed by pioneering western cities. Furthermore, the gap that has started to be filled by this research regarding the emerging theory of collaborative urban climate governance also should be researched further. This theory assembles multiple strands of research, from collaborative governance, to institutionalism, but also combining top-down and

bottom-up approaches together and should not be dismissed or confirmed easily considering its complexity. Finally, the idea of pilot models does not appear often in literature about urban climate governance and this topic should be developed further.

To expand upon the debate, here are some questions and thoughts that arise while analysing the results of this research. The assumption by the respondents that if government policies were more accessible or known they could help in terms of speed of the initiatives, makes the researcher wonder if collaborative governance is the only factor. If collaboration, even if present now, only helps in terms of speed, but that the projects would in any way take place and succeed, is collaborative governance really an answer to climate mitigation and adaptation in cities? According to these results, the only point of governance is monetary incentives that could speed up realisation. Does collaboration really matter in the end, or should private initiatives just continue and their fruits be utilised afterwards by the governments as models to implement elsewhere? Is the role of government in this case then just to give a wider scope to local projects?

A final question to end this paper and hopefully spark new strands of research, is regarding the order of success. Rather than the government policies facilitating this project, as was noted above this is not exactly what happened. Could it be that the relationship has been flipped; and the project of Kanha actually facilitated increased green project initiatives from the government? This could be explained through the concept of pilot models as previously stated, and this is another reason why this concept should be researched further.

## References

- Aall, C., Groven, K., & Lindseth, G. (2007). The Scope of Action for Local Climate Policy: The Case of Norway. *Global Environmental Politics*, 7(2), 83–101.  
<https://doi.org/10.1162/glep.2007.7.2.83>
- Amundsen, H., Berglund, F., & Westskog, H. (2010). Overcoming Barriers to Climate Change Adaptation—A Question of Multilevel Governance? *Environment and Planning C: Government and Policy*, 28(2), 276–289. <https://doi.org/10.1068/c0941>
- Andersson, I. (2016). “Green cities” going greener? Local environmental policy-making and place branding in the “Greenest City in Europe.” *European Planning Studies*, 24(6), 1197–1215. <https://doi.org/10.1080/09654313.2016.1152233>
- Anguelovski, I., & Carmin, J. (2011). Something borrowed, everything new: innovation and institutionalization in urban climate governance. *Current Opinion in Environmental Sustainability*, 3(3), 169–175. <https://doi.org/10.1016/j.cosust.2010.12.017>
- Anon. (2019). *Green Kanha Initiative*. <https://cdn-prod.heartfulness.org/hfn/files/2019/Green-Kanha-Initiative-2019.pdf>
- Anon. *Heartfulness Institute Makes a Prominent Representation At COP27 Conference In Egypt*. (2022, November 14). APN News. <https://www.apnnews.com/heartfulness-institute-makes-a-prominent-representation-at-cop27-conference-in-egypt/>
- Ansell, C., & Gash, A. (2017). Collaborative Platforms as a Governance Strategy. *Journal of Public Administration Research and Theory*, 28(1), 16–32.  
<https://doi.org/10.1093/jopart/mux030>
- Boyd, E., & Juhola, S. (2014). Adaptive climate change governance for urban resilience. *Urban Studies*, 52(7), 1234–1264. <https://doi.org/10.1177/0042098014527483>
- Brilhante, O., & Klaas, J. (2018). Green City Concept and a Method to Measure Green City Performance over Time Applied to Fifty Cities Globally: Influence of GDP,

- Population Size and Energy Efficiency. *Sustainability*, 10(6), 2031.  
<https://doi.org/10.3390/su10062031>
- Bulkeley, H., & Betsill, M. (2005). Rethinking Sustainable Cities: Multilevel Governance and the “Urban” Politics of Climate Change. *Environmental Politics*, 14(1), 42–63.  
<https://doi.org/10.1080/0964401042000310178>
- Busch, H. (2016). *Entangled Cities: Transnational Municipal Climate Networks and Urban Governance*.
- Carmin, J., Anguelovski, I., & Roberts, D. (2012). Urban Climate Adaptation in the Global South. *Journal of Planning Education and Research*, 32(1), 18–32.  
<https://doi.org/10.1177/0739456x11430951>
- Castán Broto, V. (2017). Urban Governance and the Politics of Climate change. *World Development*, 93, 1–15. <https://doi.org/10.1016/j.worlddev.2016.12.031>
- Castán Broto, V., & Westman, L. K. (2020). Ten years after Copenhagen: Reimagining climate change governance in urban areas. *WIREs Climate Change*, 11(4).  
<https://doi.org/10.1002/wcc.643>
- Cheung, T. T. T., & Fuller, S. (2022). Rethinking the potential of collaboration for urban climate governance: The case of Hong Kong. *Area*, 54(3), 408–417.  
<https://doi.org/10.1111/area.12781>
- Department of Agriculture, Cooperation, and Farmer Welfare, Ministry of Agriculture and Farmers Welfare, & Government of India. (2016). *Sub-Mission on Agroforestry*.
- Department of Agriculture and Cooperation, Ministry of Agriculture, & Government of India. (2014). *National Mission for Sustainable Agriculture*.
- Emerson, K., Nabatchi, T., & Balogh, S. (2011). An Integrative Framework for Collaborative Governance. *Journal of Public Administration Research and Theory*, 22(1), 1–29.  
<https://doi.org/10.1093/jopart/mur011>

Gebhardt, C. (2020). The Impact of Participatory Governance on Regional Development Pathways: Citizen-driven Smart, Green and Inclusive Urbanism in the Brainport Metropolitan Region. *Triple Helix Journal*, 6(1), 69–110.

<https://doi.org/10.1163/21971927-00601003>

Government of Telangana. (2015). *State Action Plan on Climate Change for Telangana State*.

Hofstad, H., Millstein, M., Tønnesen, A., Vedeld, T., & Hansen, K. B. (2021). The role of goal-setting in urban climate governance. *Earth System Governance*, 7, 100088.

<https://doi.org/10.1016/j.esg.2020.100088>

Hofstad, H., Sørensen, E., Torfing, J., & Vedeld, T. (2022). Designing and leading collaborative urban climate governance: Comparative experiences of co-creation from Copenhagen and Oslo. *Environmental Policy and Governance*, 32(3), 203–216.

<https://doi.org/10.1002/eet.1984>

Hölscher, K. (2019). *Transforming urban climate governance: Capacities for transformative climate governance*.

Hölscher, K., Frantzeskaki, N., McPhearson, T., & Loorbach, D. (2019). Tales of transforming cities: Transformative climate governance capacities in New York City, U.S. and Rotterdam, Netherlands. *Journal of Environmental Management*, 231, 843–857. <https://doi.org/10.1016/j.jenvman.2018.10.043>

Jürgen Breuste, Artmann, M., Cristian Ioja, & Qureshi, S. (2023). *Making Green Cities*. Springer Nature.

Kern, K., & Alber, G. (2009). Governing Climate Change in Cities: Modes of urban climate governance in multi-level systems. In *The international conference on Competitive Cities and Climate Change*. OECD.

- Kumar, S. S. (2022, August 19). *Kanha Shanti Vanam rain forest, a slice of the Western Ghats in Telangana*. Telangana Today. <https://telanganatoday.com/kanha-shanti-vanam-rain-forest-a-slice-of-the-western-ghats-in-telangana>
- Munshi, S. (2023, February 27). *Inauguration of Heartfulness International Sports Centre: the world's largest meditation centre*. IBG News. <https://ibgnews.com/2023/02/27/inauguration-of-heartfulness-international-sports-centre-the-worlds-largest-meditation-centre/>
- National Biodiversity Authority. (2002). *National Biodiversity Act and Biological Diversity Rules*.
- Puppim de Oliveira, J. A., Doll, C. N. H., Balaban, O., Jiang, P., Dreyfus, M., Suwa, A., Moreno-Peñaranda, R., & Dirgahayani, P. (2013). Green economy and governance in cities: assessing good governance in key urban economic processes. *Journal of Cleaner Production*, 58, 138–152. <https://doi.org/10.1016/j.jclepro.2013.07.043>
- Romero Lankao, P. (2007). How do Local Governments in Mexico City Manage Global Warming? *Local Environment*, 12(5), 519–535. <https://doi.org/10.1080/13549830701656887>
- Sippel, M., & Jenssen, T. (2009). What About Local Climate Governance? A Review of Promise and Problems. *SSRN Electronic Journal*, 1(1). <https://doi.org/10.2139/ssrn.1514334>
- Sørensen, E., Bryson, J., & Crosby, B. (2021). How public leaders can promote public value through co-creation. *Policy & Politics*, 49(2), 267–286. <https://doi.org/10.1332/030557321x16119271739728>
- Taco Brandsen, Trui Steen, & Bram Verschuere. (2018). *Co-production and co-creation : engaging citizens in public services*. Routledge.

Torring, J. (2016). *Collaborative Innovation in the Public Sector*. Georgetown University Press.

Uniindia News Service. (2023). *MP CM visits Heartfulness Meditation Center near Hyderabad*. [Http://Www.uniindia.com/News/South/Mp-Cm-Visits-Heartfulness-Meditation-Center-Near-Hyderabad/2851203.Html](http://Www.uniindia.com/News/South/Mp-Cm-Visits-Heartfulness-Meditation-Center-Near-Hyderabad/2851203.Html).  
<http://www.uniindia.com/news/south/mp-cm-visits-heartfulness-meditation-center-near-hyderabad/2851203.html>

Urwin, K., & Jordan, A. (2008). Does public policy support or undermine climate change adaptation? Exploring policy interplay across different scales of governance. *Global Environmental Change*, 18(1), 180–191.  
<https://doi.org/10.1016/j.gloenvcha.2007.08.002>

V Pisharody, R. (2020, February 9). *Near Hyderabad, “world’s largest meditation centre”, inaugurated by President Kovind*. The Indian Express.  
<https://indianexpress.com/article/cities/hyderabad/an-ashram-offers-meditation-form-president-kovind-pv-sindhu-practise-6258965/>

van der Heijden, J. (2019). Studying urban climate governance: Where to begin, what to look for, and how to make a meaningful contribution to scholarship and practice. *Earth System Governance*, 1, 100005. <https://doi.org/10.1016/j.esg.2019.100005>

Vedeld, T., Hofstad, H., Solli, H., & Hanssen, G. S. (2021). Polycentric urban climate governance: Creating synergies between integrative and interactive governance in Oslo. *Environmental Policy and Governance*, 31(4), 347–360.  
<https://doi.org/10.1002/eet.1935>

Wolfram, M., van der Heijden, J., Juhola, S., & Patterson, J. (2018). Learning in urban climate governance: concepts, key issues and challenges. *Journal of Environmental Policy & Planning*, 21(1), 1–15. <https://doi.org/10.1080/1523908x.2018.1558848>

## Annex A

### Content Analysis Matrix:

Categories	Description	Indicators	Sub-categories	Code
Urban greening and sustainable agriculture	Policy or project regarding the greening and sustainable agriculture in the urban spaces or Kanha itself.	Tree planting, parks, green spaces, green roofs, greening, greening policies, urban greening government efforts, sustainable agriculture, agriculture alternatives	Presence of greening initiative	GI+
			No greening initiative	GI-
Waste Management	Policy or project to manage waste sustainably.	Recycle, reuse, compost, waste separation, waste management government policy, waste management subsidies	Presence of sustainable waste management initiative	WM+
			No sustainable waste management initiative	WM-
Water management	Policy or project of sustainable water management.	Filtration, aquifers, rain collection, water management subsidies,	Presence of sustainable water management initiative	H2OM+
			No sustainable water management initiative	H2OM-
Energy transition	Policy or project to achieve sustainable energy transition towards renewables	Solar panels, wind farms, renewable energy, energy transition, energy,	Presence of energy transition initiatives	ET+
				ET-

		energy transition subsidies,	No energy transition initiative	
Government involvement (Category used only for the interviews)	Policies, subsidies, or any type of urban climate governance, aimed at the sustainable transition of cities.	Subsidy, policy, government help, involvement of the state, Telangana, Chief minister, sustainability.	Government involvement present	GH+
			No government involvement	GH-

## Annex B

Coded text:

### Interview 1 (Vamsi Challagulla)

A little bit of roads working on the water and stuff like that

Because of the water, unavailability of the water, we couldn't execute that project. But we built a server and then we started working on the plantation parallelly while creating the infrastructure. So, as you can, I mean, as everyone can see by 2020. We planted around close to uh about 300 000 - 400 000 plants

It so happened that greenery kind of overtook. It has become the main aspect to Khana that main thing. Right? Um. And as the greenery was growing at the same time. Both the central government, I mean in the the federal Government of India as well as state government, they started focusing on greenery development of greenery. So it went hand in hand for us. It started promoting and it helped us. Also. Right, implement and we had the support, local support and all that was happening. And as this was happening, more and more scientists and uh, you know I what do you call the ISIFS officers. They all came: the forest services, administrative services .. they started giving us ideas: type of plants we need to use or methods. And during covid time, Daaji actually researched quite a bit on agriculture. He revived quite a bit of old technologies, revived old technologies and married them with the existing the new methods. Which actually gave quite a bit of boost to the greenery around here.

Quite a number of, we received quite a number of awards, whether it's a green or Green Kanha Award, greenery awards, year over year we continue to receive green awards. Uh, our our facility has been identified as uh uh platinum. The one particular organisation gave us a platinum award because we are 0 carbon neutral, I mean carbon neutral location. And recently, the central government again, we received a couple of awards being carbon neutral village. Now we are being we are going to be awarded awarded a new one on the cleanest village.

So we started deepening the ponds so that we do rainwater harvesting and there are couple of methods that we used to make sure that water is not there is no run off of, the the rainwater instead percolates into the strata. Right. And the strata, what we did is we developed aquifers and doing rainwater harvesting. Once we had the water, initially we used to go up to 1000 feet, 800 to 1000 feet to get water. Now we get water at 50 feet to 100 feet

And also we made sure that they for plantation we were using organic fertilisers and bio char essentially bio char keeps the water close to the roots for longer time. And we started doing, uh,

deep root irrigation. There a couple of things that added value to the trees apart from water. And because what happens is how do we get bio char the leaves that fall down or the branches. We collect all that, and the, you know, all the waste is recycled. That's how we get bio char. The food waste is collected that's converted into uh manure, right, biofertilizer.

Uh, the plastic we we use, so our facility doesn't have much plastic. Whatever plastic that is there, we incinerate it and we get gasoil of it, right, and we use that gas

We have close to 2.3 megawatts of solar energy, our consumption is, uh, close to five megawatts right now. We are going to go up to four megawatts of solar energy and one MW we want to do wind energy

Um, I would say the only way they're supported is they didn't bother us. The way political systems work is they don't really support us technically, and they're not going to give us money. They take all the credit

Technically, all the work is done by volunteers here, and you know, with that vision, volunteers are able to execute it and the investment money is our money. It's not really we didn't get any funds, but they did help us in guiding us and giving us proper advice wherever needed and they didn't bother us.

Which is we received from the support we received is from administrative services more than politicians.

Few, few policies, few subsidies have helped.

Other subsidies on on energy. We do get it, get some break. Not completely. For example, Telangana government doesn't give, they have a cap on how much solar power you can claim subsidy on. So even though we have more, we can claim up to only certain half of it.

, we did receive subsidies on. Uh. What is that? The tissue culture facility? We received subsidies on umm... Again, subsidies are little bit tricky in India, subsidies are more the policy decisions. They are more designed towards individual farmers than organisation. We being an organisation, we cannot claim too many subsidies, given the land chunk is owned by organisation.

So in that sense, uh policy decisions do affect us. There's certain policies that doesn't give us enough subsidies, but we did get some.

subsidies wouldn't have affected us much.

Because obviously we don't have that much funds that we can, you know, move fast on the project

Biophilic model means essentially walk to work. The living space and the workspace should be not more than one kilometre, two kilometre distance. To walk, to work, right and the way buildings will be spaced it will be completely green, I'm talking about literally plants on the buildings

That is something government can help us with. Current policies don't. Especially in India, for us to get anything out of government, it takes long time. Because the the red tape it's so long and by the time all the clearances come, it takes really long time for it. Simple example, right? Um, after looking at what all we are doing here, the government should help us clearing all our, Um, we applied for permissions to build you know apartments, houses...

It's still slow. It's very slow. Again, the red tape, right?

Interview sarpanch Saritha Challagula:

And then there are a lot of lacks and lack of trees, plants, and some endangered and endemic herbs and stuff which have been planted in Kanha. And we also have a good rainwater harvesting infrastructure over here, where the rainwater is collected and it is led to water bodies. This has helped us in bringing up bringing back the water table levels increase in the past few years. Solar energy is used heavily in Kanha and the waste management is done for both solid waste, management and liquid waste management. Liquid waste management is done through stps and for solid waste management. The solid waste is segregated at the source and the food waste is composted, and the recyclable waste is sent for recycling

A bit of it definitely is because Kanha Gram Panchayat it receives funding from the central government also every year, and some of those funds are used for, if not for all of the initiatives.

Similarly, we receive funds from the Telangana government, and some of those are used for these initiatives and similarly, the Gram Panchayat has its own source of own income. and those funds are also used

so these lacks and lack of trees are planted, not just by Kanha Gram Panchayat. I mean, some of them are planted by Kanha Gram Panchayat, and some of them are planted by the Institute. But since the Institute is a part of the Gram Panchayat. You can say that so many trees have been planted in contact.

Initiatives from both the central government, as well as the State Government, that to increase the greenery, so there are some initiatives which have been taken by them. And also to the support meaning, like the the what do I say? The encouragement for the waste management? So they are also very much. They also encourage it very much to separate the waste and put it into different areas.

becoming a Gram Panchayat has given us the access to these initiatives, and that also added to already what was going on in this area because the green cover increasing the green cover is a major initiative which has been going on for years.

Since a few years the Telangana Government and the central government they have been encouraging for each village or each gram Panchayat to raise their own nurseries to build their own nurseries

But what they have encouraged is to build each Gram Panchayat try to build their own nursery, so that the saplings can be grown locally, and they can be planted locally, and they also increase that some of these saplings to be distributed to individual households, so that people also plant trees and then take care of raising them. And another initiative by the Telangana Government was to was to build village parks in each Gram Panchayat where, like thousands of, thousands of trees and plants are planted. And the central government also supports the planting of trees at different levels, like I mean along the roads for kilometers. and then as a big as in a big are. So both the government they have, they do support the they do have different initiatives which help in planting the trees

Interview Sathyan Ana:

so the movement is still now if you see we have planted 10lakhs saplings, around, I don't know exact figure, but we must have planted more than 10lakhs saplings, include tree plant and everything.

Now it's tripled what we're using here at 2016, now it's triple de capacity what we are using.

So the idea is, 0 wastage, what we are doing is not only for sewer water, we don't let sewage water to go away so also, we fixed some focus, we don't allow the rainwater, unless you have very heavy excess rainfall like at particular time you have more rainfall. In an hour in a in 2, 3 hours a rain like that only those water might go other than that in all over a year maximum water. Don't get to go away. So whatever the average rainfall, we can trap it inside our campus, you know, all over our land. So we worked on that.

we are doing agricultural also. We have a a different agricultural, different agriculture models, almost doing all type of crops we are doing grains, millets. Almost we are touching everything. We are getting energy. We completely covered our roofs with solar. Wherever the roof are available, solar is there. Even we are increasing, for it's already what we need we leave. We we are producing more than what we need that we are. So we are giving back to government, extra power.

So they had a borough, some of the borough, so we use it, some of them, and we even drilled a new things.

Then from 2019 monsoon it changed. The rainfall also was good. More than anything. What we can appreciate is the work we have done. The rain, actual rainwater storage we had earlier, is around the 700 acres campus, own land is 2500 it is scattered all around, to complete the 2500 ?.

So those area we not cultivating we are using for rainwater. The early storage was just 40 lakh liter. You can consider for a we had 5 ponds. Some of them we developed new some of them were old existing already. The campus could hold only 40 lakhs, now the capacity must be around 25 crores. it's not. It can tell a 100 times, I think almost 80 times 80 times. I think we developed it. So and Still, we're doing it. It's not over now, every summer, we are increasing the capacity, deepening, finding new sources and areas where we can store

Where all water is coming in, so our approach to trap the rainwater, we trap as much as possible top side of the, eluded side of the land the higher, higher, higher side of the land so once you trap the water at higher side the downside land, land moisture you will have more automatically, for example, in summer, if your land is getting dry and January, in summer, it may stay for a month or some time. The more you are storing water at your higher place. So that's the practice we follow, so we created a water channel with multiple check dams, very, very small checl dams which will control the erosion also in a way, it is a 2 way beneficial. We are keeping it out of the top fertile, because we have more forest and green land on the campus. so it control the erosion. So you save the fertile soil the top top layer of it and also it will it will make small small stagnations, which is a lot of water to percolate when it rains. And we made multiple pits in every row, because we have lengthy roads here around campus concrete roads. So around the roads. like every 30 feet 40, in different intervals, we made harvesting pits, percolation pits, for 5 feet depth, 8ft depth, whatever the soil, however it is soft soil or hard soil, like that, we found and according to that we made, and we just in the 700 acre campus you can go for a we made 900 percolation pits inside the campus apart from this water body. So trenches also allow the water to percolate, it helps you to percolate the water it traps the water, so runoff is less, so whatever it escapes, it traps again. It gets trapped in your percolation pits. So whatever escapes again it get trapped in the big ponds. So apart from that, what goes away it goes away. So now our water level is just 20 feet.

Now we are able to get what I get from open wells, because what level is so high.

But now still water is there. We are in the end of summer. We have just one more month. Still our ponds have water in them. So actually the ponds.

Okay. So in 2015, it is just a barren land, you would have seen on the way, you're gonna see in the land when you're coming to Kanha, similar to the just open barren. Just there's no forest or anything. Just around the 200 new trees in campus around, from there now what we standing here. It's even the forest department people it will will surprise the growth rate we have.

no, is completely our own expenditure and complete our own model. So everything we've done on our own. So actually, naturally, the coincidence – coincidentally the work happened is, when we started digging the ponds, the Telangana government state gov, they also went they referred their old from back from 20 years 30 years back

They recognize our work. Yeah, they appreciate it, but expenditure because it's our building, its not a public one, so it's everything done by us.

No, that is for a for a Panchayat model it may work, for private, for private facility. There is no policy in the government, with the Government

So because of that now we are getting projects from governments, now all over India we got a welcome even the Central Ministry even 2 years back, I think we signed a deal with environmental ministry and forestry ministry. So all over India we are going to develop forest, so they are going to give us site, some private funds with NGO and CSR some the help of them and some part of government and some part of us, we are going to work at around India. So in Kanha whatever we've we done on our own.