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Local communities as stakeholders in the Ganga clean-up plan

Master's Thesis South Asian Studies

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Foreword

This thesis is written as part of the master's program in South Asian Studies, at Leiden University. This program focusses on the culture, society, history and economy of the different countries in South Asia, with main focus on India. Within the frameworks of this program, this thesis focusses on the pollution of the Ganga river in India. I've chosen this subject because I'm interested to understand the interaction between local communities and the Ganga river.

This research has been conducted between February 2015 and July 2015. I have found this research very interesting and informative. When I started this research, I had little knowledge about the Ganga river, its pollution and the local communities interacting with the river. This research has given me a good insight in the influence of the Ganga and its pollution on India's society, culture and economy. I've been able to achieve the desirable result and solve my main question.

I would like to thank my supervisor Professor Pralay Kanungo, who gave me all the support and advice when needed. His insights and directions helped me to complete my research and write this thesis.

Dwin Snoeks July 2015

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Introduction

The Ganga is the largest river of India. Running through five different states it covers more than 26 per cent of the country's landmass[1]. With a total length of 2525 kilometres[2] the river supports 43 per cent[3] of India's population. Its usage is both diverse and intense. In the daily life of many Indians the Ganga serves as bathing facility, laundry and water supply. In the economic context the river serves as a vital resource for agriculture and industry. Having a significant role in Hinduism, the Ganga holds a spiritual status in the Indian heritage. The diverse and intense usage has caused a big problem to the Ganga: pollution. Due to the lack of proper sanitation and sewer systems, the throwing of dead bodies in the river, domestic influences and industrial contamination, the Ganga has turned into a very polluted river. With hundreds of millions of Indians depending on the river on a daily basis, this pollution can have catastrophic consequences.

In 1986 the Ganga Action Plan (hereafter GAP) was launched by the government of India in order to improve the water quality of the Ganga. The GAP has however not resulted in a cleaner Ganga and has had much criticism, even though the government claims it to be successful. Since its introduction, many researches have been published about the GAP and the related governmental actions. Much has been written about the gaps in the GAP, which has many times been referred to as the Ganga Inaction Plan. Most studies conclude that mismanagement, lack of vision and commitment, corruption and incompetence of stakeholders has made the plan doomed to fail.

Through their daily interaction with the river, the local communities have a huge influence on the Ganga and thus on its pollution. This means that they should at the same time be able to contribute to the reduction of the pollution. A Ganga clean-up plan should therefore involve local communities in the process. Until today there is a lack of active involvement of local

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1 Sunita Narain, *Ganga, The river, its pollution and what we can do to clean it,* (New Delhi: Centre of Science and Environment, 2014), 5

2 Central Pollution Control Board, *Pollution Assessment: River Ganga*, (New Delhi: Central Pollution Control Board, 2013), 2

3 Narain, *Ganga, The river, its pollution and what we can do to clean it,* 5

communities as stakeholders in the clean-up process. The main question of the research will be: '*How can local communities contribute to improve the water quality of the Ganga?*

In order to find the answer to the main question different sub questions will be asked in this research. First of all a complete analysis of the Ganga Basin and its pollution will be made. A social, economic and cultural analysis of the Basin will be attempted. This will solve the question of how the communities are interacting with the river and how the pollution is impacting them. Also it will explain the social, economic and cultural reasons for the pollution. The second part of this research will contain a review of the GAP. The local communities will be placed in the framework of the GAP to find out to what extend they have been involved in the clean-up process of the past. This will show the possibilities of their involvement in a Ganga clean-up plan. The last part of the research will describe the possible role of the local communities in the clean-up of the Ganga. On the basis of a case study of the state of Uttarakhand, it will highlight how local communities can be made stakeholder in the process of reducing pollution. The conclusion, while summarising the arguments, will answer the main research question.

In order to find the answer to the main question there will be done desk research. First of all different primary sources will used. All kinds of analytical reports about the status of the Ganga river and about the clean-up process have been published by the (government) agencies involved. Besides this a lot of secondary sources consisting of books and articles will be used. Though much has been written about the pollution in the Ganga Basin, the involvement of communities in the Ganga clean-up process has not been adequately addressed. This research will try to make some contribution in this direction.

The hypothesis of this research is "If the local communities are involved actively in the Ganga clean-up process, the pollution of the Ganga can be reduced". It appears that the role and importance of the local communities is underestimated by the state. The people's relationship with the Ganga must be seen as a central point in the effort to reduce the river's pollution. If the local communities are made stakeholders in the clean-up process and are made aware of the importance of a cleaner Ganga, it is possible to reduce the pollution of the river and improve its water quality.

Chapter I: Communities in the Ganga Basin: a social, economic and cultural analysis

1.1 Introduction

The Ganga Basin has one of the highest human densities of the world. It supports around 300 million people over an area of about 800.000 square kilometres[4]. The Ganga river has been affected by the population living in the whole Ganga Basin. In order to find the answer to the main question it is important to understand the Ganga Basin. This first chapter presents a social, economic and cultural profile of the Ganga Basin.

1.2 The Ganga river

India is richly endowed with water resources, containing more than 45.000 kilometres of rivers[5]. Indian rivers like the Indus, Brahmaputra and the Ganga belong to the biggest rivers of the world. The Ganga river finds its origin high up in the Himalaya mountains[6]. The Gangotri glacier, situated in the state of Uttarakhand at 3.892 metres above sea-level, is seen as the starting point of the Ganga[7]. From this point on, the river flows through Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal[8]. During its journey a lot of other rivers join the Ganga[9]. After a course of 2.525 kilometres it flows into the Bay of Bengal[10]. In 2007 the Ganga was placed among the five most polluted rivers in the world[11].

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4 National Ganga River Basin Authority (NGRBA), *Environmental and Social Framework (ESMF)*, *Volume I – Environmental and Social Analysis*, (New Delhi: The Energy Resources Institute, 2011), 77

5 National River Conservation Directorate, *Status paper on River Ganga; State of Environment and Water Quality*, (Roorkee: Indian Institute of Technology Roorkee, 2009), 1

6 National River Conservation Directorate, *Status paper on River Ganga*, 3

7 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 20

8 Sunita Narain, *Ganga, The river, its pollution and what we can do to clean it*, (New Delhi: Centre of Science and Environment, 2014), 5

9 National River Conservation Directorate, *Status paper on River Ganga*, 4

10 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 21

11 Basant Rai, *Pollution and Conservation of Ganga River in Modern India*, (Hisar, HARSAC, 2013), 1

1.3 The Ganga Basin

Criss-crossing India, the many rivers have divided the country into twelve major, 46 medium and fourteen minor river basins[12]. These basins cover an area of more than 2.500.000 square kilometres[13]. The rivers systems can be divided into four main categories: the Himalayan rivers, the Inland rivers, the Coastal rivers and the Peninsular rivers[14]. Belonging to the Himalayan river system, the Ganga basin is the largest of the twelve major river basins. The Ganga Basin covers six more states than the river alone and extents also over the states of Haryana, Himachal Pradesh, Delhi, Rajasthan, Madhya Pradesh and Chhattisgarh[15]. About eighty per cent of the whole area of the Ganga Basin is situated in India[16]. The other twenty per cent of the Ganga Basin is divided over Nepal, China and Bangladesh[17]. In this research the definition of "Ganga Basin" is the basin that covers the states Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West-Bengal.

The Ganga river exists mainly of rainfall, subsurface flows and snow melt from glaciers[18]. The Himalayan streams account for about sixty per cent of the water that flows into the Ganga's main stem. The Peninsular streams account for the other forty per cent[19]. This despite the fact that the catchment area of the Peninsular streams covers more than sixty per cent of the Ganga Basin. Rain is mostly add to the Ganga river during the southwest monsoon between June and September[20]. Between seventy to eighty per cent of the total rainfall in the Ganga Basin falls in this period of three months. The monsoon starts at the mouth of the Ganga

12 National River Conservation Directorate, *Status paper on River Ganga*, 1

13 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 17

14 Ibid., 17

15 Ministry of Water Resources, *Ganga Basin*, (New Delhi: Government of India, 2014), 4

16 National River Conservation Directorate, *Status paper on River Ganga*, 3

17 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 17

18 National River Conservation Directorate, *Status paper on River Ganga*, 4

19 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 22

20 Ministry of Water Resources, *Ganga Basin*, 12

river and moves upstream, reaching the west of the river at the end of July. One of the characteristics is annual flooding of all rivers in the Ganga Basin[21].

The Ganga Basin is characterized by a wide variety of soils[22]. More than fifty per cent of the total Basin is covered by alluvial soils, like sand and clay[23]. These alluvial soils are full of nutrients, making it a perfect soil for harvesting. Due to the soil, the Ganga Basin is extremely cultivated[24]. The cultivated area of the Ganga Basin contributes to around forty per cent of the total cultivated area of India. In the Ganga Basin, the alluvial ground is used to grow a variety of products like wheat, paddy, maize, cotton and jute. If the grounds are managed properly, the very fertile soil is capable to produce the uppermost amount of food and non-food products for millions of people[25]. These soils are however very sensitive to change and are easily affected degradation and pollution. In parts of the Ganga Basin it is noticeable that the ground is influenced by the input of excessive wastewater and toxic agrochemicals[26]. About fourteen per cent of the total land is not available for the cultivation[27]. Most of this land is used other economic purposes like railroads, airports and industrial structures. A large part of the land is used for urbanization and infrastructure needed for human habitation.

1.4 Social analysis

According to the 2011 census done by the Indian Government the five states alongside the river had the following density[28]: Uttarakhand: 190 persons per square kilometre; Uttar Pradesh: 828 persons per square kilometre; Bihar: 1.102 persons per square kilometre; Jharkhand: 414 persons per square kilometre; West Bengal: 1.029 persons per square

21 National River Conservation Directorate, *Status paper on River Ganga*, 7

22 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 28

23 Ibid., 29

24 Ministry of Water Resources, *Ganga Basin*, 23

25 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 28

26 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 28

27 Ibid., 34

28 Dr. C. Chandramouli, *Census of India 2011*, (New Delhi: Government of India, 2011), 140

kilometre. This same 2011 Census showed that India on the whole had a density of 382 persons per square kilometres[29]. This means that aside from Uttarakhand four states alongside the Ganga river have a population density that is far above the Indian average. With Delhi, Varanasi, Agra, and Kolkata, some of India's biggest cities are situated in the Basin.

1.4.1 Population

Uttarakhand is the state in which the Ganga river finds its origin. It was formed on the 9 November 2000 as the 27th state of India[30]. Until that day it was part of Uttar Pradesh. The state houses a total of 10 million people[31]. Uttarakhand is divided in thirteen different districts[32]. Three districts are situated in the Ganga Basin[33], with a total of 2,3 million people living in this area[34]. In Uttarakhand the growth rate of the population in the state was 18,80 per cent during the period of 2001 until 2011[35]. The state has the lowest population density of the five states the river flows through. Most of the people live in the rural areas, about seventy per cent[36]. The urban areas account for thirty per cent of the people of Uttarakhand[37]. In both the urban and the rural areas, division male/female is about fifty per cent[38].

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29 Ibid., 140

30 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 77

31 Chandramouli, *Census of India 2011*, 54

32 Government of Uttarakhand, *Uttarakhand at a glance (2013-2014)*, (Dehradum: Directorate of Economics and Statistics, 2014), 1

33 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 78

34 Ibid., 78

35 Government of Uttarakhand, *Uttarakhand at a glance*, 3

36 Government of Uttarakhand, *Uttarakhand at a glance*, 3

37 Ibid., 3

38 Ibid., 3

After Uttarakhand the Ganga river flows through Uttar Pradesh. The state has a total population of almost 200 million people[39]. Out of 75 districts[40], a total of seventeen districts are situated in the Ganga Basin[41]. The total population in the Ganga Basin of Uttar Pradesh is 45,5 million[42]. The growth of the population in Uttar Pradesh was 20,09 per cent during the period of 2001 until 2011[43]. The urban population accounts for about 22 per cent of the total population of the state, about 78 per cent accounts for the rural population[44]. The division male/female in Uttar Pradesh is also about fifty per cent.

Bihar is situated in the eastern part of India. With Uttar Pradesh on the west side of the state, West Bengal on the east side, Jharkhand on the south and Nepal on the north, it is completely land locked. It is divided into two parts by the Ganga river, which flows from west to east across the state. Bihar has a total population of about 104 million people[45]. A total of twelve districts are situated in the Ganga Basin of Bihar with a total population of 25 million people[46]. The growth of the population in Bihar was 25,07 per cent during the period of 2001 until 2011[47]. The state has the highest population density of the five states. Most of the population lives in the rural areas, about 89 per cent[48]. The urban population accounts for

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39 Chandramouli, *Census of India 2011*, 54

40 "Statistics of Uttar Pradesh", Government of Uttar Pradesh, accessed April 8, 2015, *http://up.gov.in/upstateglance.aspx*

41 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 80

42 Ibid., 80

43 "Statistics of Uttar Pradesh", Government of Uttar Pradesh

44 Government of Uttar Pradesh, *Uttar Pradesh at a glance 2012*, 1

45 Chandramouli, *Census of India 2011*, 54

46 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 81

47 Chandramouli, *Census of India 2011*, 54

48 Government of Bihar, *Bihar at a glance 2011*, (Patna: Directorate of Economics & Statistics Bihar, 2011), 15

about eleven per cent of the total population of the state. Just like the previous two states, the division male/female in Bihar is about fifty per cent[49].

The state of Jharkhand was formed on November 15, 2000 after separation from the state of Bihar[50]. The state is known for its big amount of tribal communities. Jharkhand has a total of almost 33 million inhabitants[51]. Jharkhand has only one district that falls in the Ganga Basin[52]. A total population of 927.770 is situated in the Ganga Basin of Jharkhand[53]. During the period of 2001 until 2011 the growth rate of the population in the state was 22,34 per cent[54]. About 76 per cent of the people live in the rural areas, the other 24 per cent account for the urban population[55]. Also in this state, the division male/female is about fifty per cent[56].

West Bengal is the state where the Ganga river meets the ocean; the Bay of Bengal means the end of the Ganga. The state houses 91,3 million people[57]. Seven districts of West Bengal are part of the Ganga Basin[58]. The total population in this part of the Ganga Basin is 42,6 million[59]. During the period of 2001 until 2011 the growth rate of the population was 13,93[60].

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49 Ibid., 15

50 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 82

51 Chandramouli, *Census of India 2011*, 54

52 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 83

53 Ibid., 83

54 Chandramouli, *Census of India 2011*, 54

55 CensusInfo India 2011, *Jharkhand Profile*, (New Delhi: Government of India, 2011), 1

56 Ibid., 1

57 Chandramouli, *Census of India 2011*, 54

58 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 83

59 Ibid., 83

60 Chandramouli, *Census of India 2011*, 54

Most of the population lives in the rural areas, about 72 per cent[61]. The urban population accounts for about 28 per cent of the total population of the state. The male/female ratio in this state is also about fifty/fifty.

When looking at the figures, the importance of the Ganga for the population of the states is directly noticeable. In the states of Uttarakhand, Uttar Pradesh and Bihar, almost one out of four people lives in the Ganga Basin. In West Bengal even half of the population of the state lives in the Ganga Basin. This means that people tend to live in the Ganga Basin, because the Ganga river has benefits for the people. With quite a big growth in the period 2001 until 2011 in all five states, it becomes clear that in the future even more people will depend on the Ganga river.

The biggest part of the population, between seventy and 89 per cent, lives in the rural areas. The poverty in the rural areas in the Ganga Basin is higher than that of the urban areas in the Basin[62]. The percentage of people living in poverty in the Ganga Basin is very high. Besides this the urban areas in the Ganga Basin have more drainages and latrines in the houses than the rural areas[63]. With the highest percentage of people living in the rural areas, many people in the Basin do not have access to proper sanitation facilities. The lack of sanitation facilities contributes to the pollution of rivers. The fact that the biggest part of the people in the Ganga Basin has no access to proper sanitation facilities is one of the causes of the pollution of the Ganga.

1.4.2 Literacy rate

Development of a specific area is usually closely linked with the literacy rate of this area. Areas and communities with a higher literacy rate are usually more developed than those with a lower literacy rate. The literacy rate can therefore be used as a social indicator. Data about the literacy rate in India is collected every ten years during the India Census. During the last India Census is 2011 data about the literacy rate is again collected and published.

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61 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 85

62 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 85

63 Ibid., 104

The level of literacy in Uttarakhand is 79,63 per cent[64], which is higher than the national average of 74,04 per cent[65]. The literacy rate for men is 88,30% and for women 70,70%[66]. With these numbers the state ranked 17th by literacy rate in the 2011 Census of India.

The literacy rate of the population of Uttar Pradesh is 69,7 per cent[67]. With this rate the state belongs to the states with the lowest literacy rate. The literacy rate for men is 79,24% and for women 59,26%[68].

The state of Bihar has a literacy rate of 63,82 per cent[69]. With this rate Bihar has the lowest literacy rate in India. The literacy rate for men is 73,39% and for women 53,33%[70].

The literacy rate of Jharkhand is 67,63 per cent[71]. Together with Bihar and Uttar Pradesh it belongs therefore to the five states with the lowest literacy among the population. The literacy rate for men is 78,45% and for women 56,21%[72].

The literacy rate of the population of West Bengal is 77,08 per cent[73]. The literacy rate for men is 82,67% and for women 71,16%[74].

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64 Chandramouli, *Census of India 2011*, 113

65 Ibid., 113

66 Ibid., 120

67 Ibid., 113

68 Ibid., 120

69 Ibid., 113

70 Ibid., 120

71 Chandramouli, *Census of India 2011*, 113

72 Ibid., 120

73 Ibid., 113

74 Ibid., 120

The literacy rate in Uttar Pradesh, Bihar and Jharkhand is below the Indian average of 74,04 per cent. A comparison between the sexes shows that the literacy rate among women is much lower than among men. The states of Uttar Pradesh, Bihar and Jharkhand belong to the five states with the lowest literacy rate among women. These number show that education for women in these areas is not of high importance. When used as a social indicator, it shows that most of the communities are probably not very developed. Besides being an indicator of development, literacy rate can be used as an indicator of the awareness of people about health and hygiene. The low numbers show that among the communities in the Ganga Basin the awareness about health and hygiene is probably not very high. This could mean that the low literacy rate in the Ganga Basin is contributing to the pollution of the Ganga river.

1.5 Economic profile

The cities in the Ganga Basin are known for their rapidly growing population. Alongside this development there is strong industrial development around the cities[75]. The five different states the alongside the river all have specific economic aspects. Throughout the Basin the Ganga river plays a different role in the economies of each state, each economy interacting in a different way with the Ganga river.

Uttarakhand has a very diverse economy. Situated at the foothills of the Himalayan mountains, the state is mostly hilly. It is rich with many natural resources, rivers and dense forests[76]. Due to the different climatic zones in Uttarakhand, the use of the ground is diverse. Most of the ground is used for agriculture. Many rare species of aromatic and medicinal plants can be found in Uttarakhand[77]. This, together with the fact that the state has almost all major climate zones, has resulted in the development of floriculture as well as horticulture in Uttarakhand. Due to the rare species of aromatic and medicinal plants, Uttarakhand has developed as the centre of herbal medicine[78]. Besides this Uttarakhand has seen a rise in

75 National River Conservation Directorate, *Status paper on River Ganga*, 8

76 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 78

77 “State profile”, Government of Uttarakhand, accessed May 2, 2015. http://ua.nic.in/uk.gov.in/pages/display/115-about-us

78 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 123

tourism during the last decades, which has become the main source of income for the state[79]. Not only foreign, but also domestic tourism plays an important part in the state's economy. Today many Indians come to Uttarakhand for extreme sports like river rafting.

The economy of Uttar Pradesh mainly depends on agriculture[80]. The state is home to many very fertile grounds which are used for agricultural benefit and which makes about two-thirds of the population of Uttar Pradesh directly depended from agriculture[81]. The main economic interaction with the river is irrigation for agricultural purposes. Through different canals water flows from the Ganga river into the basin increasing the production of crops, sugarcane and many more. Secondly industry plays a large role in Uttar Pradesh. A large part of the industry involves the processing of agricultural products, like sugar[82]. Despite this, the state of Uttar Pradesh is economically among some of the most backward states of India[83].

In the state of Bihar agriculture is by far the most important aspect of the economy. The agriculture accounts for eighty per cent of the total workforce of the state, resulting in almost forty per cent of the total gross domestic product of Bihar[84]. Just like Uttar Pradesh, Bihar uses the Ganga river mainly for irrigation purposes. Another interaction with the river is commercial fishing, which is the second most important contributor to the economy of the state. The biggest part of commercial fishing in the whole of the Ganga river takes place in the middle river Ganga in Bihar[85]. Finally the Ganga river plays an important role in the supply of electricity in Bihar.

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79 Ravi Chopra, *Uttarakhand Development and Ecological Sustainability*, (New Delhi: Oxfam India, 2014), 27

80 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 123

81 Ibid., 123

82 Government of Uttar Pradesh, *Human Development Report 2006*, *Uttar Pradesh*, (Lucknow, 2006), 8

83 Ibid., 4

84 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 123

85 C.G. Montana, S.K. Choudhary & S. Dey, K.O. Winemiller, *Compositional trends of fisheries in the River Ganges, India*, (Texas: Blackwell Publishing Ltd., 2011), 283

Jharkhand is mostly known for its rich resources[86]. It is therefore a very important state for industrial development. Many of these industries are using the Ganga river as the main way for transportation. The Ganga is therefore an important part of the infrastructure of Jharkhand. Besides this the river had contributed to very fertile land in the state. This has resulted in intensive agriculture, with paddy being the most grown crop in Jharkhand[87].

In West-Bengal the Ganga river has played a significant role in the development of the state throughout centuries. Due to its strategic position at the end of the Ganga river and next to the sea, the city of Calcutta had once the most important harbour of India[88]. Calcutta became the spot where the overstock of loads took place from giant ships to smaller river vessels. Today West-Bengal has no longer the most important harbour of India, but maritime trade is still a very significant part of the state's economy. Besides for maritime trade the river is used for irrigation and industrial purposes.

Looking at the economic profile of the Ganga Basin it becomes clear that the Ganga river plays a significant role in the economy of the Basin. The economic use of the Ganga is very diverse. People in the five states are economically depending on the Ganga river. All the states could therefore be influenced by rising pollution in the river. A decrease in pollution of the Ganga river is therefore vital for the economy of the Ganga Basin.

1.6 Cultural profile

The Ganga river holds a high cultural and spiritual status in India. The river is mentioned in the Rig-Veda, the oldest of the four Hindu Veda-texts. The Hindus see the Ganga river as a goddess rather than a river[89]. Hinduism holds the believe that bathing in the river on certain occasions causes the forgiveness of sins. From distant places people travel to the Ganga river to immerse the ashes or bodies of their relatives in the water of the river. The Indian people

86 Department of Finance & Government of Jharkhand, *Jharkhand Economic Survey 2013-14*, (Ranchi: Department of Finance, 2014), 1

87 Department of Finance & Government of Jharkhand, *Jharkhand Economic Survey 2013-14*, 49

88 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 124

89 Ibid., 125

interact culturally with the river on a daily basis. The five different states the river flows through all have a different cultural impact on the river.

Uttarakhand is seen as the centre of herbal medicine in India. Because of this the state holds a high spiritual status. This has resulted in a rise in the importance of the Holy Ganga in Uttarakhand over the last decades. Today all kinds of religious festivals are held in Uttarakhand, most of them in and around the city of Haridwar. This city is also one of the seven sacred cities in India where the 'Kumbh Mela' or mass-bathing is held[90]. Every six years millions of Hindus come to Uttarakhand to participate in mass-bathing in Haridwar.

Uttar Pradesh has developed an enormous cultural value through the ages, being the place where important events of (historical) heroes like Ashoka, Buddha, Rama, Krishna and Gandhi took place[91]. This has contributed to the emergence of many temples and shrines. Because of this the state is now an important place for religious tourism and education. Uttar Pradesh is home to the cities of Varanasi and Allahabad, which are the two most holy cities in India.

In the state of Bihar the Ganga flows through the town of Gaya[92]. This town is considered to be the most holy in Hindu life after the towns of Varanasi and Allahabad. Many pilgrims from in- and outside India come to the Gaya to pray. The town of Gaya has made religious tourism very important for Bihar. Besides the many religious festivals, Bihar is known for its large number of tribal festivals[93].

The people of Jharkhand have a special bond with the Ganga. Until the year 2000 the river divided the state of Bihar in two different parts. On 15 November 2000 The south part of Bihar became Jharkhand and the part north of the river remained Bihar. The Ganga river is therefore seen as the centre of the culture of Jharkhand and worshipped by many of the state's inhabitants[94].

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90 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 126

91 Ibid., 79

92 Ibid., 124

93 Ibid., 128

The most famous cultural sight in West-Bengal is the island of Sagardwip[95]. This island is situated in the mouth of the Ganga, where it joins the sea. During the month of January a three day festival is held on the island. Many pilgrims travel to this island to take a bath and visit the holy temples on the island. Because the water is considered holy, many collect it to take it back home.

94 Ibid., 124

95 Ibid., 130

Chapter II: Ganga Action Plan: A Review

2.1 Introduction

The Ganga plays a vital role for the communities in the Ganga Basin. The rising pollution could therefore have big consequences for the Indian people. The first part of this second chapter will focus on the Ganga's pollution. It will show how the Ganga river is polluted and how it is influencing the communities. The second part of this chapter will focus on the Ganga Action Plan. This governmental plan to reduce the pollution of the Ganga will be reviewed to find out how the communities have been and can be involved in the clean-up process.

2.2 Ganga's pollution

About forty per cent of the Indian population is interacting with the Ganga river. This interaction is very intense and is happening in many different ways. The intense and diverse usage has led to pollution of the Ganga, which has a big impact on the life in and around the river. There are three main causes for the Ganga's pollution.

The first major cause of pollution is human waste. During its course from the Gangotri glacier to the Bay of Bengal, the river flows through twenty-nine cities with a population of one

million people or more[96]. Many of the inhabitants of these cities use the Ganga river on a daily basis as bathing and laundry facility or as a water source. Besides this the river is used to dump domestic and sewage waste[97].

A second major cause of pollution of the Ganga river is industrial waste. The bank of the Ganga is home to many different industries[98]. Chemical and fertilizer plants, textile and paper mills and even hospitals are dumping their waste directly into the river. Almost all the waste dumped by the various industries along the river is untreated. The result is that heavily chemical and toxic waste is dumped right into the river.

Thirdly religion plays an important role in the pollution of the Ganga. The Ganga has a highly cultural and spiritual role in the life of many Indians. Many Hindus believe that the Ganga river has cleansing abilities. Because of this people bathe in the Ganges on a daily basis in order to get cleansed. During different Hindu festivals people are mass-bathing in the Ganga river as part of this ritual cleansing[99]. Because millions of people are taking part in mass-bathing, the water quality is decreasing. During these festivals millions of pilgrims and tourists are coming to different holy places which lack the proper sanitations. Therefore these events play a big role in the pollution of the Ganga river. Besides this the river is used to dump the ashes or unburned dead bodies of the deceased. This is done for religious purposes or because families just can't afford cremation of the deceased. The holiness of the river has also created an image among the Indian people that the river is self-cleaning and therefore can't be polluted. Because of this thought, people are not aware of the fact that the water quality of the Ganga is decreasing and pollution of the river is rising.

The three main reasons for pollution have to do with dumping in the river. However the withdrawal of water from the Ganga also causes the pollution to rise. Water is withdrawn from the Ganga river for irrigation purposes or to serve as drinking water. Though it is an

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96 Basant Rai, *Pollution and Conservation of Ganga River in Modern India*, 1

97 Ibid., 1

98 Ibid., 2

99 Rai, *Pollution and Conservation of Ganga River in Modern India*, 2

ecological feature of a river rather than a spiritual one, rivers do have a self-cleaning aspect[100]. This allows rivers to treat biological waste. In the case of the Ganga however more water is withdrawn from the Ganga than waste is discharged, causing the level of pollution to rise[101].

2.3 Impact of pollution

Because of different reasons the level of pollution of the Ganga river is rising. One of the main aspects of river pollution is that the water quality is decreasing. This accounts for both the surface water quality (river) and the ground water quality (irrigation). Because millions of people are depending on the river for their livelihood, the pollution is influencing their lives in different ways.

The rise in pollution is influencing human life around the Ganga. The rising pollution is influencing the health of the local communities interacting with the river. People are using a very polluted river on a daily basis for washing, eating and brushing teeth. They are interacting with a river full of toxic and chemical water. Because of this people are getting all kinds of different diseases like diarrhea, dengue and cholera[102]. Today diarrhea is still one of the leading causes of dead among children in India[103]. Pollution is thus causing health risks among the people in the Ganga Basin.

Besides this the aquatic life is affected severely by the Ganga's pollution. The pollution has influenced the ecosystem and has caused the decrease of different animals in the river. Fishery is an important part of the economy in some parts of the Ganga river. Rising pollution and decreasing water quality in the Ganga is affecting the different species of fish, causing imbalance in river life[104]. The Ganga's pollution is causing animals to die, reduces their

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100 Sunita Narain, *Ganga, The river, its pollution and what we can do to clean it*, (New Delhi: Centre of Science and Environment, 2014), 8

101 Ibid., 8

102 National Ganga River Basin Authority (NGRBA), *Environmental and Social Framework (ESMF), Volume I – Environmental and Social Analysis*, (New Delhi: The Energy Resources Institute, 2011), 114

103 Rai, *Pollution and Conservation of Ganga River in Modern India*, 2

growth and decreases their ability to reproduce. With many people depending on aquatic life for their livelihood, this has enormous consequences.

The economic profile of the Ganga Basin has already showed the importance of the river for the economy of the Basin. What most states have in common is that the water is used for irrigation purposes. If polluted water is used for irrigation purposes, the soil of the Ganga Basin will be polluted and lose its fertility. This could have catastrophic effects on the economy of the Ganga Basin, which is mainly depending on agriculture.

Closely linked to the economic profile of the Ganga Basin is its cultural profile. The cultural status of different towns had led to a rise of pilgrimage and cultural tourism in the different states. The Ganga has a central role in the cultural profile of the Ganga Basin. This means that from a cultural perspective the river plays an important role in the economy of the Ganga Basin. If the Ganga gets more polluted, religious tourism and pilgrimage could decrease in the future. This could cause a decrease in income for many people in the Basin. Pollution of the Ganga could therefore influence the cultural profile of the river, which will eventually have a negative economic impact.

2.4 The Ganga Action Plan

The Ganga Action Plan (GAP) was the result of rising awareness of pollution in India during the early 1980s[105]. An extensive research in 1981-82 by the Central Pollution Control Board (CPCB), India's national authority for environmental pollution, showed a polluted Ganga river[106]. The research by the CPCB was the first time data on domestic and industrial pollution loads, the use of the river itself and the lands on the banks of the Ganga was systematically collected[107]. The levels of pollution were different throughout the river. In some places the pollution had not yet reached serious levels[108]. There were however some cities along the river where the levels of pollution were dangerously high. The research of the CPCB made

104 National Ganga River Basin Authority, *Volume 1 – Environmental and Social Analysis*, 54

105 Priyam Das and Kenneth R. Tamminga, "The Ganges and the GAP: An Assessment of Efforts to Clean a Sacred River", *Sustainability 2012*, no. 4, (2012), 1647

106 Richard Helmer and Ivanildo Hespanhol, *Water Pollution Control – A Guide to the Use of Water Quality Management Principles*, (New Delhi: WHO/UNEP, 1991), 4

107 Helmer and Hespanhol, *Water Pollution Control*, 4

the Indian Government aware of the fact that urgent action was required. In order to reduce the pollution the Central Ganga Authority (CGA) was formed in 1985[109][110]. That same year the Ganga Project Directorate (GPD) was formed. The GPD was supportive to the CGA and had the role of leading the administration and finances involved[111]. In 1986 the CGA launched the GAP. It was scheduled to be finished at the end of the first quarter of 1991[112]. The GAP was focussed only on the Ganga river. With the introduction of the a second Ganga Action Plan (GAP II) in 1993, the first GAP became referred to as GAP I[113]. GAP II not only focussed on the Ganga, but also the Ganga's tributary rivers Yamuna, Damodar, Gomti and from 2005 on Mahananda[114]. The GAP I was eventually withdrawn in 2000[115].

2.4.1 Objectives

The GAP I had two main objectives. The first main objective was to reduce and control the pollution in the Ganga river[116]. The second main objective was to improve the water quality[117]. The river water quality had to be restored to 'bathing quality'. Because one of the most important and distinctive features of the Ganga is that is it used in religious mass bathing, being able to bathe in the river was seen as the acceptable level for the river. This

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108 Ibid., 5

109 Das and Tamminga, *The Ganges and the GAP,* 1655

110 The CGA was later renamed the National River Conservation Authority (NRCA)

111 Indian Institute of Technology Kanpur, *SWOT Analysis of Ganga Action Plan*, (Kanpur: 2011), 10

112 Das and Tamminga, *The Ganges and the GAP,* 1655

113 Government of India, *Report on utilisation of funds and assets created through Ganga Action Plan in states under GAP,* (New Delhi: Government of India, 2009), 2

114 Member (Water Resources) Planning Commission, *Report on utilisation of funds and assets created through Ganga Action Plan in states under GAP,* (New Delhi, 2009), 2

115 Das and Tamminga, *The Ganges and the GAP,* 1655

116 Ibid., *The Ganges and the GAP,* 1655

117 Indian Institute of Technology Kanpur, *SWOT Analysis of Ganga Action Plan*, 8

bathing quality is was defined on the basis of different parameters, which defined whether the river was on the level of bathing quality or not. In combination with the reduction of the river's pollution and the improvement of its water quality, the aim was to improve the rivers' biodiversity and reduce both contamination and health risks[118]. Before the GAP I was initiated, the responsibilities regarding the Ganga river were not well divided among the involved government agencies[119]. One objective was therefore to develop good river basin management, in which all stakeholders involved knew their role and responsibilities. Finally the aim was to use the experience gained by the GAP I in river basin management in similar river clean-up programs throughout India[120].

2.4.2 Approach

The CPCB showed that 75 per cent of the total pollution load came from untreated municipal waste[121]. This waste was causes by 25 Class I towns along the banks of the Ganga[122]. Besides this they pointed out that only a few of the 25 Class I towns on the banks of the river had sewage facilities[123]. Something that was shown by the CPCB in 1982 was that the industries around the Ganga river accounted for 25 per cent of the total pollution[124]. Many industries were dumping toxic waste right into the Ganga river. In order to reach the long term goal of the reduction of the pollution, the focus was first put on the sewage and waste disposal.

The strategy in relation to domestic waste was to intercept the wastewater of the 25 Class I towns before it was dumped into the river and treat it in sewage treatment plants[125]. These sewage plants were built right from the start. One of the benefits was that much of the

118 Helmer and Hespanhol, *Water Pollution Control*, 6

119 Ibid., 6

120 Indian Institute of Technology Kanpur, *SWOT Analysis of Ganga Action Plan*, 8

121 Helmer and Hespanhol, *Water Pollution Control*, 6

122 Class I towns are towns with more than 100.000 inhabitants

123 Helmer and Hespanhol, *Water Pollution Control*, 6

124 Ibid., 6

125 Indian Institute of Technology Kanpur, *SWOT Analysis of Ganga Action Plan*, 8

wastewater could directly be treated while the other sewage networks in the cities were still under maintenance. Treatment of waste did not need to wait until these projects were finished. Eventually new sewers were implemented and old ones were renovated. More than 2.700 toilet complexes and about 48.000 individual flush toilets were installed in the cities[126]. In order to prevent pollution of the river by dead bodies, crematoria were installed in the cities[127]. To make ritualistic bathing safer all kinds of river bathing facilities were installed along the river banks[128].

The strategy regarding industries focussed on the 100 industries that were identified along the river. A total of 68 industries were identified as grossly polluting[129]. Industries were given the instruction to establish their own treatment plants, in order to treat their waste before dumping it into the Ganga[130]. Most of them eventually installed sewage plants. Twelve industries which did not install the plants were closed down over the years for non-compliance[131].

In order to make the GAP I successful the help of the Indian public was needed. The strategy regarding public participation was focusses on raising awareness among the people by different publicity campaigns[132]. Public programs were implemented in order to spread to generate awareness among the public about the problem. Non-governmental organisations (NGO's) were used to organise activities and spread information using different kinds of written and spoken media.

2.4.3 Results

In march 2000 the GAP I was eventually withdrawn. According to authorities involved the

126 Helmer and Hespanhol, *Water Pollution Control*, 7

127 Indian Institute of Technology Kanpur, *SWOT Analysis of Ganga Action Plan*, 9

128 Helmer and Hespanhol, *Water Pollution Control*, 7

129 Ibid., 7

130 Indian Institute of Technology Kanpur, *SWOT Analysis of Ganga Action Plan*, 9

131 Helmer and Hespanhol, *Water Pollution Control*, 7

132 Ibid., 8

GAP I was completed, nine years after it would originally be finished[133]. At this time the GAP I had covered a total of 25 Class I cities in the provinces of Uttar Pradesh (six), Bihar (four) and West-Bengal (fifteen)[134]. On 88 spots the municipal wastewater had been intercepted and diverted into sewage plants, in order to treat it before it entered the Ganga[135]. A total of 35 sewage treatment plants, 43 low cost sanitation complexes, 35 ritualistic bathing facilities and 28 electric crematoria have been built[136]. Besides this 32 other projects regarding aquatic life, river quality monitoring and afforestation were completed [137]. This meant that out of the 262 subprojects that were created in the GAP I, 261 were completed by the year 2000. Only one project was eventually not implemented in practice. However the overall results are not that positive. The GAP I succeeded to achieve only 39 per cent of its targets regarding the treatment of sewage[138]. At the same time it had already consumed 91 per cent of its total budget allocations[139]. The total expenditure of the GAP I was 4.520 million Indian Rupees[140].

2.4.4 Criticism

From the start the GAP I has had much criticism. The plan has lots of times been referred to as the Ganga Inaction Plan. Much has been written about the reasons of the plan's failure. There has been criticism on many different aspects of the GAP I, on for instance its design, its implementation, its regulations and the operational side. This research focusses on the local communities as stakeholders in the process of improving the water quality of the Ganga. The

133 National River Conservation Directorate, *Status paper on River Ganga*, 11

134 Ibid., 11

135 Helmer and Hespanhol, *Water Pollution Control*, 6

136 Ibid., 6

137 National River Conservation Directorate, *Status paper on River Ganga; State of Environment and Water Quality*, (Roorkee: Indian Institute of Technology Roorkee, 2009), 11

138 Das and Tamminga, *The Ganges and the GAP,* 1655

139 Ibid., 1655

140 National River Conservation Directorate, *Status paper on River Ganga*, 11

GAP I in relation the communities has also been criticized a lot. The most important points of criticism are highlighted below.

2.4.4.1 Political motivation

From the moment of publication, there has been a lot of criticism regarding the motivation behind the GAP I. Many people have argued that it was highly politically motivated, rather than environmentally[141]. From all the different polluted rivers in India, specifically the Ganga river was chosen as the first river to be cleaned up. Because the Ganga river has such a high symbolic status in Hinduism, it was argued that the GAP was used to unite Hindus against other religious groups in India. Therefore the GAP I was by many people seen as a way to politically manipulate the Indian people[142].

Besides this the GAP I was used by many political parties and individuals for their own political benefits[143]. To get the support of the public, political parties and individuals were addressing the fact that the holy Ganga river was polluted. Despite the fact that many Hindus shared the opinion that a holy river could never be polluted, the GAP I was used by individuals and parties in order to gain political support among the Hindu population. It seems therefore that the GAP I was more a political plan, rather than a people's plan.

2.4.4.2 Organizational infrastructure

Another aspect of the GAP I that is criticized is the organizational infrastructure. The Government of India formed the CGA in order to implement the plan. The CGA was thus part of the Central Government. In order to involve the states in the process, State River Authorities were constituted[144]. These agencies focussed mainly on the coordination of the implementation of the GAP. Also different private agencies were appointed to monitor the quality of the river water, the performances of sewer plants and the levels of aquatic live[145]. On local level, State Pollution Control Boards were made responsible for monitoring

141 Indian Institute of Technology Kanpur, *SWOT Analysis of Ganga Action Plan*, 18

142 Das and Tamminga, *The Ganges and the GAP,* 1657

143 Indian Institute of Technology Kanpur, *SWOT Analysis of Ganga Action Plan*, 18

144 Indian Institute of Technology Kanpur, *SWOT Analysis of Ganga Action Plan*, 10

145 Ibid., 11

industrial pollution. The GAP I was entirely funded by the Indian Government[146]. The CGA had divided the money among the state and local governments, in order to make sure the projects were implemented.

The organizational structure of the CGA was however hierarchal[147]. It didn't share its power, resulting in the fact that all other state agencies involved had no influence in the project. All decisions, designs and program developments were made on a central level by the CGA[148]. Even though the states were the ones who had the task to execute the plans, their input about the plans was never sought. The local agencies were not even part of the CGA's organizational structure[149]. The building of new sewage plants, the construction of new sewer systems and the renovation the old sewers was done on a local level. However they were not consulted about their abilities to accomplish the plans at all and showed to be incapable of fulfilling the desired tasks. Because the CGA made all the decisions, the agencies assigned to implement the plans were given tasks they couldn't handle. The result was that many tasks were progressing really slow or were simply not done at all, which eventually led to an increase in costs.

Eventually this state centred approach of the GAP led to a lot of problems. Beside the rise in costs, matters were introduced that didn't fit in the overall context at all[150]. Some of the sewage plants introduced produced a lot of waste themselves, which then again had to be disposed of. Other plants needed a lot of highly skilled engineers and operators, which were not available to the local authorities. Furthermore there were problems regarding bad maintenance, faulty designs and bad project management[151].

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146 Das and Tamminga, *The Ganges and the GAP,* 1656

147 Ibid.

148 Ibid.

149 Ibid.

150 Das and Tamminga, *The Ganges and the GAP,* 1656

151 Ibid., 1656

2.4.4.3 People's participation

Also the interaction between the GAP I and the Indian public is criticized much. The pollution of the Ganga was the result of deeper social problems, rather than environmental ones. There was a lack of public awareness about health and the problems pollution can cause[152]. Besides this the public just didn't believe the fact that a holy river could be polluted, because the Ganga was thought to have self-cleaning qualities. Also poverty played a role. The local communities lacked the financial possibilities to treat waste on different ways. Because the causes of pollution were rooted so deeply in society, the GAP I was aimed to raise awareness among the Indian public about the importance of a clean river.

An important role in the process of raising awareness was reserved for the NGO's and the local communities. However there was very little active promotion among the public. The reason was that both the NGO's and the local communities did not receive any help or financial support from the central government in order to promote public participation[153]. The result was that only during specific occasions of mass clean-ups, for instance before a specific festival or holiday, public awareness could be promoted by NGO's or communities. On these occasions a lot of people could be reached at once. However this public existed mainly out of volunteers and pilgrims, who had a completely different connection with the river than the locals. The focus of the government was more focussed on meeting the target of raising awareness among a big crowd, rather than creating a base from were public participation could be widely promoted.

During the implementation of the GAP I it seems that the Indian Government was looking more at getting the message across among the people and did not focus on the underlying social problems that caused the pollution. In some instances police task forces were created in order to monitor the pollution of the Ganga River[154]. These forces only sharpened the already difficult relationship between the Indian officials and the public. Instead of trying to get public support for a reduction of pollution in the Ganga, people were now being harassed

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152 Helmer and Hespanhol, *Water Pollution Control*, 6

153 Das and Tamminga, *The Ganges and the GAP*, 1657

154 Das and Tamminga, *The Ganges and the GAP*, 1657

and punished by the police[155]. Besides this corruption reared its head. Police officials would for instance dump dead bodies in the river, while being paid the money for a cremation[156]. Both cases alienated the public more from the officials than it unified them to reduce the Ganga's pollution.

It is clear that the implementation of the different stakeholders in the Gap I has not been very successful. One new stakeholder that would be implemented was the citizens monitoring committee (CMC)[157]. The CMC's would be implemented in the different cities and existed out of citizens and the cities' mayor. The goal was to promote the citizens participation in the GAP I. Eventually most of the cities never saw CMC constituted[158]. In those cities where they did implement CMC's it did not work properly. One of the reasons that is didn't work was the poor response among the citizens.

2.5 Clean-up program under the new government

In 2014 Narendra Modi became the new Prime Minister of India. During the campaign of Modi's Bharatiya Janata Party (BJP) he promised to focus on boosting the economic development of India[159]. Modi has addressed that the Ganga river has the potential to generate enormous economic activity[160]. Therefore in 2014 the 'Nanami Gange' project was launched by Modi's Government, in order to clean up the Ganga and to bring back the past

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155 Ibid.

156 Ibid.

157 Indian Institute of Technology Kanpur, *SWOT Analysis of Ganga Action Plan*, 22

158 Ibid.

159 Krishna N Das, "India's holy men to advice on Modi's Ganges river cleanup". *Reuters*, June 12, 2015, accessed June 20, 2015, http://www.reuters.com/article/2014/06/12/india-environment-ganges-idUSL4N0OT37220140612

160 Express News Service, "Modi takes stock of Ganga cleaning exercise". *The Indian Express*, March 27, 2015, accessed June 20, 2015, http://indianexpress.com/article/india/india-others/pm-narendra-modi-takes-stock-of-ganga-cleaning-exercise/

glory of the river[161]. A total of Rs. 2.037 crore was promised funded by the Indian Government for the clean-up plan during the start in 2014[162]. On March 14th 2015 it was announced that the project is getting a financial boost of Rs. 20.000 crore[163].

What is important in the new clean-up plan is that it looks much less state centred than the previous clean-up plans. The programme is aimed on involving states, local bodies and individuals[164]. The top-down approach of the GAP I is replaced by a inclusion of all stakeholders. The clean-up of the Ganga is now aimed to be a 'people's movement'[165]. In this new approach Public Private Partnership (PPP) plays a large role, which provides additional funds to set up the different sewage plants and replace or built sewer systems[166]. The targets of the new plan are 118 towns along the banks of the Ganga river[167]. The first step in the process is to achieve good sanitation in these towns and to develop waste water treatment and waste management. The World Bank has extended help in order to install toilets in all

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161 Richa Sharma, "Modi Upset over Slow Progress on His Pet Ganga Cleaning Project". *The New Indian Express*, February 25, 2015, accessed June 20, 2015, http://www.newindianexpress.com/nation/Modi-Upset-over-Slow-Progress-on-His-Pet-Ganga-Cleaning-Project/2015/02/25/article2685142.ece

162 Vishwa Mohan, "Ganga cleaning mission get Rs 20,000 crore boost". *The Times of India*, May 14, 2015, accessed June 20, 2015, http://timesofindia.indiatimes.com/india/Ganga-cleaning-mission-gets-Rs-20000-crore-boost/articleshow/47262364.cms

163 Ibid.

164 Ibid.

165 Das, "India's holy men to advice on Modi's Ganges river cleanup".

166 Mohan, "Ganga cleaning mission get Rs 20,000 crore boost".

167 Amit Choudhary, "Ganga will be cleaned by 2018, Centre tells SC". *The Times of India*, January 15, 2015, accessed June 20, 2015, http://timesofindia.indiatimes.com/india/Ganga-will-be-cleaned-by-2018-Centre-tells-SC/articleshow/45892506.cms

households in the tribal areas[168]. Modi's Government is aiming on finishing the new clean-up plan by 2018[169].

The new clean-up plan seems to be a progress in comparison to the past GAP. The state centred approach has been replaced by involvement of all stakeholders. In contrast to the past the communities are made an important part of the plan. As their involvement in the clean-up process is vital, this is a positive development in order to reduce the pollution of the Ganga. The involvement of the communities could really give a boost to India on the whole.

Chapter III: Communities as stakeholders in Uttarakhand

3.1 Introduction

The aim of this research is to find out how the local communities can be made stakeholders in the process of cleaning the Ganga in order to improve the water quality of the Ganga. On the basis of the analysis of the Ganga Basin and the pollution the importance of involvement of local communities have become clear. However after the analysis of the 1986 GAP it can be concluded that the approach of the Indian Government has been state centred, rather than focussed on the communities. In order to solve the main question of this research it is therefore important look at cases in which communities are made stakeholders. This chapter looks at two cases of community involvement in Uttarakhand to find out how it is applicable to the cleaning of the Ganga river.

3.2 Community participation in Uttarakhand

The mountainous state of Uttarakhand is the state where the Ganga river finds its origin. It is endowed in national resources. The state is divided in thousands of rivers which get their water from rainfall and snowmelt[170]. The state's environment is a very important part of the state's economy and plays a vital role in the livelihood of the people. Due to different

168 Kumar Vikram, "Ganga still waiting for Modi's Midas touch: Supreme Court slams Centre for slow progress cleaning holy river". *Mail Online India*, May 4, 2015, accessed June 20, 2015. http://www.dailymail.co.uk/indiahome/indianews/article-3066542/Ganga-waiting-Modi-s-Midas-touch-Supreme-Court-slams-Centre-slow-progress-cleaning-holy-river.html

169 Choudhary, "Ganga will be cleaned by 2018, Centre tells SC".

170 Ravi Chopra, *Uttarakhand Development and Ecological Sustainability*, (New Delhi: Oxfam India, 2014), 4

circumstances, the state has encountered different environmental problems during the last decades. In some of these affairs, the communities have served as important stakeholders.

Because Uttarakhand has the experience with community participation in environmental affairs, it can serve as a case study in order to find out how communities can be made stakeholders in the Ganga clean-up process. Two examples of successful community participation in the state are the Uttarakhand Rural Water Supply and Sanitation Project and the Chipko Movement. Because both cases show how community participation in environmental affairs can be successful, they can serve as best practices for a Ganga clean-up plan.

3.2.1 Uttarakhand Rural Water Supply and Sanitation Project

In 1996 the Swajal Project was introduced in Uttarakhand, which at the time was part of undivided Uttar Pradesh[171]. The Swajal Project was a pilot in which the local communities in different rural areas were given the change to operate and maintain the water supply in their areas. The theory was that by giving the communities the power over their own water supply, their sense of ownership would help in making the water supply evolve and eventually be sustainable[172]. This pilot showed that local communities were able to plan, construct and maintain their own water supply[173]. After it was concluded that the pilot was successful, Uttarakhand became the first state in India to implement a decentralized approach for water supply in 2006[174]. Under the 'Uttarakhand Rural Water Supply and Sanitation Project' the decision-making about water supply systems at all levels was done by the communities. The role of the Government of Uttarakhand changed from being a provider of water service to a facilitator of water.

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171 Roli Misra, *Drinking Water Management through Community Participation: An Insight into the SWAJAL Project in Uttarakhand*, (Indian Economic Journal , Special Issue, December 2011), 4

172 Misra, *Drinking Water Management through Community Participation*, 2

173 Kapil Lall and Dr. Smita Misra, "Uttarakhand Decentralizes Rural Water Supply; Uttarakhand Rural Water Supply and Sanitation Project", *Innovations in Development*, Issue 9 (2013), 5

174 Ibid., 3

The communities were given various technological options[175]. These options all had different costs and labour requirements. The communities made their own decision of which system they wanted to implement. During the implementation of the water supply systems the communities were supported by various NGO's[176]. Different locals were appointed and trained to operate and maintain the new systems. One very important aspect of the project was transparency. In every stage of the project the aim was to maintain complete transparency[177]. At all times the project details, maps of the supply systems, information about the contractors and the funds were displayed in the villages. Every community member had therefore easy access to information regarding the project. This minimized the change of funds being misused by involved parties. It also allowed the people to monitor the progress at every stage. This transparency also led to communities feeling more involved in the project.

The results of the project have been very positive. Before the start of the project in 2006, only 21 per cent of the rural households in Uttarakhand had individual latrines[178]. In 2012 this number had increased to a total of eighty per cent of the total rural households. Besides this the communities no longer have to travel multiple hours to get water. This project has reduced health risks and pollution. Also it has improved the sustainability of water supply systems[179].

The Uttarakhand Rural Water Supply and Sanitation Project has showed how communities can be made stakeholders in an environmental process. The communities are willing to plan, implement, operate and maintain the systems. The transparency of the project has ensured that the funds are not misused and make communities feel involved. In this case the Indian

175 Ibid., 7

176 Water and Sanitation Program, *Towards Drinking Water Security In India*, *Lessons from the Field*, (New Delhi: Roots Advertising Services Pvt. Ltd., 2011), 114

177 Lall and Misra, "Uttarakhand Rural Water Supply and Sanitation Project", 8

178 Water and Sanitation Program, *Towards Drinking Water Security In India*, 115

179 Lall and Misra, "Uttarakhand Rural Water Supply and Sanitation Project", 10

Government has switched from the role of provider to facilitator. By doing this it has created a perfect partnership of communities, NGO's and the Government itself.

3.2.2 Chipko Movement

Uttarakhand has a rich history when it comes to natural disasters. Frequent floods and droughts have been affecting the lives from the inhabitants of the state for centuries[180]. One of the biggest disasters happened very recently. In June 2013 massive floods and landslides as a result of heavy rainfall left Uttarakhand in a state of devastation, killing thousands of people and destroying many people's livelihoods[181]. Immediately after the disaster the question raised if the disaster was just an unpredictable natural phenomenon or if it was the result of human interaction with nature[182].

A similar disaster happened in 1970, when massive floods destroyed much of the livelihood of the people of Uttarakhand, at that time still part of undivided Uttar Pradesh[183]. Uttarakhand is richly endowed in forest[184]. In the years before 1970 deforestation had taken place in big parts of Uttarakhand. After the 1970 floods local communities realised that deforestation was one of the causes the flood had been so disastrous to the state[185]. The communities realised that the deforestation had to be stopped in order to protect their livelihoods. This led to the Chipko movement in 1973[186]. The aim of this movement was to protect the forest and stop deforestation. By embracing trees, Chipko means to hug, the

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180 Chopra, *Uttarakhand Development and Ecological Sustainability,* 13

181 Ibid., 13

182 Ibid., 18

183 H. Shah, "Communication and Marginal Sites: The Chipko Movement and the Dominant Paradigm of Development Communication". *Asian Journal of Communication*, 18:1 (2008), 37

184 Chopra, *Uttarakhand Development and Ecological Sustainability,* 13

185 Shah, "The Chipko Movement", 37

186 A. Singhal & S. Lubjuhn, "Chipko Environmental Movement Media (India)". In J.D.H. Downing (Ed.). *Encyclopedia of Social Movement Media*, 91-92. Los Angeles: Sage Publications, 2010, 91

movement tried to prevent companies from cutting down trees. On different occasions the movement has been able to prevent deforestation[187]. Besides this they have been able to plant trees and contribute to afforestation.

The Chipko movement is primarily a livelihood protection movement rather than a forest conservation movement. After the floods op 1970 the communities realised that the deforestation, approved by the Indian Government, was threatening their livelihoods. For the Indian Government deforestation was of big economic importance. The communities therefore took matters into own hands in order to protect their own livelihoods. The movement has been really active during the 1980ie and 1990ies with big success. During the 1980ies the Chipko movement succeeded in reducing the commercial logging in Uttarakhand[188]. Their knowledge was used in order to reduce the risks of catastrophes. The Chipko Movement has been able to influence the policies of the Indian Government regarding deforestation. Besides this the Chipko movement has caused widespread awareness of the people's environment among the Indian public[189]. From the moment that the Chipko Movement became an active stakeholder in the process, the Indian public became aware of the importance of forests for soil and water regimes. The public tends to listen more to a movement of community members, rather than to government or state agencies.

The Chipko movement is another example of how communities can be made stakeholders in an environmental process. It shows how important the involvement of communities is. Deforestation is approved by the Indian Government because of its economic benefits. However the effects on the local communities are overlooked. These communities experience the effects of deforestation as their livelihoods are destroyed again and again. They have the knowledge about their environment and know what is needed to preserve it.

3.3 Uttarakhand: Community participation at its best

The examples of the Uttarakhand Rural Water Supply and Sanitation Project and the Chipko

187 Shah, "The Chipko Movement", 38

188 Singhal & Lubjuhn, "Chipko Environmental Movement Media", 92

189 Ibid.

Movement show that community participation can be very important in an environmental process. In the case of the Uttarakhand Rural Water Supply and Sanitation Project the people are actively involved by the Indian Government. In the case of the Chipko Movement the local communities took matters into own hands and eventually influenced the Indian Government. In both situations the outcome was positive for the environmental problems. These cases can serve as a best practice for the Ganga clean-up plan.

One aspect of the process of cleaning the Ganga that has been criticized is the organisational infrastructure of the GAP I. This plan was very state centred and local agencies were not involved in the process at all. The case of the Uttarakhand Rural Water Supply and Sanitation Project shows how moving from a state centred approach to a community approach has its benefits. During the process of the GAP I the agencies assigned to perform the plans were given tasks they couldn't handle, therefore being incapable of fulfilling the desired tasks. However in the case of the Uttarakhand Rural Water Supply and Sanitation Project the local communities are the ones that develop the plans that fit the best in their own environment. They implement, operate and maintain the systems. During the process of the Ganga clean-up a similar approach is needed in order to succeed. The Indian Government should use the knowledge of the communities in order to implement the right plans. Because the clean-up takes place on a local level, the communities should be the ones making the decisions, with the Indian Government in the role as a facilitator. Different NGO's should be in charge of helping the communities during the clean-up process. This should change the Ganga clean-up form a government program to a people's program. This approach has at the same time the benefit that the local communities have access to information regarding the Ganga clean-up project. This minimizes the change of funds being misused by involved parties. It also allowed the people to monitor the progress at every stage and makes them feel involved in the project.

A second point about the GAP I that has been criticized is the interaction between the plan and the Indian public. There was a lack of public awareness about health and the problems pollution can cause. Besides this the public just didn't believe the fact that a holy river could be polluted, because the Ganga was thought to have self-cleaning qualities. The case of the Chipko Movement has showed how the involvement of local communities can contribute to the awareness about a problem. From the moment that the Chipko Movement became an

active stakeholder in the process, the Indian public is became aware of the importance of forests for soil and water regimes. If the Indian Government actively involves the local communities in the clean-up process, they can make each other aware of the importance of a clean Ganga river for their livelihoods.

3.4 The way forward

One social aspect that must not been overlooked is the literacy rate in the Ganga Basin. Literacy rate can be used as an indicator of the awareness of people about health and hygiene. Throughout the Ganga Basin the literacy rate is very low. The Indian Government must therefore focus on raising the literacy rate by providing education to more people in the Ganga Basin. This could contribute to a better awareness about health and hygiene, which eventually will be contribute to a cleaner Ganga.

In order to succeed in cleaning the Ganga river the local communities have to be stakeholders in the process. The Indian Government has to actively promote the involvement of the communities. Much more power has to be given to the local communities in this process. The Indian Government must change its role from supplier to facilitator. Different NGO's should be appointed to help and guide the communities is the process of the Ganga clean-up. At all times the distribution of funds together with other information about the Ganga clean-up process must be available to the communities.

Also the importance of the religious leaders of communities is important. The holiness of the river has created an image among the Indian people that the river is self-cleaning and therefore can't be polluted. Because of this thought, people are not aware of the fact that the water quality of the Ganga is decreasing and pollution of the river is rising. The religious leaders have to be made aware of the fact that the rising pollution can have enormous consequences for the communities. They have the power to make the communities aware of the alarming situation and influence their behaviour.

If the local communities are actively involved by the Indian Government they will become more aware of the pollution and its consequences. This will make them feel responsible for the protection of their livelihoods. Only if this is reached, local communities will be able to contribute to the improvement of the water quality in the Ganga river.

Conclusion

This research has focussed on the pollution of the largest river of India: the Ganga river. Running through five different states it covers more than 26 per cent of the country's landmass and supports 43 per cent of India's population. The influence of the river on the lives of the people inside the Ganga Basin is huge. The Ganga river is however polluted and pollution levels are rising. Because the river plays such an important role in the lives of many Indians, pollution could have enormous consequences for the people in the Ganga Basin. Through their daily interaction with the river, the local communities have a huge influence on the Ganga and its pollution. This means that they should at the same time be able to contribute to improvement of the water quality of the Ganga. A Ganga clean-up plan should therefore involve local communities in the process. Until today there is a lack of active involvement of local communities as stakeholders in the Ganga clean-up process. The main question of this research has been: '*How can local communities contribute to improve the water quality of the Ganga?*. The hypothesis was that if local communities are actively involved in the Ganga clean-up plan, the Ganga can be cleaned.

A social analysis of the Ganga Basin has shown the importance of the river for the Indian people. In the states of Uttarakhand, Uttar Pradesh and Bihar, almost one out of four people lives in the Ganga Basin. In West Bengal even half of the population of the state lives in the Ganga Basin. The biggest part of the population lives in the rural areas. In these areas the inhabitants lack the proper sanitations. Over the last decades the population has grown enormously in all five states the river flows through and predictions are that in the future even more people will depend on the Ganga river. Among the people in the Ganga Basin the literacy rate is not very high. The low numbers show that among the communities in the Ganga Basin the awareness about health and hygiene is likely to be not very high. In order to improve the water quality of the Ganga the Indian Government should focus on raising the literacy rate in the Ganga Basin by providing education to the people.

An economic analysis of the Ganga Basin has shown that the Ganga river plays a significant role in the economy of the Basin. The river is used in many different economic ways. The Ganga is for instance used for commercial fishing, as an economic infrastructure, for agricultural irrigation and tourism purposes. People in the five states are economically depending on the Ganga river. All the states could therefore be influenced by rising pollution

in the river. A decrease in pollution of the Ganga river is therefore vital for the economy of the Ganga Basin.

A cultural analysed showed that the Ganga has a high cultural and spiritual status in India. Many Hindus believe that the Ganga river has cleansing abilities. Because of this people bath in the Ganges on a daily basis in order to get cleansed. During different Hindu festivals people are mass-bathing in the Ganga river as part of this ritual cleansing. Besides this the river is used to dump the ashes or unburned dead bodies of the deceased. This is done for religious purposes or because families can't afford cremation of the deceased. The holiness of the river has also created an image among the Indian people that the river is self-cleaning and therefore can't be polluted. The religious leaders have to be made aware of the fact that the rising pollution can have enormous consequences for the communities. They have the power to make the communities aware of the alarming situation and influence their behaviour.

The pollution in the Ganga river has different reasons. Human and industrial waste are dumped in the river, causing the pollution to rise. Besides this the cultural significance of the Ganga results in mass-bathing and the dumping of dead bodies and ashes in the river. The withdrawal of water from the river for drinking or irrigation purposes is another reason the pollution is rising. This pollution is influencing human and aquatic life and could further influence the economic and cultural profile of the Ganga Basin.

The 1986 Ganga Action Plan to clean the Ganga river has had much criticism and has been referred to as the "Ganga Inaction Plan". There have been doubts about its motivation. Many have argued that it was highly politically motivated, rather than environmentally. Also the organisational infrastructure of the plan has been criticized. The top-down method of the Indian Government has resulted in a rise of costs, wrong implementations and unfinished projects. Lastly there was almost no public participation. The plan was state centred, rather than a people's plan. The Indian Government seemed to be looking at getting the message of a polluted Ganga across the people, rather than focus on the underlying social problems that are causing the pollution. The new clean-up plan under the new Government of Modi seems to be a progress in comparison to the past GAP. The state centred approach has been replaced by involvement of all stakeholders.

In order to find out how the communities can contribute to improve the water quality of the Ganga river, two best practice from the state of Uttarakhand have been highlighted. The examples of the Uttarakhand Rural Water Supply and Sanitation Project and the Chipko Movement show that public participation can be very important in an environmental process. In order to succeed in cleaning the Ganga river the local communities have to be stakeholders in the process. The Indian Government has to actively promote the involvement of the communities. Much more power has to be given to the local communities in this process. The Indian Government must change its role from supplier to facilitator. Different NGO's should be appointed to help and guide the communities is the process of the Ganga clean-up. At all times the distribution of funds together with other information about the Ganga clean-up must be available to the communities. Besides this religious leaders must be actively involved. They have the power to influence the local communities.

If the people are actively involved in this way they will become more aware of the pollution and its consequences. This will make them feel responsible for the protection of their livelihood. Only if this is reached, local communities will be able to contribute to the improvement of the water quality in the Ganga river.

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