WORLD WETLANDS DAY CELEBRATION AND WORKSHOP AT NAGDAHA

Wetlands for Nepal

2023

Acknowledgements

We would like to thank British Council Nepal and Wageningen University and Research for providing support in conducting this event. We also thank The Small Earth Nepal, Bird Conservation Nepal, and Nagdaha United Club for co-organizing this event with us. Likewise, we also thank Sustainability and Environmental Studies Endeavor and Nature Conservation and Research Hub for providing technical support in conducting this event. Besides, we would like to thank Asia-Pacific Network for Global Change Research for their financial support in conducting this event.

We are grateful to all the speakers and presenters for enriching our knowledge on different aspects of wetlands and helping us make this a fruitful event. We also thank all the participants for actively engaging in the event.

This event would not have been possible without the lead taken by Ms. Anu Rai and Mr. Manoj Mali. Similarly, Ms. Shreeya Manandhar and Mr. Pratik Shrestha have provided invaluable support in managing the logistics and rapporting. We are also thankful to Mr. Nischal Devkota and Mr. Jitse Bijlmakers for providing valuable feedbacks on the report.

Contact

+977 - 9801357896, +977 - 9843719143

wetlandsfornepal@gmail.com

@wetlands4nepal

Table of Contents

01 About Wetlands for Nepal and the Event p 1

02 Bird watching p 2

03 Presentations p 2-8

Wetlands Day celebration and importance of wetlands
Religious importance of Nagdaha
Nagdaha's connection with Taudaha and Panauti
Wetlands for Nepal efforts in Nagdaha restoration
Floating Treatment Wetland System at Nagdaha
Nagdaha as urban refuge for birds
Fostering eco-tourism
Experience sharing on biopesticide use

04 Panel Discussion p 9-11

05 Demonstration of biopesticide use p 11

06 Annexes p 12-16

Annex 1: Program Schedule
Annex 2: Participants in the program
Annex 3: Program Flyer
Annex 4: Glimpses from the event

Abbreviation

APPA	Appreciative Participatory Planning and Action
BCN	Bird Conservation Nepal
CG	Chaudhary Group
FTWS	Floating Treatment Wetland System
NBS	Nature-based Solutions
NCRH	Nature Conservation and Research Hub
NUC	Nagdaha United Club
SEN	Small Earth Nepal
SENSE	Sustainability and Environmental Studies Endeavor
S4W	Smartphones for Water
WfN	Wetlands for Nepal
WUR	Wageningen University and Research

About Wetlands for Nepal

Wetlands for Nepal is a group of people working on the restoration of wetlands in Nepal with the nature-based solutions approach. We were initially supported by Wageningen University and Research (WUR) Student Challenges, Netherlands through their Nature Based Solutions Challenge. At present, we are also tackling the problem of invasive plant species at Nagdaha through support from British Council Nepal.

About The Event

On the occasion of World Wetlands Day, 2 February 2023, Wetlands for Nepal in collaboration with The Small Earth Nepal (SEN), Bird Conservation Nepal (BCN), and Nagdaha United Club (NUC) organized a workshop at Nagdaha to reflect on the past and future activities for its restoration and sustainable management and to highlight its socio-cultural and ecological significance (Annex 1). The program was attended by local people, students, environmentalist, conservationist, along with experts in culture, history, tourism amongst others. Altogether 48 people participated in the event (Annex 2).

The program included a morning session of birdwatching, which was facilitated by BCN. The formal program encompassed presentations and discussions with various stakeholders and experts and came to an end with a demonstration of biopesticides in a nearby field. Overall the program highlighted the following:

- There is an urgent need to support Nagdaha restoration initiatives especially which are community-based and inclusive.
- Development and enhancement of Nagdaha should consider its cultural, religious, and ecological significance and not compromise the services provided.
- Nagdaha's connection with the Taudaha and Panauti should be explored and a trail connecting these places - the Naga Raj Trail should be considered for tourism opportunities.

Bird Watching

Mr. Mohan Bikram Shrestha, Mr. Jaya Nath Bhandari, and Ms. Aarati Nepali from BCN facilitated a bird-watching session at Nagdaha. Some of the birds seen were the Eurasian collared-dove, Spotted dove, Common Kingfisher, White-throated kingfisher, Coppersmith barbet, Long-tailed shrike, Taiga flycatcher, and Eurasian coot among others. The session was attended by students and bird enthusiasts.

Bird watching at Nagdaha

Presentations

Wetlands Day celebration and importance of wetlands

Dr. Dhiraj Pradhananga, President of The Small Earth Nepal (SEN) began his presentation by stating this year's wetland theme - "It's time for wetland restoration". World Wetlands Day is held on February 2 annually to celebrate the 1971 adoption of the International Convention on Wetlands in the Iranian City of Ramsar. This year's theme highlights the urgent need to prioritize wetland restoration. The theme of the previous year (2022) - "Wetlands Action for People and Nature" more intricately highlighted the importance of wetlands for wellbeing of people and nature.

It's time for wetland restoration

2023 WWD Theme

Floating Treatment Wetland System at Nagdaha from aerial view

Wetlands are areas that are seasonally or permanently flooded or saturated by water. It includes lakes, bogs, paddy fields, springs, floodplains of rivers, etc. These are essential habitats for different flora and fauna such as migrating birds, maintaining temperature, and providing a wealth of other ecosystem services. There is an urgent need to restore wetlands because of the deterioration of wetlands because of excessive use, sedimentation, pollution amongst others. To combat the issue of water quality deterioration in Nagdaha, SEN has piloted the Floating Treatment Wetland System (FTWS).

Religious importance of Nagdaha

Local Pujari, Shiva Giri highlighted the religious importance of Nagdaha beginning with the story of Lord Shiva who resided there for some time. The Goddess Bajrabarahi, who lived nearby got concerned about her glory, seeing her devotees' inclination towards Lord Shiva. So, she transformed herself into a boar and started making grunting noises and polluting the area, which led Lord Shiva to believe the place to be unsuitable for him. Lord Shiva then went in search of a cleaner environment and settled himself at Gosaikunda lake in Rasuwa district. Since then, Goddess Bajrabarahi has been worshiped in a temple near Nagdaha.

It is also believed that the serpent residing in Nagdaha used to provide people with utensils needed for functions and rituals in historical times. However, the serpent stopped after the humans started to become greedy. Due to these beliefs, Nagdaha holds special religious importance. Pujari Giri added that during Nag Panchami, thousands of devotees visit the lake and take a dip and perform puja in the temple. Rishi Panchami is also celebrated at Nagdaha, worshiping the Saptarishis or the seven sages. Likewise, in Buddha Jayanti, monks from the nearby bihars and gumbas visit the lake and release hundreds of fish into the lakes signifying the beginning of new life cycles.

The titular Nag temple at Nagdaha

Nagdaha's connection with Taudaha and Panauti

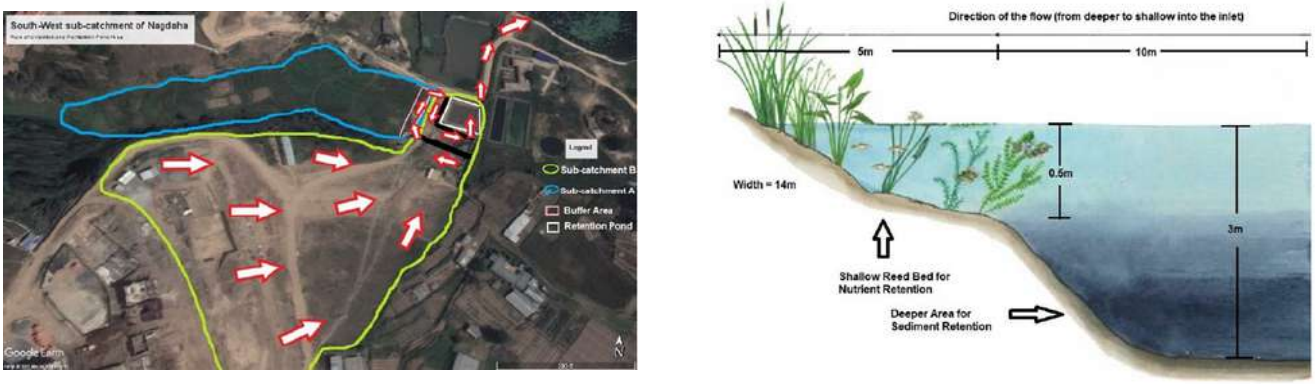
Mr. Prasant Shrestha, a local resident of Panauti devoted to preserving its history briefed about the connection of Nagdaha to Taudaha and Panauti. He has been working as a professional photographer of natural and cultural heritages for a long time. According to him, there is a direct connection between the lakes, Nagdaha and Taudaha, and the ancient city, Panauti. There is a legend that a male serpent resides in Taudaha and a female serpent resides in Nagdaha. Every year, during the monsoon period, the male serpent makes a journey to the town of Panauti in order to participate in a local festival or Jatra. It is believed that the male serpent makes a stop at Nagdaha to visit the female serpent on his way to and back from Panauti. This union of the nagas, mythical half serpent, results in heavy rain.

Wetlands for Nepal efforts in Nagdaha restoration

Ms. Shreeya Manandhar from Wetlands for Nepal started her presentation by briefly going through the concepts of wetlands and their importance. She shared how WfN started as a joint effort of the local community youth, environment students and professionals to restore Nagdaha. The key problems identified in Nagdaha were concretization of the wetland, sedimentation, and rapid spreading of the invasive water lettuce (*Pistia stratiotes*) plant.

Sedimentation problem and invasive aquatic plant proliferation at Nagdaha

To combat these issues, WfN is focusing on constructing a sediment retention pond at the inlet of Nagdaha. The pond is being designed to retain the sediments coming from the catchment and prevent it from entering the lake. The retention pond will require regular removal of sediments, for which the local youth will be actively involved. Likewise, WfN is also prototyping biopesticides using the invasive water lettuce and other terrestrial invasive plants found in the locality. The team plans to carry out tests to determine the best variant of the biopesticide. Information on preparation and application of the best biopesticide will then be shared with the locals who practice agriculture in and around Nagdaha.



Sedimentation retention pond structure

The presentation was then continued by Mr. Manoj Mali, who informed about the progress so far, the challenges the team has been facing, and the future potential. WfN has been having difficulties in engaging the Chaudhary Group (CG) builders to collectively work for Nagdaha restoration. WfN visions collaborating with CG as there is barely enough public space around to construct the SNR pond. The local government seems interested although no synergy has been achieved yet. Regarding biopesticide, experimentation is ongoing to achieve the best combination of the additives (water lettuce, cow urine, and water).

The beauty of Nagdaha has degraded due to haphazard construction activities around the lake, including land planning, concretization, unnecessary lightning, pollution, and excessive pumping of water. Failure in forming an authentic management committee to monitor, protect, and promote the wetland has been one of the biggest challenges to the ward and the community. Nagdaha has great prospects in eco-tourism. There is a potential for future improvement by focusing more on partnerships and collaborations for sustainable development, discussion with experts prior to beginning random constructional activities, and developing Nagdaha as a tourist hub.

Youths removing invasive water lettuce.

Concretization, sedimentation, and rapid spreading of the invasive water lettuce are key problems at Nagdaha

From left to right ->
Cutting the invasive species for producing biopesticide. Adding culture medium for the biopesticide production. Container for biopesticide production

Floating Treatment Wetland System at Nagdaha

Ms. Ayasori Byanju from SEN provided an introduction of Floating Treatment Wetland System installed by SEN at Nagdaha and its present status. FTWS is a form of sustainable green technology to remediate polluted surface water bodies. It is made up of rafts consisting of plants *Canna Indica* and *Salvia splendens.* The rafts are of size 4*6 (24 square feet) each with a bamboo frame at the bottom and a styrofoam layer sandwiched between 2 polyethylene foam layers. These layers were topped by a layer of bamboo mat.

A total of 40 rafts were installed strategically with eight rafts each on five corners of Nagdaha: two along drainage and runoff sites; two at the points where people wash clothes and take bath; and one near the Naag Dev Shrine. Specific plants where chosen, based on their natural occurrence in the vicinity, easy availability and their attractive flowering properties. Currently, the plants in these rafts may look dead but they will revive once the winter is over. Currently, testing of water quality is underway to assess the difference in water quality brought about by these rafts.

Floating Treatment Wetland System construction and installation at Nagdaha

Concerns regarding the necessity of the rafts and its installation at Nagdaha were raised. Likewise, questions regarding the depth from where the samples were taken were asked. To which it was replied that the rafts are prototypes of a large sustainable green technology being adopted and Nagdaha was chosen as the site for prototyping because it is an important urban wetland of Kathmandu Valley. Besides, the water samples were taken at the surface level for testing and not throughout the depth profile. It was recommended to conduct testing at several depth profiles as well.

The rafts consists of two plants *Canna indica* and *Salvia splendens*

40 FTWS rafts installed strategically on five corners of Nagdaha

Nagdaha as urban refuge for birds

Mr. Mohan Bikram Shrestha, Research Officer at BCN initiated his presentation by showing the audience different species of wetland birds. He focused on the importance of wetlands as a refuge for birds that migrate thousands of miles from Siberia to Nepal during the winter periods. Nagdaha and its surrounding area has been gradually changing from natural and agricultural settings to a more human-centric urban or concrete setting - a change that is negatively affecting migratory and wetland birds. He argued that Nagdaha should be presented to people as an opportunity to connect with nature rather than a location for noisy recreational activities that causes disturbances to birds. He brought attention to the decreasing trend of birds at Taudaha due to similar disturbances and development.

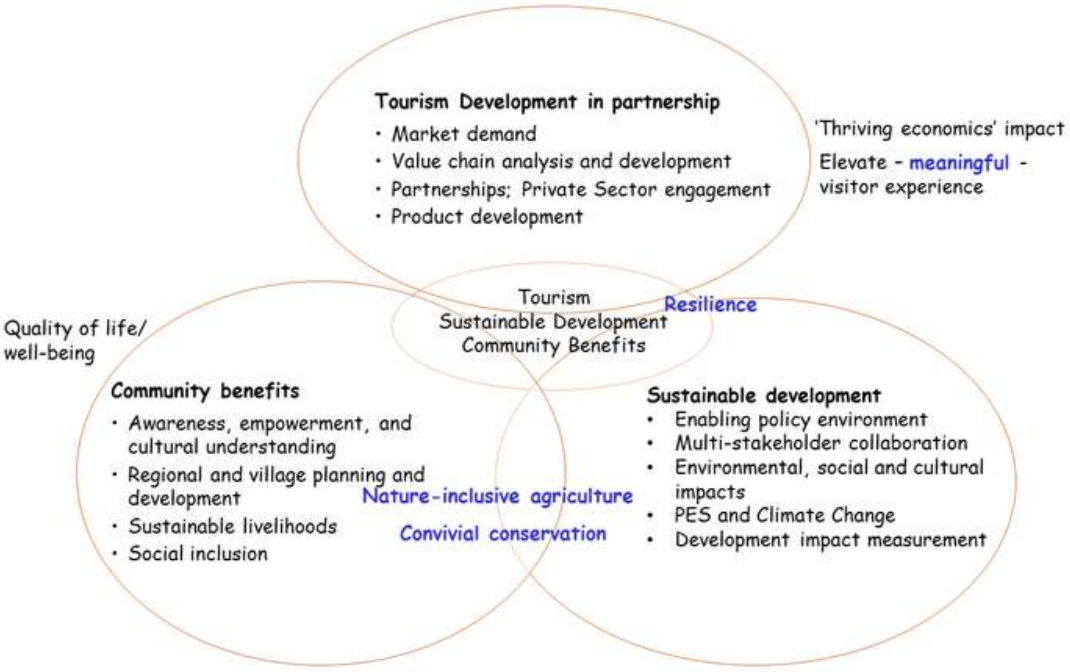
Human centric development at Nagdaha

Ms.Aarti Nepali, Chhimeki Chara Project Coordinator from BCN further shared information on the Chhimeki Chara: The Neighbourhood Bird Count App. The app can be used to count and identify common birds in the locality of the user and aims to raise public awareness, increase support for bird conservation, and generate data on birds. She also shared data on the declining number of participants over the years for such bird counts and continued with encouragement for participation.

Chhimeki Chara app interface

Fostering eco-tourism at Nagdaha

Dr. John Hummel gave a presentation on how destinations can be developed for tourism via a sustainable, resilient, meaningful, and inclusive approach. He discussed eco-tourism and regenerative tourism with focus on community benefits, sustainable development, and partnerships with diverse stakeholders. He described the "5-Ds" of Appreciative Participatory Planning and Action (APPA) - Discovery, Dream, Direction, Design, and Delivery. Nagdaha could be developed as a tourist destination by linking it with Taudaha and Panauti to create a trail (Naga-trail) captializing on the mythological story of the Hindu Nags (Serpents) that are connected with these destinations.



Co-creation in Tourism Destination Development

In-corporating a sustainable strategy, along with proper planning, promotion, and branding could not only help develop this idea as a green-venture, but also protect the entire landscape. However, discussions and collaborations with stakeholders like the locals and tour operators are essential for its success.

Experience sharing on biopesticide use

Mrs. Jamuna Adhikari reflected on her experiences on using Jholmal, a biopesticide and biofertilizer made from different combinations of cow urine, cow dung, water, and/or plants with irritant properties. Using such a product has enabled her and farmers from her village to refrain from using chemical pesticides and chemical fertilizers which would cost them a handsome amount of money. They now practice organic farming and are in the phase of obtaining certifications of their organic production which will allow them to have higher income.

Biopesticide production in Patale Gaun

Panel Discussion

A panel discussion was conducted with representative from WfN, NUC, BCN, SEN, Smartphones For Water Nepal (S4W-Nepal), historian, and tourism expert. These discussions spanned around wetland especially Nagdaha's development, restoration, biodiversity, data collection, and promotion of culture and tourism.

Panel discussion with representative from different sectors

1 To Manoj Mali, member of WfN, NUC, and Nagdaha local resident: What are the developments being planned for Nagdaha and is it something that the locals want?

Most of the people around Nagdaha come from an agricultural background. They need water for irrigation. Water is scarce and there are no alternative water sources nearby. The people use water pumped from the lake or come into the lake to wash their clothes. Meanwhile, washing clothes has polluted the lake. The development works have separated nature and people through the use of steel railings and concretization. I have seen people removing the railing to enter the pond. People who have been using the water from the lake for various household purposes for decades should not be stopped. What if an isolated space can be created near the lake so that the water used for household purposes does not reenter and contaminate the source?

2 To Mohan Bikram Shrestha, research officer from BCN: Between Nagdaha and Taudaha, which is more suitable for bird habitat?

Comparing Nagdaha and Taudaha in terms of importance requires understanding of the context and reasons for why Taudaha is more popular for birders. Both Nagdaha and Taudaha are equally significant bird habitats. Certain bird species are commonly found in both wetlands, along with unique species in both the sites. Taudaha is more popular for people in terms of visibility due to better access and road connectivity. Taudaha receives a better number of birds due to the Bagmati River flowing adjacent to it. Birds tend to follow river corridors during migration and stop over at Taudaha to rest. Comparatively, Nagdaha is in a depression surrounded by hills and less noticed by migrating birds. Taudaha has recorded 28 duck and geese species. However, 11 duck geese species and 12 other wetland-dependent species have also been recorded in Nagdaha. Hence, both areas are significant bird habitats.

Nevertheless, urban sprawl threatens both these areas. Taudaha has seen declining number of birds over the years and Nagdaha is destined to follow the same if rapid and unplanned concretization is not addressed. Development and restoration efforts need to consider birds' perspective as well with better awareness and knowledge sharing with the local people and local government.

3 To Ayaswori Byanju, Research Assistant from SEN: Why is FTWS suitable for wetlands?

FTWS are proven technology for polluted water remediation. There are success stories of wetland restoration from Rhode Island, USA and many parts of the world. This technology is a nature-based solution, sustainable, and cost effective. It has increased use in the form of wetland beautification as well. As wetlands in Nepal are rapidly deteriorating such innovative technology would enable restoration of these wetlands. Adoption of such techniques could also be a way to increase local tourism as it raises enthusiasm for seeing adoption of innovative solutions.

4 To Bijay Man Shakya, CEO of S4W: What kind of data should Nagdaha collect that would foster Nagdaha's restoration and conservation and what role could Citizen Scientist play in this regard?

For Nagdaha, three kinds of data need to be collected: precipitation level, ground water level in the surrounding area, and water contamination data from potential sources like household, fisheries, and septic tanks. It has been proven that poor sewage systems are the major culprit of organic loadings to lakes even more than aquaculture. Only when we have data on these regards can we make informed decisions for lake restoration. These data collected through local people trained as citizen scientists can enable continued long-term collection of the required data.

5 To Prasant Shrestha, historian and photographer: How important is wetland conservation for cultural conservation and are activities like concretization or artificial beautification affecting heritage preservation?

Humans develop culture due to the sense they have as beings. This sense is what separates humans from other animals. Pollution and destruction of water bodies like rivers and wetlands bring devastation in human health and culture due to the close linkage of cultural practices with such water bodies. Efficient and effective management of water resources and protection plans in Nepal are further obstructed by corruption and improper planning.

Concretization and artificial beautification are also negatively affecting heritage preservation in our country. Panauti can serve as an example of such. Applications have been submitted to UNESCO to declare Panauti as a World Heritage Site but the process has been delayed for approval due to the ongoing concretization of Panauti. Increased migration into Panauti and unplanned settlements are causing the agricultural lands to be slowly converted into sites for tall concrete buildings that do not follow the traditional architecture or construction style. Gradually, traditional architecture is being lost and is affecting heritage preservation.

6 To John Hummel: How eco-tourism can be promoted at Nagdaha?

Promoting tourism at Nagdaha should stress on the "5-Ds" of Appreciative Participatory Planning and Action - Discovery, Dream, Direction, Design, and Delivery. Envisioning the Naga-trail connecting Taudaha and Panauti could enable good tourism opportunities for all.

However, tourism can also add undue pressure to a delicate ecosystem as a wetland so attention must be given to regenerative tourism that seeks to make destinations better than they originally were. Exploring aspects of regenerative tourism such as permaculture, participatory approach to planning activities, heritage preservation, and fostering cultural vitality would enable a better tourism in the area.

Comments from the audience:

This was a really good event highlighting the cultural, religious, and ecological importance of the lake while also providing discourse on Nagdaha's future development, eco-tourism opportunities, and restoration. It would be great to organize such events in the future, especially World Water Day in March or World Water Week in August would be an opportune time. Wetlands for Nepal should play a key role in organizing this event. This event has at least brought new faces to Nagdaha and organizing such events could help in wider promotion of this area for tourism.

Closing remarks by ward chairperson, Dinesh Jung Pandey

Mr. Pandey addressed the closing remarks by first providing an appreciation to the organizers for hosting an amazing event and inviting experts to the Nagdaha and requested the audience to promote the beauty of Nagdaha in their social media. He wished everyone Wetlands Day 2023 and expressed his joy to be a part of the event. Beginning with what a wetland is, and its importance, he added that he has already made concrete plans regarding Nagdaha and its development. The ward is working and discussing with the experts regarding the formation of a new executive committee for the preservation and promotion of Nagdaha which will be ready within a month or two. He mentioned that Kathmandu Valley Development Authority has allocated a budget this year for carrying out construction works in the lake. He concluded with the assurance that during the celebration of WWD 2024, next year, the lake and its periphery will be better and well-managed.

Mr. Pandey than provided by the token of love to the speakers and panelists. The token of love were potted succulents with sediments extracted from Nagdaha and compost from water lettuce.

Biopesticide Use Demonstration

Mrs. Jamuna Adhikari, Chairperson of Narayansthan Krisak Samuha demonstrated the use of Jholmal, a biopesticide on a field. She directed that the amount of Jholmal used depends upon the life stage of plants with samplings provided up to three times diluted concentration while for larger plants concentrated amounts can be used.

Biopesticide use demonstration

Annex 1: Program Schedule

World Wetlands Day 2023 at Nagdaha
Schedule
Date: 2 Feb 2023, Thursday
Time: 8:30 am-9:30 am (Bird Watching) | 10 am – 2 pm (Formal Program)
Venue: Nagdaha Lake (https://goo.gl/maps/D4zau2h1nJ7qZP7o9)
Facilitator: Anu Rai | +977 - 9843719143

8:30 - 9:30	Bird Watching facilitated by Mohan Bikram Shrestha, Jaya Nath Bhandari,and Aarati Nepali from Bird Conservation Nepal (BCN)
9:30 - 10:20	Refreshment
10:00 - 10:20	Registration / tea
10:20 - 10:25	About the program by Anu Rai from Wetlands for Nepal (WfN)
10:25 - 10:35	Introduction by all
10:35 - 10:45	Remarks by Dr.Dhiraj Pradhananga, President of The Small Earth Nepal (SEN)
10:45 - 11:00	Religious importance of Nagdaha by local Pujari, Shiva Giri
11:00 – 11:15	Nagdaha's connection with Taudaha and Panauti by Prasant Shrestha
11:15 - 11:30	Wetlands for Nepal efforts in Nagdaha restoration by WfN
11:30 - 12:00	Floating Treatment Wetland System (FTWS) at Nagdaha by SEN
12:00 - 12:10	<10 min tea break>
12:10 – 12:25	Nagdaha as urban refuge for birds by Mohan Bikram Shrestha, Research Officer and Aarati Nepali coordinator from BCN
12:25 - 12:40	Fostering eco-tourism by John Hummel
12:40 - 12:45	Experience sharing on biopesticide use by Jamuna Adhikari, Chairperson of Narayansthan Krisak Samuha
12:45 - 1:20	Panel Discussion (WfN, NUC, BCN, SEN, S4W-Nepal, Prasant Shrestha, and John Hummel)
1:20 - 1:30	Closing remarks by ward chairperson, Dinesh Jung Pandey
1:30 - 1:40	Token of Love distribution to presenter, panelists and organizers: WfN, BCN, SEN, S4W-Nepal, Prasant Shrestha, John Hummel, Nagdaha United Club, Shiva Giri, Jamuna Adhikari, SENSE, NCRH, and ward chairperson.
1:40 - 2:00	Demonstration of biopesticide use by Jamuna Adhikari, Chairperson of Narayansthan Krisak Samuha
After 2:00	Lunch

Annex 2: Participants in the program

S.N.	Name	Designation	Organization
1	Gokul Prasad Neupane	Finance and Admin Assitant	SEN
2	Inu Khadka	Finance Admin Coordinator	SEN
3	Keshav Raj Pokharel	Student	CDES
4	Binit Timilsina	Student	CDES
5	Madhav Upadhaya	Student	CDES
6	Sarita Pokharel	Student	CDES
7	Pashupati Adhikari	Student	CDES
8	Dhiraj Pradhananga	President	SEN
9	Jaya Bhandari	EC	BCN
10	Rosila Koju		WREN
11	Hari Basnet		NOU
12	Bhumika Thapa	Researcher	NWCF
13	Samyak Prajapati	RA	SEN
14	Vmal Thapa		BCN
15	Ayaswori Byanju	Research Assistant	SEN
16	John Hummel	Research	GATE College CESTH
17	Aarati Nepali	PC	BCN
18	Uagesh K.C.	Owner	Bishram Batika
19	Raj Giri		Bishram Batika
20	Shiva Giri	Nagdaha Pujari	
21	Karuna Tamang		
22	Garry de la Pomerai		KVWRMI
23	Bijay Man Shakya	CEO	S4W Nepal
24	Bimal Giri		Ward No. 24
25	Aashish Mishra	Reporter	The Rising Nepal
26	Manila Deshar	Student	ICCA
27	Janney Kayastha	Student	ICCA
28	Aditya Pal	Researcher	NCRH
29	Anand Kr Jha	Student	NCRH
30	Bibek Raj Shrestha	Researcher	GIIS
31	Shirish Maharjan	Researcher	GIIS
32	Nirajan Bista	BC	SEN
33	Aasha Mali		Mahila Samuha
34	Sangita Mali		Mahila Samuha
35	Dinesh Jung Pandey		Ward Chairman
36	Badti Btlandar		
37	Lali Jung Mali		
38	Anu Rai		SENSE, Wetlands for Nepal
39	Shreeya Manandhar		Wetlands for Nepal, Kathmandu University
40	Anusha Pandey		SENSE, NAXA
41	Manoj Mali		NUC, Wetlands for Nepal
42	Jamuna Adhikari		Narayansthan Krisak Samuha
43	Kamala Kuikel		Narayansthan Krisak Samuha
44	Pratik Shrestha		Wetlands for Nepal
45	Bibek Mali		NUC
46	Safal Mali		NUC
47	Manish Thapa Magar		NUC
48	Roshan Giri		NUC

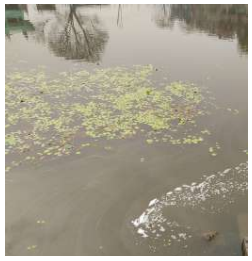
Annex 3: Program Flyer

World Wetlands Day 2023 at Nagdaha

Wetlands provide habitats for a wide range of flora and fauna, improve overall water quality, recharge groundwater, act as carbon sinks, and also provide recreational opportunities, among many other functions. Wetlands situated especially in and around urban settings provide the residents an opportunity to connect with nature - a rare possibility in a concrete world.

Nagdaha is among such wetlands in Nepal. It has a rich historical and cultural significance. The name of the lake ("Nag" translates to "Serpent") alludes to its mythological connection as an abode of the Serpent God. The lake also harbours a diverse community of migratory birds and indigenous fishes.

However, this valuable wetland faces many problems at present, with sedimentation and proliferation of invasive aquatic plants being the major ones. Some works being done to address these issues:

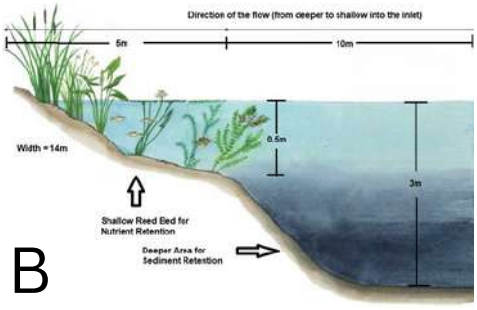


Biopesticide production

Wetlands for Nepal in collaboration with Nagdaha United Club are proto-typing the production of biopesticide, termed locally as “Jholmal”. “Jholmal” is being produced by a combination of an invasive aquatic plant (water lettuce), other terrestrial invasive plants, cow urine, and water. Water lettuce has allelopathic properties; hence, its use in biopesticide production shall enable twin purposes – reducing habitat deterioration due to invasive plants and curbing the use of chemical pesticides in nearby agricultural lands.

Floating Treatment Wetland System (FTWS)

The Small Earth Nepal (SEN) in collaboration with different organizations and in consortium with the Nagdaha United Club, fc club and conservation committee has installed 40 rafts at Nagdaha. FTWS is a sustainable eco-friendly technology that helps to remove pollutants from water. *Canna indica* and *Salvia splendens* are planted on the rafts. These plants float freely in water and absorb pollutants with the help of their roots.



Sediment Retention Pond

We at Wetlands for Nepal have observed that heavy inflow of sediments from the South-West part of the lake's catchment, especially during monsoon has led to a shrinkage of the lake (Picture A).

Wetlands for Nepal is also planning to minimize this critical problem through nature-based solutions i.e. without using any chemicals, cement, or heavy machinery. The main plan is to construct a retention pond (Picture B) to enable settlement of the influent debris and sediments from the lake's catchment (yellow-lined area, Picture C), which is undergoing a housing project construction.

We need your support in restoring Nagdaha. Please share the word about Nagdaha restoration efforts with your friends and family and encourage them to be a part of it.

9801357896, 9880624994
wetlandsfornepal@gmail.com
@wetlands4nepal

नागदहमा विश्व सिमसार दिवस २०२३

पोखरी, दह जस्ता सिमसार क्षेत्र विविध वनस्पति र जीवजन्तुको वासस्थान हो। पानीको गुणस्तर कायम राख्न, भूमिगत पानीको पुनर्भरण बढाउन, कार्बन अवशोषण गरी जलवायु परिवर्तन न्यूनीकरण गर्न र मनोरन्जनात्मक लाभहरु प्रदान जस्ता लाभहरु सिमसार क्षेत्रले प्रदान गर्छन्। सिमसार क्षेत्रहरुले मानिसहरुलाई प्रकृतिसंग साक्षात्कार गर्ने मौका दिन्छन् ; विशेषत सहरहरुमा यस्ता अवसर दुर्लभ भइसकेका छन्।

नागदह काठमाण्डौ उपत्यकाका एक महत्वपूर्ण सिमसार क्षेत्र हो । नामबाटै नागदहको विशिष्ट धार्मिक सांस्कृतिक महत्व, नागदेवताको किंवदन्तीसंगको सम्बन्ध र सिमसारको सरीसृप लगायत जैविक विविधताको संकेत पाइन्छ। नागदह स्थानीय प्रजातिका माछा तथा बसाइसराई गरेर आउने आगन्तुक चराचुरुंगी प्रजातिहरूको पनि आवास हो।

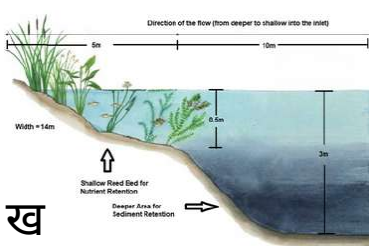
तर पछिल्लो केहि समयमा दहको जलाधार क्षेत्रमा गरिएका निर्माण, उत्खनन लगायत अन्य गतिविधिका कारण दहमा गेग्रान तीब्र दरमा थिग्रिन गएकाले दह खुम्चिंदै गएको छ र जलकुम्भिभी जस्तो मिचाहा वनस्पतिको पनि व्यापक वृद्धि देखिएको छ। यी समस्याहरुलाइ समाधान गर्नका लागि केहि कार्यहरुको थालनी गरिएको छ:

जैविक किटनाशकको उत्पादन

'वेटल्याण्ड्स फर नेपाल' र नागदह युनाइटेड क्लवको साझेदारीमा 'झोलमल' नामक जैविक किटनाशक उत्पादनका लागि अध्ययन गरिंदै छ। जलकुम्भी जस्ता मिचाहा वनस्पति, गौमुत्र र पानीको मिश्रणबाट उत्पादन गरिने झोलमलको प्रयोग विस्तार गर्न सकेको खण्डमा नागदहमा मिचाहा प्रजातिको विस्तार नियन्त्रण गर्न तथा वरपरका कृषि क्षेत्रमा जैविक रसायनको प्रयोग कम गरी नागदह क्षेत्रको माटो तथा पानीको गुणस्तर संरक्षण गर्न सहयोग पुग्नेछ।

फ्लोटिंग ट्रीटमेन्ट वेटल्याण्ड प्रणाली (एफ. टी. डब्लु. एस.)

सानो विश्व नेपाल संस्थाले बिभिन्न संस्थाहरूसंगको सहकार्य तथा नागदह युनाइटेड क्लब, एफ. सि. क्लब तथा संरक्षण समितिसंगको साझेदारीमा नागदहमा ४० वटा राफ्टहरू स्थापना गरेको छ। एफ. टी. डब्लु. एस. पानीबाट प्रदूषक तत्व हटाउन मदत गर्ने दिगो वातावरण मैत्री प्रविधि हो। स्थापित राफ्टहरूमा सर्वदा फूल र ठूलो ल्वाङ फूल रोपिएका छन्। यी फूलका बोटहरू पानीमा खुल्ला रूपमा तैरिएर जराको मार्फत प्रदूषक तत्व सोस्ने गर्दछन्।



गेग्रान थिग्राउने पोखरी

बर्खा याममा नागदहको जलाधारको दक्षिण-पश्चिम भागबाट बालुवा, माटो जस्ता कणहरुको बहाब भइ नागदहमा थिग्रिने हुँदा नागदह खुम्चिंदै गएको देखिन्छ (चित्र क)।

कुनै पनि रासायनिक पदार्थ, ठुला मेसिन अथवा सिमेन्ट आदिको उपयोग नगरी प्राकृतिक वातावरणको पुनर्स्थापना गर्नका लागि प्राकृतिक विधिमा आधारित समाधानहरु पहिल्याउने प्रयास 'वेटल्याण्ड्स फर नेपाल' ले गर्दै छ । नयाँ आवास क्षेत्रको निर्माण हुँदै गरेको, पहेलो रेखाले अंकित क्षेत्र (चित्र 'ग)' बाट बगेर आउने माटो, गेग्रान इत्यादीको व्यवस्थापन गरी नागदहको संरक्षण गर्नका लागि थिग्राउने पोखरी उपयुक्त स्थानमा निर्माण गर्न सकिन्छ (चित्र ख) ।

नागदह क्षेत्रको दिगो व्यवस्थापनका लागि हामीलाई हजुरहरुको सहायता चाहिएको छ। कृपया हजुरहरुको परिवार, छिमेकी र साथीभाईहरुलाई हाम्रो साझा प्रयत्न बारे जानकारी गराईदिएर यस अभियानमा जोडिन प्रोत्साहन गरिदिनुहोस । धन्यवाद ।

९८०१३५७८९६, ९८८०६२४९९४
wetlandsfornepal@gmail.com
@wetlands4nepal

Annex 4: Glimpses from the event

From left to right -

- Wetlands for Nepal member, Shreeya Manandhar giving presentation on key problems at Nagdaha
- Wetlands for Nepal member, Manoj Mali giving presentation on challenges faced by Wetlands for Nepal for implementing nature-based solution at Nagdaha
- Bird Conservation Nepal Research Officer, Mohan Bikram Shrestha giving presentation on wetland birds
- Ward Chairperson, Dinesh Jung Pandey presenting token of love to The Small Earth Nepal President, Dr. Dhiraj Pradhananga
- Mr. Prashant Shrestha presenting on Nagdaha's connection with Taudaha and Panauti
- Dr. John Hummel presenting on tourism opportunities for Nagdaha