International Journal of Ecology and Environmental Sciences 48: 3-10, 2022
ISSN: 2320-5199 (Online); https://doi.org/10.55863/ijees.2022.0021

Looking Back at My Guru "Professor Brij Gopal" : An Extraordinary Wetland Ecologist

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INTRODUCTION

Brij Gopal was born on the 7th of March, 1944 in Muzaffarnagar, a city in the upper Ganga-Yamuna *doab* (interfluve) in western Uttar Pradesh, about 100 km north-north-east of Delhi, the capital city of India. It was the birth of a star who, through his knowledge, hard work, and persistence, would eventually shine as a leading Indian light in the galaxy of extraordinary freshwater ecologists the world has ever known. His father, Jagdish Prasad Mittal and his mother, Krishna Kanta Mittal were teachers in school. Eldest of five siblings, Brij Gopal had an early initiation into education. Unfortunately, he suffered a severe injury as a child that crippled his right arm for life and shattered his dream of becoming a medical doctor. Belying his parents' worries, however, he trained himself to write with his left hand and immersed himself in his studies. It ensured fast promotions, enabling him to complete high school (Class X) at the age of twelve.

He completed his Bachelor of Science from Meerut College (1961) and Master of Science from Christ Church College in Kanpur (1964) in Botany. At the age of 24, he acquired his Doctor of Philosophy from the Banaras Hindu University (BHU), Varanasi, in 1968 under the guidance of Prof. Ramdeo Mishra, who is often revered as the Father of Ecology in India. He continued to work with Prof. Mishra as a post-doctoral fellow at BHU till 1970, before joining Agra College as a Lecturer in Botany. He was associated with the National Institute of Ecology as a founding member and ensured its progress uninterrupted till his last breath.

(07 March 1944 – 04 January 2021)

From 1972 to 1985, Brij Gopal served as an Assistant Professor of Botany at the Rajasthan University in Jaipur. He was a visiting professor at the Geobotany Institute, Swiss Federal Institute of Technology, Stiftung Rübel, Zurich, Switzerland in 1984. Brij Gopal joined the School of Environmental Sciences (SES) at the Jawaharlal Nehru University (JNU), New Delhi, in 1986 as an Associate Professor and where he became a Professor in 1998. By the time he superannuated (2009), he had supervised 17 PhD and 12 MPhil students to their respective degrees. In 2011, he set up the Centre for Inland Waters in South Asia (CIWSA), co-located in Jaipur (Rajasthan) and Khajuraho (Madhya Pradesh), under the umbrella of National Institute of Ecology.

It was during one of his trips from Khajuraho to Jaipur that he breathed his last on a cold winter morning of January 2021 in New Delhi. Brij Gopal is survived by his three children – daughters Sudha Gupta and Anjali Sodhi, and son Rajeev Gupta – and

[1]DISCLAIMER – I was a Research Fellow working under his supervision for my MPhil and PhD degrees at the School of Environmental Sciences in Jawaharlal Nehru University (JNU), New Delhi, during 1988-1994. Although this was a period of intense engagement during perhaps his most productive phase, I'm aware that it still offered me a partial glimpse into his life and activities. My appraisal of my *guru* is, therefore, essentially partial, and perhaps biased by my intense personal experiences and opinions, although a gap of nearly three decades does allow me to be more reflective and, hopefully, objective.

three grandchildren. His wife, Dr. Madhu Gupta, passed away earlier in 1995. Brij Gopal had never used the given family surname of Gupta.

A karma yogi

'Workaholic' was an apt description of Brij Gopal for a student like me who worked under his supervision at the School of Environmental Sciences (SES) in JNU during 1988-94. He was in his office at 7 am every day and would work continuously till about 5 pm, with a couple of short breaks for breakfast and lunch in the canteen. Most days, he would be back at around 8 pm to throw in a couple of extra hours before retiring for the day. The routine may seem monotonous and punishing for most people and undoubtedly overbearing to his young scholars, but it was just worship for a *karma yogi*. He worked with the diligence of an ant, exhibiting single-minded determination to amass a tiny morsel of knowledge during his every waking hour. It could be in the form of a new journal article that has just arrived in the parcel, a new manuscript in his mail, or even a conference notification. The glint in his eye would be that of a child receiving his birthday gift. He would carefully open, read, and often stamp his ownership by signing his name on it before placing it in its designated cabinet. However, much of his thoughts emanated during the time he devoted to writing. We sensed it through the furious single-finger tapping on his computer keyboard.

His lifetime *karmayog* made him a scholar, a researcher, and an activist, roughly in that order. My familiarity is with his research, and I will dwell more on this aspect of his life. However, it is important to sketch the different dimensions for a more holistic assessment of a rare personality.

The scholarship of Brij Gopal began to be acknowledged early on (Box 1). In 1974, he became the first recipient of the Science Academy Medal for Young Scientists from the Indian National Science Academy, New Delhi. Several awards followed for his textbooks on ecology and forestry. In 1982-83, he won the coveted Alexander von Humboldt Fellowship for Post-Doctoral work in Germany at the Max Planck Institute of Limnology, PLÖN. More importantly, he was one of the rare scholars to receive five re-invitations. In 1997, he became the second Asian to win the International Fellow Award of the Society for Wetland Scientists. In 2004, the International Association of Limnology awarded him the prestigious Naumann-Thienemann Medal, the first time to someone outside Europe and North America. In 2007, he was one of the lead authors on the Ecosystems chapter for the Nobel prize-winning IPCC's Fourth Assessment Report.

Box 1: List of key academic awards

1974 – Science Academy Medal for Young Scientists from the Indian National Science Academy, New Delhi
1980 – *Akhil Bhartiya Vaniki Sahitya Puraskar* (All India Prize for Forestry Literature in Hindi) from Forest Research Institute (FRI) and Colleges, Dehradun
Gold Medal of Vigyan Academy, Allahabad for best science book in Hindi
1982-83 – Alexander von Humboldt Fellowship for Post-Doctoral work in Germany at the Max Planck Institute of Limnology, PLÖN
1997 – International Fellow Award by Society of Wetland Scientists, USA
2004 – Naumann-Thienemann Medal 2004, by International Association of Limnology
2005 – Fellow, Inland Fisheries Society of India

Brij Gopal flourished as a researcher in Jaipur and became known as a leading Indian limnologist in New Delhi. He edited the International Journal of Ecology and Environmental Sciences for nearly half a century while also being a member of the editorial board of several leading international journals (Box 2). In terms of publications, he was prolific, having authored/ edited 45 books, published over 250 scientific research/ review papers and 70 other articles (a selection is provided at the end). However, it was not the number of publications but the nature of these publications that set him apart. His publications were primarily syntheses of scientific evidence and ideas on diverse aspects of freshwater ecology in general and floodplain wetlands in particular. Many of these emerged as book chapters, conference proceedings, and multi-authored reports, in addition to journal articles, often co-authored with the most accomplished scientists who have shaped the global understanding of wetland ecology. He emphasised the unique characteristics and challenges of Indian and Asian wetlands, championing their cause in clear, unambiguous words. He wrote, "The future of aquatic biodiversity in Asian countries will

Box 2: Editorial positions in scientific journals

Editor, International Journal of Ecology and Environmental Sciences (1974 - 2021)

Member, Editorial Board of

Hydrobiologia (Kluwer Academic Publ., Netherlands) (1988 - 2021)

Wetlands Ecology and Management (SPB Academic, Netherlands) (1990 - 2021)

River Research and Application (Regulated Rivers: Research & Management) (Wiley, U.K.) (1991-2021)

Journal of the Inland Fisheries Society of India (2011-2021)

Marine and Freshwater Research (CSIRO, Australia) (2012-15)

depend upon a radical change in national policies on water, and upon research that can support the development of appropriate policies."[2]

He worked hard to organise a global network of researchers interested in Indian wetlands. He convened INTECOL's First International Wetlands Conference in New Delhi in September 1980. Over the next four decades, INTECOL went on to organise International Wetlands Conference another ten times (every four years), where he remained a member of the organising committee. In India, he created a culture of scientific conferences, encouraging budding scientists and providing opportunities to ecologists to showcase their research. More importantly, these seminars and conferences broadened the discourse on Indian ecology and environment beyond the hegemony of forestry.

Brij Gopal was associated with the International Society for Limnology (SIL) since 1987, initially as a member of different committees and later as its Executive Vice-President during 2007-13. Nationally, he set up at least three organisations during the 1980s and 1990s to promote scientific education and research on ecology and wetland sciences. He was also closely associated with organisations like the World Wide Fund for Nature – India (WWF-India) and the Centre for Science and Environment (CSE). However, it was the National Institute of Ecology (NIE) – a legacy of Prof. R Mishra – that he nurtured with utmost care since 1978, initially as its Secretary-General and, since 2018, as its President.

Brij Gopal became a Member of the UNESCO Expert Panel on "Impact of Human Activities on Freshwaters", under the Man and Biosphere (MAB) Project, as early as in 1972. He was also a Member of the Scientific Advisory Committee, SCOPE-UNEP Project on Wetlands during 1981-85. His association with the Ganga River Directorate began in 1990, when its Director visited our lab in JNU and offered a small project. His association with the Ministry of Environment and Forests (Government of India) grew after that. Between 2001 and 2009, Brij Gopal was on several important committees that provided expert advice, primarily on the conservation of lakes and rivers and biodiversity in general. His expertise was also sought by various other government agencies, such as the Water Quality Assessment Authority, Ministry of Water Resources, and the Planning Commission.

However, more than three decades of engagement with government executives left him frustrated, and he began to approach conservation through the lens of public interest. The National Green Tribunal (NGT) and the Supreme Court appointed him as an expert on several committees. His academic acumen and reputation suited the judicial institutions that were increasingly adopting a radical approach towards environmental conservation but were hobbled by a lack of technical expertise. He also expanded his engagement with well-informed and sincere civil society activists involved in water issues. It was a phase when he worked simultaneously on different fronts – academics, institutions, and activism.

With advancing age, he drove himself harder, taking the radical decision of shifting to village Peera, near the Khajuraho railway station, close to the Panna National Park, where he set up CIWSA. A *karma yogi* for over six decades, he worked tirelessly to understand, and conserve, rivers and floodplain wetlands in India. In the process, he created a body of knowledge, a group of scholars, and a legacy for his ideas, all of which lies orphaned today.

[2]Gopal, B. 2005. Does inland aquatic biodiversity have a future in Asian developing countries. Hydrobiologia, 542, 69–75. In: Segers, H. and Martens, K. (Eds.), Aquatic Biodiversity II. Springer. DOI 10.1007/s10750-004-5736-8

Scientific temper

Brij Gopal was not very popular as a teacher, and he was aware of it. His monotonous ramble for nearly an hour in class sounded more like a soliloquy rather than an inspired sermon. As his PhD student, I had to take his advanced course on Limnology, and my only take-away was that nutrients are essential in wetlands! Looking back, it was indeed the most important take-away, since nutrients act as the bridge between hydrology and macrophytes, the two most distinguishing factors in wetland ecology.

His encyclopaedic knowledge often created barriers in communication with his much less accomplished students, but there were always snippets of beautiful insights that were awe-inspiring. I remember asking him once that if seasonality was cyclic, how do we explain succession, which is directional. He was on his way to the airport, but he quickly grabbed a sheet and drew a circle where the ends did not quite meet and showed a slight net displacement. He used this diagram to develop a spiral, reconciling seasonal changes with the idea of succession. Elegant, culturally intuitive, and something one retains for life.

He was easily accessible since he preferred to work from a corner of the large laboratory that had desks for six scholars, apart from all the instruments stacked around on a broad platform. He also had a small office on the other end of the corridor that was packed with shelves overflowing with books, journals and manuscripts. It was a den where he could retire if he needed solitude or shut himself like *Kaikeyi*[3] to register his displeasure for our omissions or commissions.

Lab work was gruelling, and boringly monotonous. The only excitement was in discussing the work of others, which meant a degree of engagement and involvement in something different. It also provided alternative perspectives to a researcher and much-needed support, when required. We learnt freely from each other, managed samples, and experiments of lab-mates, and even drew attention to publications of mutual interest. More importantly, we would act as sounding boards before presenting our findings to Brij Gopal. He was aware of our informal peer-review mechanism and, I believe, cherished it. He was building a scientific environment in his lab.

Ecological experiments, and chemical analyses, of plants, soil, and water were inherently messy, and often hazardous. If samples were casually dumped, Brij Gopal would himself stack these neatly when no one was around, which was embarrassing. Gajendra, the laboratory attendant, was our lifeline since he not only knew Brij Gopal's code of conduct but could often predict his reactions better than us. A slight misdemeanour, such as a 10-minute delay, could see an extreme reaction one day while even a minor fire could be condoned the next day. Brij Gopal seemed mercurial, but his message on research ethics was loud and clear. Therefore, a countdown on the laboratory door had its desired impact.

Fieldwork in the floodplains of river Yamuna was even more arduous and exhausting, although women scholars would get to hire a regular autorickshaw whose driver, Chhattar Singh, assisted with sample collection. Brij Gopal would often accompany his students to the field, take pictures, and keep a mental record of the changes he saw, which he used later to analyse the data eventually presented to him. While this was possible with scholars working on macrophytes, his area of core expertise, he had to devise other methods to supervise students like myself, who had a zoology background and worked on macroinvertebrates. Although at that time it felt like mistrust for students' data, I now appreciate the ingenuity of seeking patterns in derived data (such as diversity indices) and then using population and life-cycle data to explain these patterns. He trusted science, not his students.

It was not easy to convince him of any observation that differed from the published literature or his personal beliefs. Presenting new observations was daunting since it pitted our limited knowledge against his deep understanding of the subject. However, once he was convinced of a finding, he would own it and champion it. For example, he made me rewrite the results chapter of my PhD thesis nineteen times. Then, it felt like unnecessary harassment, but today

[3]stepmother of Lord Ram in the Indian epic Ramayana, who protested the coronation announcement of her step-son by going into solitary confinement

I realise that it was my most important lesson since I had the opportunity to look at my data set from every conceivable angle and convince myself of what it truly represented. If my external evaluators were not only convinced but actually excited about my findings, it was because of the simple, logical presentation of data. Indeed, my PhD defence turned into a curious debate with Brij Gopal questioning my findings and my external evaluators defending these. Today, I realise that he was taking it as an opportunity to discuss critical issues with his chosen peers. It was again about science, and his student was incidental.

Passions and obsessions

Brij Gopal loved field visits, preferably with his students, and logistics were no deterrent. I was lucky to have seen vast stretches of the floodplains of river Yamuna around Delhi riding pillion on his old two-wheeler. He took his entire batch of scholars to Bharatpur, an unforgettable trip for us all. But my most privileged trip with him was to Kolleru in 1990, where his care, concern, and rare appreciation of my endeavours were most memorable. What struck me was his ability not only to see but appreciate a wetland that did not exist anymore!

It took me a long time to realise that while we need to see water in a wetland, he saw plants as definitive markers of wetlands. He classified wetlands visually, based on their macrophyte assemblages, documented through his camera lens. His book, 'Water Hyacinth'[4], on a plant commonly associated with wetlands in the popular imagination, catapulted him as a leading Indian limnologist. However, to him, the dense cover of floating *Eichhornia crassipes* signified the smothering of a beautiful ecosystem. Like many others, I had once suggested industrial use as a possible solution to the menace to which he had replied, "what about tomorrow, when you will need to *cultivate* the plant to sustain your industry?"

While biotic diversity was his touchstone for wetland conservation, he was not against the productive use of wetlands. He loved documenting and discussing the traditional use of *makhana* (puffed seeds of *Euryale ferox*, a water lily), *kamalkakdi* (root of *Nelumbo nucifera*, lotus), and *singhara* (fruit of *Trapa natans*, a water chestnut). He considered paddy fields wetlands that produced cereals and fish proteins for human consumption. He was happy to learn that *kolmishak* (leaves of *Ipomoea aquatica*, water spinach) was a common vegetable in West Bengal. Not just food, imageries of rural houses thatched with elephant grass (leaves of *Typha angustata*, the cattail) or the common reed (*Phragmites* spp.) in full bloom during autumn evoked a romantic rusticism in him.

His awareness of the fragility of wetlands drove his obsession for conservation, much like a protective lover. Most of his collaborators and co-workers were familiar with this emotional attachment. I remember Anna Hillbricht-Ilkowska[5], a well-known Polish biologist, gifting him an ornately decorated egg-shell with the remarks that it was as fragile as his wetlands. His love for wetlands and his protective instincts for these ecosystems often manifest themselves in ridiculous ways. For example, when I pointed out the futility of accounting for dead molluscs in my field samples simply because their shells persisted while most other macroinvertebrates disintegrated immediately after their death, he was alarmed by the prospects of a young scholar under-reporting the productivity and/ or diversity of wetlands.

The obsession bordered on the bizarre when he had to accommodate studies on waterfowl – an aspect critical to the Ramsar definition for wetlands of international importance. For Brij Gopal, however, birds were opportunist exploiters of wetlands and not stakeholders like the fish, the plants or even the macroinvertebrates. Excellent post-doctoral scholars like Dr. A.J. Urfi were mainly on their own in our lab. Sections on waterfowl in key publications (such as those by the WWF India) received, at best, only editorial support from him. It is rather incredible to think of a leading wetland scientist who has written on every aspect of wetlands with hardly any publication featuring the avian.

[4]Gopal, B. 1987. Water Hyacinth (Aquatic Plant Studies Series), Elsevier Science Ltd., ý 484 pages, ISBN-10 þ : ý 0444427066

[5]Prof Anna Hillbricht-Ilkowska died in the same year as Dr Brij Gopal, 2021, at the age of 89.

National pride

I had once asked if it would not be prudent to highlight our concern for migratory waterfowls to attract international research grants for Ramsar sites. He refused. I think he believed that the commitment of international donors was more towards the birds that migrated from their territories rather than the well-being of Indian wetlands. Instead, he made me work on an inventory for Lake Chilika for submission to the Ramsar secretariat. He liked to engage with the international community from a position of strength that showcased indigenous knowledge and prioritised national interests.

Organising the First International Wetlands Conference (INTECOL) in 1980 in New Delhi was undoubtedly a high point of his career, but that was before I met him. I had the privilege to participate in the International Conference on Land-Water Interactions held during 7-14 Dec 1991 in New Delhi. Brij Gopal was not only a good host but had the remarkable capacity to admonish his international guests, who would line up like giggling school kids for a session, a field visit, or a photoshoot. Little known floodplain wetlands between Delhi and Agra would be showcased. I think even his engagements with the World Wide Fund for Nature (WWF) were for the international dissemination on Indian wetlands.

Nationally, however, he was a strong critic who seldom minced words in government forums, although his knowledge and expertise were most readily available for use. His academic stature, quality of work, and accessibility assured him a degree of indispensability for government executives working on rivers and inland water bodies. Unlike many others, however, the government failed to co-opt him at any point. For example, he chose to resign from the Expert Appraisal Committee for EIA projects in mining (non-coal), appointed by the Ministry of Environment and Forests, Govt of India, in the first year of his three years term (2007-09). As a person with similar experience at the state level, I can appreciate the moral hazards he may have confronted.

Brij Gopal quickly realised that simple messaging was the key to government engagement and crafted the idea of River Regulation Zones, building on the Coastal Regulation Zones (CRZ) to protect floodplain wetlands. Although it is not a law yet, it has ensured a legacy for him in India, as evident from his obituaries in the national media[6]. International obituaries, however, make a fuller assessment of his multifarious contribution to wetland ecology[7].

The most prominent evidence of his national pride is his article "Fifty years of hydrobiological research in India", written to commemorate the golden jubilee of Indian Independence[8]. In it, he writes, "India is now celebrating the Golden Jubilee of her independence and it is time to reflect on our achievements and failures and also to prepare for the challenges of the next century which is already knocking at our doors." He chooses this article, published in Europe, to highlight surveys conducted in Asia. He writes, "Like Europe, the history of studies of aquatic biota in India also can be traced back to the early nineteenth century…"

He also chooses this article to address a colossal colonial travesty. Citing numerous articles published in the early twentieth century, he establishes the pioneering contributions of N. Annandale, the first Director of the Zoological Survey of India appointed in 1916, to surveys conducted in practically all kinds of habitats. He writes, "Unfortunately these studies, made long before the Sunda Expedition of 1928, do not find a mention in the history of tropical limnology." Although British, Annandale was ignored just because he chose to publish in India, which was how Brij Gopal explained it to me since I was the person who dug out the initial works of Annandale during my research on Lake Chilika.

That he was genuinely proud to restore the pioneering status of Annandale as a tropical Indian limnologist is evident from his continued references

[6]https://www.hindustantimes.com/india-news/ecologist-architect-of-river-regulation-zone-prof-brij-gopal-passes-away-at-76/story-EszE8fERvn7iIJGmfjDDmM.html
https://www.downtoearth.org.in/blog/water/brij-gopal-a-tireless-advocate-for-india-s-rivers-74974

[7]https://www.sws.org/2021/01/21/remembering-dr-brij-gopal/

[8]Gopal, B. and Zutshi, D.P. 1998. Fifty years of hydrobiological research in India. Hydrobiologia, 384, 267–290, Kluwer Academic Publishers, Belgium.

in ever-expanding terms over the next two decades. In 2018, he wrote, "Limnological studies in Asia date back to the beginning of the 20th century when Annandale surveyed extensively all kinds of inland water bodies from Dead Sea in Israel to Lake Biwa in Japan."[9]

Spiritual traditions

Born and raised in the Ganga-Yamuna cultural traditions of North India, Brij Gopal was deeply spiritual without being overtly religious. He was a vegetarian and celebrated Hindu festivals, particularly Holi and Janmashtami. The sweet treats at his campus residence on Holi were something we looked forward to every year. On that day, he would invariably be happy and forgiving.

For Brij Gopal, the purity of the river Ganga was both spiritual and scientific, with no discord among the two. He wrote, "For centuries there has been great interest in the unique property of Ganga's water, particularly from its source, that it can be stored for decades without losing its quality… studies have shown that the water chemistry of River Ganga is controlled by the carbonates of the recent alluvium."[10]

The spiritual traditions and cultural legacies were strengthened and deepened, I believe, during his initial research at the Banaras Hindu University (BHU). His relations with his *Guru*, Prof. Ramdeo Mishra, was that of a traditional *Guru-Shishya*, about which he would often talk with some pride. This reverence was totally at variance with the culture of JNU, where students commonly addressed the professors by their first names. This perceived decadence bothered him a lot, at least during his initial years. To his credit, however, he did not choose to fight.

Perhaps he reserved his most important fight for the end because it needed outstanding courage and strength to fight for a losing cause – a colonial idea that has held sway for over a century. In 1858, the irrigation engineer of the Madras Presidency, Sir Arthur Thomas Cotton, mooted the idea of interlinking rivers in India[11], based on the British perspective that river waters flowing into the sea is a colossal waste[12]. Dr. K L Rao, a Padma Bhushan and a Minister in the Nehru cabinet since 1963 and an architect of many large dams, suggested linking the rivers Ganga and Kaveri in 1972, an idea that sounded logical in mitigating the floods of the north and the droughts of the south. However, such massive physical scarring of the land gained techno-economical feasibility only after another half a century. In 2002, the Supreme Court of India interpreted public interest as the expeditious implementation of river linking, a direction for the union government that was reiterated in 2012.

In 2011, Brij Gopal invested all his savings and shifted to Khajuraho, close to Daudhan village – the first major site for the interlinking of rivers Ken and Betwa, 176 km apart – where a 77 m high dam is to be built on the river Ken. The campus he built would be the *ashram* for his ultimate *tapasya*, to take on the establishment that continues to pay obeisance to colonial ideas. It was not just about the biodiversity of the Panna National park region but the eventual hydrological and ecological mutilation of a sacred landscape. To Brij Gopal, the idea of interlinking rivers was perhaps akin to the poisoned bosoms of *Pûtanâ*[13], that beguiled act of supreme maternal devotion, which he needed to destroy. After all, he was the Gopal, and the Brij (or *braj bhumi*[14]) was his eternal *leela kshetra*[15].

[9]Gopal, B. 2018. Status of Inland Waters of Asian Tropics. SIL News 72, June 2018. (Editorial, as Chairman, SIL Working Group on Inland Waters of Tropical Asia; & Coordinator, Centre for Inland Waters in South Asia)

[10]Gopal, B. 2001. Holy Ganga and the mighty Amazon. Amazoniana: Limnologia et Oecologia Regionalis Systematis Fluminis Amazonas, 16(3/4), 337-348. http://hdl.handle.net/21.11116/0000-0004-95BD-F

[11]https://www.thehindu.com/data/last-drop-interlinking-an-idea-with-flaws/article8567203.ece

[12]It could be an island mentality where freshwater resources are scarce, or a philosophical notion of the West about human supremacy and 'conquering' of nature.

[13]the mythical demoness who was slain by the infant Krishna

[14]the floodplains of river Yamuna, particularly centred around Mathura-Vrindavan

[15]Krishna's birthplace, where he grew up. His multifarious activities during this period are celebrated widely.

Box 3: Select publications of Brij Gopal

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Gopal, B. 2005. Does inland aquatic biodiversity have a future in Asian developing countries? Hydrobiologia, 542, 69–75.

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Received:15th January 2022
Accepted: 22nd February 2022