



**HOW DO WE DEAL WITH THE ENVIRONMENTAL CATASTROPHE FACING KASHMIR ?**

**MODEL: HOW TO SAVE DAL AND NAGEEN LAKE ?**

Gabriel Iqbal  
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## CONTENTS

Foreword

Acknowledgement

Introduction

Historiography

Current Situation and Ideology

Kashmir's National Reserves

HOW DO WE DEAL WITH THE ENVIRONMENTAL CATASTROPHE FACING KASHMIR ?

The Threat to Kashmir's Lakes and Rivers

The Balance of Deforestation and Reforestation

Deforestation 1 = Reforestation 100 1:100

Reforestation Day

Kashmir's Endangered Wildlife

Kashmir's Environmental Awareness Programme

(1) The threat to Kashmir's lakes and rivers

(2) The balance of Deforestation and Reforestation

(3) Kashmir's endangered wildlife

Education

References

MODEL: HOW TO SAVE DAL AND NAGEEN LAKE ?

## **Foreword**

As part of the growing awareness about Sustainable Development, Gabriel Iqbal has researched and campaigned in various corners of the world. He has organised and delivered lectures in Britain, India, Africa and the Middle East.

Gabriel was born in Kashmir in 1970 and migrated to England in 1990 to pursue his educational interests. He attained a BSc. (Hons) in Biology and a Post Graduation in Science Education from the University of Leeds. He aims to continue his research in History and Philosophy of Science by gaining a doctorate. After year's of research and collection of source material Gabriel aims to publish his findings in a book titled, "Framework For Reviving Universal Consciousness".

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## INTRODUCTION

### Historiography

Kashmir, or Kasheer, as it is known by its people is encapsulated in the north by the Karakorum range and in the south by the Pirpanchal range. The vale has an unutterable mystic aura surrounding its awe inspiring dazzling splendour. Aquifers and streams sprout in its bosom as if from an unknown origin. Its forests are virgin and the smell of gymnosperm cones has a drug like effect on the subconscious. Kasheer's endemic species such as the majestic Hangul looks like a graceful and elegant knight roaming the dense conifer forest.

The Buddhists of Kasheer helped in imparting the tradition of not killing wild animal hence being partly responsible for its preservation. It was as early as 1887 when the rulers of Kasheer started to impose some arbitrary game laws but it was not until 1901 that a Game Preservation Department was set up. Later in 1932-33 the Game Preservation Department adjoined with the Forest Department. This was followed by bringing State 'Rakhs' into the control of the Forest Department. In 1972 the Wild Life Protection Act was enacted, which narrowed the extinction rate to a large extent. During 1978-79, Kasheer saw the creation of the Directorate of Wildlife Protection. The Directorate of Wildlife Protection became independent in 1982 and a Chief Wildlife Warden replaced the "Game Warden" (earlier nomenclature). This new force set up some major changes by introducing Project Hangul, Project Snow Leopard, Project Black Bear, Project Black necked Crane... Hence being instrumental in saving the endemic and common species from near extinction.

### Current Situation and Ideology

The future of Kashmir lies in doldrums, whilst its present being a "suspended animation". The aim of this paper is to highlight the current environmental degradation in Kashmir together with charting out a framework for its resuscitation. The framework elaborated upon is devised to be flexible and interactive. In view of the fact that no single elixir can breathe freshness into Kashmir's dwindling environment and culture, I hope to partake in a new revised and dynamic perspective based on exerting one's opinion and mutual consensus. In doing so we might disagree with the political symbolism's and religious thralldom constructed over centuries of ignorance, nihilism and dogma.

The Sufi's of Kashmir have described the environment of Kashmir in their didactic lyrical poems in the most distinguished and thoughtful manner. "The Valley of Kashmir" by Walter Lawrence is considered as a source reference book on the history of Kashmir (Lawrence, 1967). Other than Lawrence's anthropological and scientific study of Kashmir, both the "Ain Akbari" and the five thousand year old chronicle of Kashmir, the "Raj Terangni" are enough testimonial to the rich culture of Kashmir. Just consider this, where did most of the earlier and contemporary scholars and statesmen of the Indian sub-continent originate from? You will not need to look far as the scrolls of history point to Iqbal and Nehru, both of Kashmiri origin. Iqbal breathed freshness into the human motivational psyche and Nehru pursued Indian's liberation from 200 years of colonial rule by England. It is ironical that Kashmir gave the Indian sub-content the zest for freedom and itself lies in the shackles of darkness.

Frederick Nietzsche's statement, "that which cannot kill you makes you stronger" cannot be better applied then to the destitute youth of Kashmir. The level of emancipation and steel grit will of Kashmiri youth is showing on the one face a tormented soul and the other, a subject of "Self Affirmation".

To save Kashmir's environment is an imperative task which demands the awareness and co-operation of the masses. It is through their consciousness and part taking in the reconstruction effort that we can aspire to return to a decent culture and our wealth, natural environment.

An alarming statement issued by the Directorate of Environment, Jammu and Kashmir State, reads as follows:

"The states environmental scenario is rather gloomy. We experienced many ecological disturbances, such as Black snow in Kashmir, Blue rain in Jammu and Red waters in Dal Lake. Otherwise also our natural resources: forest, lakes, flora, fauna and other biological wealth is, under recession."

(Directorate of Environment, May 1996)

Despite the efforts of some dedicated and conscious people, there has been a large scale embezzlement of environmental funds.

### **Kashmir's National Reserves**

Since its establishment in 1979, the Directorate of Wildlife Protection has brought approximately 15,000 square kilometres of land under its hold. The directorate has been successful in designating National Reserve status to this area.

The number of designated National Reserves in Kasheer is tabulated as under:

| <b>National Reserves</b> | <b>No.</b> |
|--------------------------|------------|
| Sanctuaries              | 13         |
| Game Reserves            | 18         |
| Wetlands                 | 12         |
| National Parks           | 4          |
| Biosphere Reserves       | 2*         |

Source: Directorate of Environment, May 1996

\* Biosphere Reserves under consideration (Directorate of Environment, May 1996)

According to "Green Scan", the monthly newsletter of the Directorate of Wildlife Protection, the planned Biosphere Reserves are to be set up at Overa-Aru and Gulmarg respectively. (Directorate of Environment, May 1996)

### Overa-Aru Biosphere

The Overa-Aru Biosphere is situated at an altitude of 3050 - 5425 meters above sea level. It is located at a distance of 56 Kms. from Srinagar (air: 42.6 Kms.) and 12 Kms. from Pahalgam (air distance: 9.92 Kms.).

The Overa-Aru Biosphere is proposed to cover an area of 400 sq. Kms. (approx.). The Biosphere Reserve will conserve the following species:

| Animals   | Birds  |
|---|--|
| Hangul ( <i>Cervus elaphus hangul</i> )               | Monal ( <i>Lophophorus impejanus</i> )             |
| Musk deer ( <i>Moschus moschiferous isabellinus</i> ) | Golden oriole ( <i>Oriolus oriolu</i> )            |
| Brown bear ( <i>Ursus arcto</i> )                     | Jungle crow ( <i>Corvus corone macrorhynchos</i> ) |
| Leopard ( <i>Felis bengalensis</i> )                  | Blue Rock pigeon ( <i>Coluba livia</i> )           |
| Snow cock ( <i>Tetraogallus himalayensis</i> )        |  |
| Hoopoe ( <i>Upupa epos</i> )                          |  |
| Griffon vulture ( <i>Gyps himalayensis</i> )          |  |

Source: Directorate of Environment, May 1996

## Gulmarg Biosphere

The Gulmarg Biosphere is situated at an altitude of 2,400 - 4,300 meters above sea level. It is located at a distance of 49.4 Kms. from Srinagar (air: 38.2 Kms.).

The Gulmarg Biosphere is proposed to cover an area of 180 sq. Kms. (approx.). The Biosphere Reserve will conserve the following species:

| <b>Animals</b>  | <b>Birds</b>                                       |
|---|--|
| Hangul ( <i>Cervus elaphus hangul</i> )               | Monal ( <i>Lophophorus impejanus</i> )             |
| Musk deer ( <i>Moschus moschiferous isabellinus</i> ) | Golden oriole ( <i>Oriolus oriolus</i> )           |
| Brown bear ( <i>Ursus arctos</i> )                    | Jungle crow ( <i>Corvus corone macrorhynchos</i> ) |
| Leopard ( <i>Felis bengalensis</i> )                  | Blue Rock pigeon ( <i>Coluba livia</i> )           |
| Black bear ( <i>Selenarctos thibetanus</i> )          | Snow cock ( <i>Tetraogallus himalayensis</i> )     |
| Red fox ( <i>Vulpes vulpes montana</i> )              | Hoopoe ( <i>Upupa epos</i> )                       |
| Griffon vulture ( <i>Gyps himalayensis</i> )          |  |
| Chukor ( <i>Alectoris chukar pallesens</i> )          |  |
| Kashmir Roller ( <i>Coracias garrula semenowi</i> )   |  |
| Bearded vulture ( <i>Gypaetus barbatus</i> )          |  |

Source: Directorate of Environment, May 1996

**Following is a list of the National Parks:**

1. Dachigham National Park, Kashmi
2. City Forest National Park, Kashmir
3. Kishwar High Altitude National Park, Jammu
4. Hemis High Altitude National Park, Ladakh

Some of the major Sanctuaries are as under:

| <b>Kashmir</b> | <b>Jammu</b> | <b>Ladakh</b>             |
|----------------|--------------|---------------------------|
| Overa          | Nandini      | Korakaram (Nubia - Sayok) |
| Baltal         | Ram Nagar    | Chanthang                 |
|                | Hirpora      | Surinsar-Mansar           |
|                | Limbar       | Jasrota                   |

Some of the major reserves are:

| <b>Game</b> | <b>Wetland</b> |
|-------------|----------------|
| Dachigham   | Hokarsar       |
| Shikargah   | Highgham       |
| Nadur       |                |
| Mirgund     |                |
| Shalbug     |                |
| Kranchu     |                |
| Chatlapora  |                |

## HOW DO WE DEAL WITH THE ENVIRONMENTAL CATASTROPHE FACING KASHMIR ?

### The Threat to Kashmir's Lakes and Rivers National Reserves

A recent study conducted by the University of Kashmir suggests alarming results for the survival of Dal lake. Dal, like many other lakes throughout the world, is going through a process known as cultural eutrophication. When large amounts of organophosphates such as nitrates (N), phosphates (P) and potassium (K) are discharged into a lake, the lake becomes eutrophic (nutrient rich). Eutrophication leads to an increase in the algal life of the lake. The increase in algal life causes a shift in the pH level and an increase in the biological oxygen demand (B.O.D.) of the lake. The increase in the algal life is also referred to as an "algal bloom". The increase in the algal population leads to a decrease in the oxygen content of the lake (hence the B.O.D. increases). As a result of reduced oxygen content of the lake, most of the animal and plant species of the lake other than the algae and some invertebrates suffer and gradually their population declines (Miller, 1995).

In 1993 most of Nageen and Dal was reported to be colonised by various species of algae. A full scale "algal bloom" has now taken over most of Nageen and Dal lake. According to Dr. Kundanger (Head and Chief Investigator, Hydro-Biology Lab.) of the Directorate of Environment, Kashmir, "The recent red water phenomenon due to euglenoid bloom is the positive sign of enrichment of Dal water due to sewage disposal" (Kundanger, 1997).

Dr. Kundanger further states:

"The ecological condition of Anchar Lake which is connected to Dal Lake through Nall-Amir Khan is even worse. It looks like a dead lake. Huge areas of the lake along its North West shores have silted up and form a part of arable land. The density of aquatic weeds is so high that navigation has become impossible. The effluent discharge from the Medical Institute has further worsened the situation. The condition of the Wular lake, Manasbal, Ahabsar, Waskur, Khushalsar, Gilsar, Nilnag etc. are far from good. The weed growth being very high, deep water anoxic, turbidity levels increasing. The situation of the springs of Kashmir like Muttan, Malaknag, Verinag indicate that their water quality is deteriorating at an alarming rate." "The condition of River Jehlum and Doodganga stream is well known to everyone, they are polluted to such an extent that their water has been since abandoned for drinking purposes. The recent studies carried by HBL on the drinking water quality of various areas of the valley clearly indicate that conductivity, calcium, magnesium, chloride, ammonical nitrogen, nitrate and Iron are much higher than the permissible levels."

(Kundanger, 1997)

Another alarming study conducted by the University of Kashmir suggests that large amounts of siltation due to surface run-off in and around the Tailbal region is leading to a gradual decline in the water level in the lake. Due to heavy siltation the water level in Tailbal stream has decreased to an average of about four feet.\*

Pockets of land have been created by dumping soil around the periphery of the lake. These pockets are generally seen around the Ranawari and Nishat area.

As a result of the combined effect of the above, within the last few years the total area of the lake has been reduced from 24 km<sup>2</sup> to about 10 km<sup>2</sup>. A decrease of about 14 km<sup>2</sup>. \*

To counteract the declining state of the lake, by far the following measures have been taken by the University of Kashmir: (a) setting basin at Tailbal; (b) stop further encroachment. \*

The long term plan is to introduce: (a) check dams above the Tailbal area; (b) stop encroachment by constructing a pedestrian road between Tailbal and Hazaratbal using material from the bed of the lake; (c) proper disposal of wastes from house boats; (d) sewage treatment plant at Nehru park; (e) physical removal of excess weeds from the lake; (e) Aforestation of the surrounding hills to reduce surface run-off.

(Information from interview (1994) with Syed Maqbool (Retired superintendent engineer, University of Kashmir).

### **The Balance of Deforestation and Reforestation**

In 1991 the Karakorum ranges of Kashmir experienced 'black snowfall' for the first time in recorded history. During the same period Jammu experienced it's first ever blue rainfall, acid rain. Samples of the snow were collected and studies by the authorities at the University of Kashmir. Scientific speculation has linked the "black snowfall", "blue rainfall" and other bizarre weather phenomena in Jammu and Kashmir to the oil slick that took place during the Gulf War of 1991, as these weather conditions took place following the Gulf War.

Another environmental collapse that Kashmir is undergoing is known as "forest die-back". Forest die-back is a direct resultant of acid rain (Campbell, 1993). The phenomena of "forest die-back" was thought to be predominant in the forests of Western countries, but recent evidence suggest that "forest die-back" has taken place in the Himalayan forests particularly around the Karakorum and Pirpanchal range. The valley of Kashmir lies enshrouded between these two ranges.

Meteorological models also suggested that the clouds formed in the India ocean carry the sulphur dioxide (a major component of acid rain) discharged from Indian subcontinent's cities and industrial plants and release it in and around the cool Himalayan valleys.

Massive and unaccountable deforestation has taken place in the forests of Kashmir. According to Dr. Kawosa the director of Department of Environment, Jammu and Kashmir, the forest cover in Kashmir has gone down to 15% of the total geographical area" (Kawosa, 1996).

The least possible number of trees should be chopped down each year. To every tree that is chopped down at least 100 trees should be planted.

Deforestation 1 = Reforestation 100

On the first of every month a Reforestation Day should be allocated. On this day the ratio of Deforestation to Reforestation should be maintained.

Various educational institutes should take part on the Reforestation Day.

### **Kashmir's Endangered Wildlife**

Some of the Endangered animals of Kashmir are as following:

1. Snow Leopard (*Panthera uncia*)
2. Ibex (*Capra silberica*)
3. Musk Deer (*Moschus moschiferous*)
4. Tibetan Antelope (*Panthelops hodgsoni*)
5. Markhore (*Capra falconery*)
6. Ammon (*Ovis ammon hodgsoni*)
7. Tibetan Lynx (*Lynx lynx*)
8. Tibetan Gazelle (*Gazella procapra picticaudata*)
9. Black Bear (*Selenarctos thibetanus*)
10. Brown Bear (*Ursus arctos isabellinus*)
11. Barking Deer (*untiacus muntjak*)
12. Wild Yak (*Bos grunniens*)

Law's on killing of Endangered Species need to be strictly implemented.

Funds should be raised for maintenance of the established National Reserves. Tourism industry can also play a major financial role for the survival of Endangered Species.

Educational trips organised jointly by educational institutes and wildlife reserves need to be introduced.

### **Kashmir's Environmental Awareness Programme**

A documentary highlighting the use and abuse of the environment has to be compiled jointly by the:

1. Directorate of Environment
2. Department of Remote Sensing
3. Department of Forestry
4. Department of Wildlife
5. University of Kashmir
6. Srinagar Television Centre

The documentary may be called as the Kashmir's Environmental Awareness Programme.

The documentary has to be well researched providing information in the most informal manner whilst considering the cultural sensitivity of the Kashmiri people.

Srinagar Television Centre could play a central role in assisting the mentioned bodies to compile and present the documentary to the public.

The documentary could be presented as a series programme. The documentary could be classified into the following series:

1. The threat to Kashmir's lakes and rivers
2. The balance of Deforestation and Reforestation
3. Kashmir's endangered wildlife

In addition to highlighting the problems, the focus should be on how to combat the "Environmental Crisis" facing Kashmir's fragile ecosystem. Introduction and use of technological aids for recovery and disseminating information should be encouraged and complied with.

### **Education**

Perhaps a new subject called Environmental Science needs to be devised and implemented into the mainstream course curriculum of schools, colleges and universities.

Seminars, debates and symposiums within schools, colleges and universities need to be organised and encouraged.

The Kashmir's Environmental Awareness Programmes can be shown at various educational institutes.

For additional details please refer to Model on page How to save Dal and Nageen lake ?

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