



Monitoring Report

Looking Back

Blue School Programme

Nepal



Table of Contents

Table of Contents.....	2
Table of Acronyms	2
Resilient Blue Schools in the mid-hills of Pokhara, Nepal	2
Anandajyoti Blue School.....	3
Bhairavi Blue School	6
Bishwa Shanti Blue School.....	8
Indrayani Blue School	10
Jateshwor Blue School.....	12
Ramkot Blue School.....	14
Shivalaya Blue School	17
Bijaya Blue School.....	20
Perceptions Students	22
Conclusions and Lessons Learnt	23
Reconstruction in Schools of Kathmandu, Nepal.....	25
Jana Prabhat School	27
Viswa Niketan School	29

Table of Acronyms

BS: Blue School
KN : Kanchan Nepal
IRHA: International Rainwater Harvesting Alliance
IWRM: Intergrated Water Resources Management
RWH: Rainwater Harvesting
WASH: Water, Hygiene and Sanitation

Credits:

- Cover, P.1-2, P.4-16, P.18, P.20-21, P.27-30: Nepal, 2019 Credits Blandine Barthod, IRHA © IRHA, 2019-21
- P.4-7, P.11, P.15, P.17-19: Nepal, 2013-19, Credits Nirmal Adhikari, IRHA © IRHA, 2013-2019
- P.22-24, P.26-27: Nepal, 2017, Crédits Hilaneh Mahmoudi, IRHA © IRHA, 2017
- P.18: Nepal, 2019, Credits Marc Sylvestre, IRHA © IRHA, 2019
- P.19: Nepal, 2019, Credits Sabina Burthel, IRHA © IRHA, 2019
- P.26-30: Nepal, 2015-2019, Credits Prakash Amatya, IRHA © IRHA, 2015-19



Resilient Blue Schools in the mid-hills of Pokhara, Nepal

Description

Kanchan Nepal (KN) and IRHA implemented nine Blue Schools (BS) to meet the needs of marginalized communities in the mid-hills of Pokhara (Kaski District, Nepal). Prior to the programme implementation, severe water scarcity was faced by the schools, and students often had to endure the burden of carrying water. Good-quality sanitation facilities were lacking, communities had poor knowledge of improved hygiene practices, and open defecation was a common practice. The natural environment around the schools was degraded, and soils were barely vegetated. The BS programme developed by IRHA directly improved the "Water, Hygiene and Sanitation" (WASH) conditions in the schools, and it globally improved the students' living conditions. Access to water and sanitation facilities and services were provided. Awareness of environmental issues and existing solutions were raised, by teaching the pathways for water contamination and the link between water, food, environment, and waste management to the children. Trainings were also provided to villagers interested in learning new cultivation techniques, and thus the programme benefited the entire community.

The following components and activities were carried out throughout the BS implementation:

- Provision of sustainable access to safe drinking water – i.e. rainwater harvesting;
- Provision of sustainable access to sanitation facilities combined with the respect of good hygiene practices;
- Introduction of a school garden – i.e. polyhouses - as a training place for learning suitable cultivation techniques, with a focus on environmental conservation, water management and soil management;
- Reforestation activities and the initiative "one child, a tree";
- Introduction of a Volleyball court to encourage collective sports activities, and to strengthen collaboration between children.
- Creation of management committees for infrastructure management

Location



Location

Mid-hills, eastern Pokhara, Kaski District, Nepal

9 Blue Schools

Anandajyoti, Bhairavi, Bishwashanti, Indrayani, Jateshwor, Ramkot, Shivalaya, Bijaya, Arunodaya

Implementation

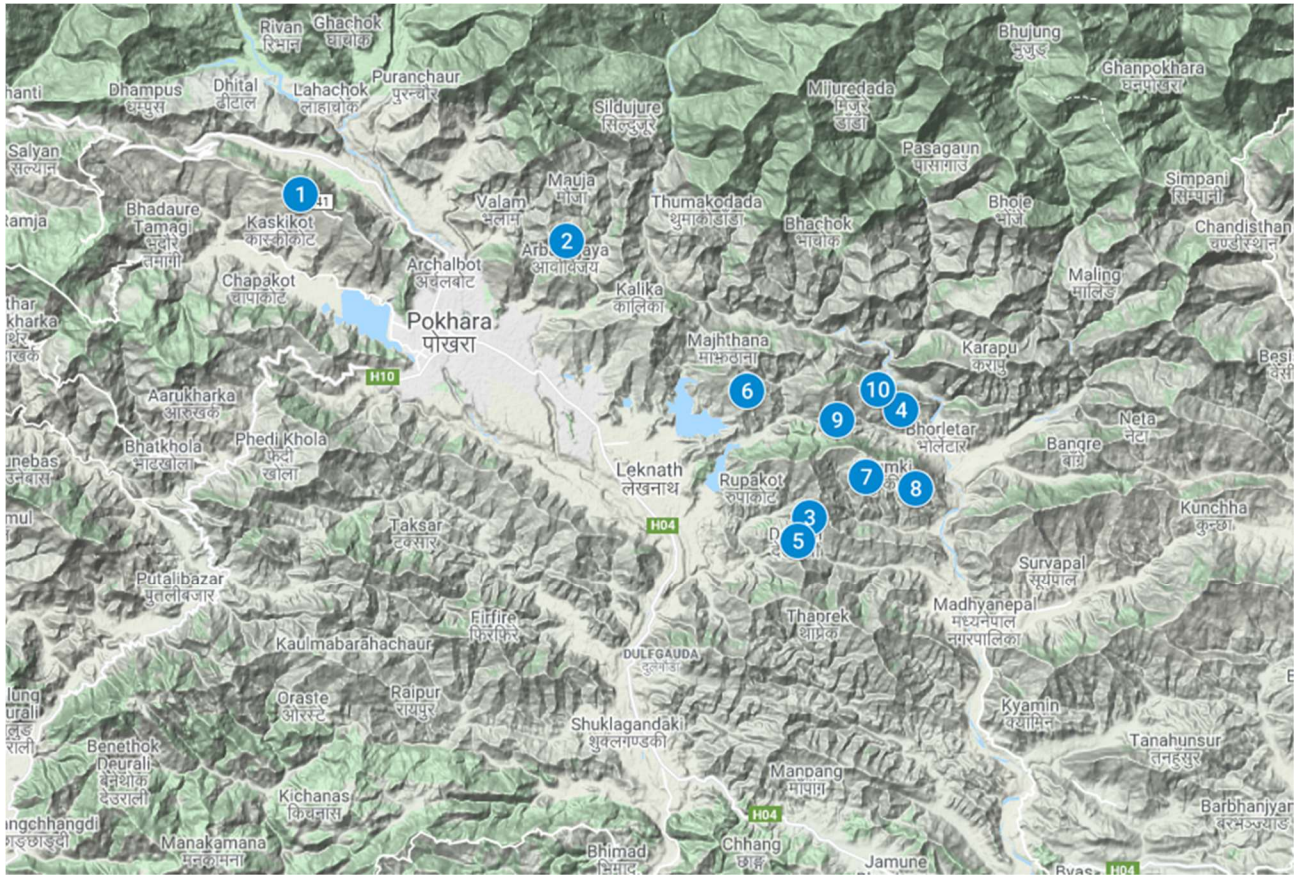
2013 to 2018

Monitoring

Oct. to Nov. 2019, Updated in November 2021

Implemented by





1. Kalika; 2. Bijaya; 3. Bhairavi; 4. Indrayani; 5. Bishwa Shanti; 6. Anandajyoti; 7. Shivalaya; 8. Jateshwor; 9. Ramkot; 10. Arunodava

Implementation Strategy

Main Objective

Improving the students' health, as well as positively influencing their local environment (ecological awareness and personal development)

Specific Objective

S.O. 1 - Improving living and learning conditions in schools by increasing access to water, hygiene practices and adequate resource management.

Result

- R. 1.1 - Drinking water supply systems and hygiene infrastructure are constructed and operational
- R. 1.2 - Sanitation facilities are built and operational
- R. 1.3 - Valorisation and agricultural production systems - school garden and polyhouses - are built and operational
- R. 1.4 - A campaign of reforestation is conducted, and soil maintenance infrastructures are rehabilitated
- R. 1.5 - The population is aware of good hygiene practices and sustainable resources management
- R. 1.6 - The technical capacities of local actors are strengthened to sustainably maintain and manage the sanitation infrastructure.

Performance Indicator

- P. 1 - The systems are operational and maintained in good working order
- P. 2 - Recreational areas are clean
- P. 3 - Students participate in collecting and recycling organic and non-organic waste
- P. 4 - School gardens are maintained or even replicated at community level
- P. 5 - 1 % of the community adopts sustainable land and water management practices
- P. 6 - Students wash their hands at critical times. Children are taught menstrual hygiene, and menstrual hygiene management products are available for urgent needs
- P. 7 - The community ensures community-based management of infrastructure.
- P. 8 - school budgets include funds for replacing infrastructure are established



Anandajyoti Blue School

Introduction

The water situation in Anandajyoti is greatly improved. Before the programme, the school did not have an available water supply on the premises and students had to bring their own water. After installation of the Blue School infrastructure, rainwater provides sufficient water resources to run sanitation and drinking water infrastructure all year. However, the water situation not only improved with rainwater harvesting, but also because of the installation of a solar lifting system within the school area. Most of the water resources are provided with rainwater, and it remains preferred as the solar lifting system is not always functional and is costly. Rainwater is also perceived as a reliable resource, which provides qualitative water for satisfying most of the needs, such as drinking, cleaning and handwashing. Kids no longer have to endure the burden of carrying water for school, which positively affect their willingness to attend school. As water is easily available, cleanliness in the sanitation facilities is correctly maintained. Beyond the RWH and sanitation facilities, trainings on environmental conservation were successful and impacted the whole community. For example, the polyhouse technology expanded across the community, and some households built their own homemade polyhouse. The school garden is also used by the agricultural campus to make experiments on food gardening.

Looking back on the infrastructures

Overall, the monitoring results were positive, and the staff is effectively empowered to maintain facilities. For instance, the management committee is active, and children are involved in the project. The infrastructures are functional, well maintained and clean. The school has not faced big maintenance issues yet. Only small reparations, such as fixing handles, need to be made. Some painting of the RWH reservoirs will be necessary in the next years, as it starts to deteriorate. The school benefits of spare funds to cover those small reparations.

ID Anandajyoti

Location

28°11'06.48"N, 84°07'28.68"E

Number of beneficiaries

661

Year of Implementation

2016

With the support of Prince Albert II of Monaco Foundation; Princess Charlene of Monaco Foundation;

Difficulties

- Throughout the discussions, it was perceived students face inequalities in their access to water, depending on where they live. Households below the school are provided with tap water, while the students living above the school live in very scarce areas. Those students usually have to walk between 30 minutes to 1 hour for collecting water. In those areas, migration due to water scarcity is a problem. The situation on the hilltops is particularly significant, and a better management of water resources appears to be necessary to ameliorate the access to water.

- It appears to be challenging providing soap at the handwashing facilities. It was said soap bars are not provided as children play with it, and then it "disappears".

The staff faces issues to control these behaviours, and no solution has been found for providing soap. To undertake that problem, liquid soap or solid soap holder could be provided to the students.

Originalities

The school has been proactive in the management of menstruations. The new toilets block, previously attributed to teachers, has been specially dedicated to the girls during their menstruations. An original system has also been established, where homemade pads are conceived within the village and provided to the students. This represents an additional option to the free sanitation pads supplied by the government. After use, those homemade pads are disposed and burned. This menstruation management represents an interesting option that could be reproduced in the other BS.

Conclusion

The BS programme has benefited the students and the community of Anandajyoti in general. The board members are satisfied with the project, and they considered rainwater harvesting as a durable solution. The infrastructures are generally well managed, and the school community is involved their maintenance.

Impact of the Blue School Programme

Reservoir	Roof catchments	Poor	Red	Orange	Yellow	Light Green	X	Clean
	Gutters	Poor	Red	Orange	Yellow	Light Green	X	Good
	First flush	Poor	Red	Orange	Yellow	Light Green	X	Good
	Leakage	Intense	Red	X	Orange	Yellow	Light Green	None
	Cleanliness	Poor	Red	Orange	Yellow	Light Green	X	Clean
	Cleaning frequency	Never	Red	Orange	Yellow	X	Light Green	Frequent
	Painting conditions	Poor	Red	Orange	X	Yellow	Light Green	Good
Sanitation	Water facilities	Poor	Red	Orange	Yellow	X	Light Green	Good
	Toilets	Poor	Red	Orange	Yellow	X	Light Green	Good
Hygiene	Cleanliness	Poor	Red	Orange	Yellow	X	Light Green	Clean
	Promotion hygiene	None	Red	Orange	Yellow	X	Light Green	Frequent
	Soap availability	None	Red	X	Orange	Yellow	Light Green	Available
Environment	Volley-ball	Poor	Red	Orange	Yellow	X	Light Green	Good
	"One child, a tree"	Poor	Red	Orange	Yellow	X	Light Green	Effective
	School garden	Poor	Red	Orange	Yellow	X	Light Green	Good
	Waste management	None	Red	Orange	Yellow	X	Light Green	Good

Components			Built	Functionality
1.0	Anandajyoti	Unit	No.	Performance ratio
1,1	RWH reservoir	Per tank	3	82,86%
1,2	Sanitation facility	Per block	3	80,00%
1,3	Hygiene	Overall	1	80,00%
1,4	Volley-Ball	Structure	1	100,00%
1,5	Environment	Overall	1	100,00%





Bhairavi Blue School

Introduction

Originally, Bhairavi was not planned as a Blue School; however, as the land surface in Bishwa Shanti was limited for building a 20m³ RWH reservoir, its construction was shifted to Bhairavi. Kanchan Nepal and IRHA did not provide any sanitation facilities, as toilets were already available in the school. With the programme implementation, the water situation significantly improved, and it now benefits the students. Before, children used to walk long distance for collecting water, while now it is directly available at the school. During the dry season some neighbors are allowed to use rainwater, which helps them enduring water scarcity. Recently, tap water was also provided in the village, but the supply is not always consistent. Thus, rainwater is more appreciated, as it provides a reliable source of water. It was even mentioned rainwater is preferred in the rainy season, as it offers clean and freshwater water compare to the “dirty and muddy” tap water. Besides, the dean of the school was not aware of the school garden activities, which were implemented co-jointly with the school of Bishwa Shanti. The initiative “one child, a tree” was hindered by the construction of a governmental road, which required the destruction of many trees. Goats also ate some seedlings, and only a small portion of the plantation is still growing nowadays.

Looking back on the infrastructure

The RWH tank is functional, clean and well managed. The original sanitation facilities were inspected, and they are functional and clean. A problem with the guttering system is faced. The gutters are undersized, debris easily get stuck and it is difficult to remove them. Thus, the water flow is not always continuous. In addition, the downside gutter is leaking, and it also appears to be inefficiently disposed. As a matter of fact, it is directed upward while it should be pointed downward to allow the rainwater flow going down to the reservoir. The school does not benefit of any spare funds for fixing this issue. A technical expertise could be provided by Kanchan Nepal, in order to provide a simple solution.

Request

- It was requested to fully implement the school as a BS, as it benefited of a special status and not all the components were implemented.

ID Bhairavi

Location

28°07'55.61" N, 84°09'16.16" E

Number of beneficiaries

74

Year of Implementation

2016

With the support of Solidarit’eau ; Services industriels de Bagnes ; Services industriels de Genève ; services Industriels de Terre Sainte et Environs ; Municipalité de Wohlen ; Municipalité de Bever ; Municipalité de Meinier ; Municipalité de Bernex ;

- No filter was provided to cover the tank inlet, and the staff is concerned about the quality of rainwater for drinking purposes. Thus, the school committee requested to be provided with a filtering system to purify rainwater as a prevention.

- Sanitation facilities were also requested, as those infrastructures are lacking within the school premises.

Conclusion

The BS programme benefited the students and the entire community. The dean of the school was very thankful for the project, and he requested to go further to fully implement the school as a BS. Rainwater is very much appreciated, and it is perceived as a reliable resource. The RWH infrastructure is well managed, and only small details need to be fixed.

Impact of the Blue School Programme

Reservoir	Roof catchments	Poor	Red	Orange	Yellow	Green	X	Clean
	Gutters	Poor	Red	Orange	Yellow	Green	X	Good
	First flush	Poor	Red	Orange	Yellow	Green	X	Good
	Leakage	Intense	Red	Orange	Yellow	Green	X	None
	Cleanliness	Poor	Red	Orange	Yellow	Green	X	Clean
	Cleaning frequency	Never	Red	Orange	Yellow	Green	X	Frequent
	Painting conditions	Poor	Red	Orange	Yellow	Green	X	Good
Hygiene	Cleanliness	Poor	Red	Orange	Yellow	Green	X	Clean
	Promotion hygiene	None	Red	Orange	Yellow	Green	X	Frequent
	Soap availability	None	Red	Orange	Yellow	Green	X	Available
Environment	Volley-ball	Poor	Grey	Grey	Grey	Grey	Grey	Good
	"One child, a tree"	Poor	Red	Orange	Yellow	Green	X	Effective
	School garden	Poor	Red	Orange	Yellow	Green	X	Good
	Waste management	None	Red	Orange	Yellow	Green	X	Good

Components			Built	Functionality
2.0	Bhairavi	Unit	No.	Performance ratio
2,1	RWH reservoir	Per tank	1	83,81%
2,2	Hygiene	Overall	1	80,00%
2,3	Environment	Overall	1	60,00%





Bishwa Shanti Blue School

Introduction

The Blue School programme helped improving the water situation in Bishwa Shanti, and it benefited the students. The amount of water available is now sufficient to satisfy all the needs, and no shortages are faced by the school. However, the water situation not only improved with rainwater harvesting, but also because of the installation of a solar lifting system within the school area. The combination of rainwater and tap water as the main resources helps sustaining all year. For instance, when the RWH reservoirs are empty, they are filled-up with tap water. This method helps storing more water for a longer period during the dry season, which is necessary to provide water to the high number of students - 309 students. The acceptance of rainwater is limited in Bishwa Shanti. It was mentioned rainwater is not considered as pure enough to drink, and tap water is preferred. Nevertheless, it has been acknowledged rainwater still provides qualitative water, and it is used as a second option when tap water is not available. The RWH reservoirs also benefit the community. In period of serious scarcity, the water stored in the reservoirs is used by the villagers. Due to scheduling organization, it was not possible to visit the school garden as it is far from the school. However, it was mentioned that trainings were beneficial, and villagers learned useful gardening methods such as reusing urine as a fertilizer. Those concepts are understood, and they are now reused by some community members. The initiative “one child, a tree” has not been successful. Some trees were cut down due to the construction of a new road. Only few plants are growing.

Looking back on the infrastructures

The monitoring was conducted during construction work, and not all the infrastructures were accessible. It was not possible to reach one of the RWH tank, and the surroundings were messy. That tank was connected to a pipe that sent water to some temporary plastic tanks, where students could directly grab water. In normal time, water is directly used from the reservoir tap. This situation was only temporary and the access to the reservoir will be cleared out after the completion of the construction work. It also seems the disposition of the guttering system has been modified, and doubts are emitted concerning its efficacy to collect rainwater. Due to the construction work, it was difficult to evaluate if that modification is temporary or if it is a permanent setting.

ID Bishwa Shanti

Location

28°07'21.65"N, 84°08'57.06"E

Number of beneficiaries

1151

Year of Implementation

2016

With the support of Solidarit’eau ; Services industriels de Bagnes ; Services industriels de Genève ; services Industriels de Terre Sainte et Environs ; Municipalité de Wohlen ; Municipalité de Bever ; Municipalité de Meinier ; Municipalité de Bernex ;

Overall, the infrastructures are functional, in good conditions and maintained. The sanitation facilities constructed by IRHA and Kanchan Nepal are functional and clean. Only one handle will need to be fixed by the school. Nevertheless, the other sanitation facilities – not provided by IRHA – are very dirty and extremely smelly. The school face a waste management problem. Used disposable sanitary pads are left within a permanent open collector located in the toilets. A solution to deal with those wastes need to be found, as the existing situation is close to be hazardous. The volley-ball playground was not set up, but it was said in normal time it is utilized and appreciated.

The monitoring was conducted with the help of the dean, that was not in function during the BS implementation, and he had very few knowledge about the programme. We referred to an old professor to obtain information on the school history.

It seems that the BS experience has not been transmitted by the former dean to the actual dean. The BS concept is meant to be transmitted between consecutive leaders, to perpetuate knowledge over time and to make the programme live. Thus, as the BS concepts have not been transmitted, doubts are emitted on the further maintenance of the infrastructures.

Difficulties

- The guttering system will need to be fixed after the completion of the construction work to allow an efficient collection of rainwater.
- The waste management is deficient and a solution to manage used sanitary pads will need to be found. Contact between Bishwa Shanti and Anandajyoti could be established, as this last-mentioned school has an efficient waste management system.
- A lack of enthusiasm of the school leaders as well as a weak transmission of the BS knowledge was observed, which may negatively impact the management of the infrastructures in the future.

Requests

- Sanitation facilities for the girls where requested as the actual number of toilets is not enough for the number of students.
- Rainwater is not perceived as a safe source for drinking and a filtering system was requested to be able providing good quality rainwater for drinking

Conclusion

The BS programme benefited the students and it simplified their lives. The infrastructures are functional and maintained. Due to the construction work, it was not possible to evaluate the infrastructures in their regular functioning. Rainwater is appreciated as a second option after tap water, but it is not appreciated for drinking water. The RWH tanks are also exploited in an unusual manner, as it is used for storing tap water in the dry season.

Impact of the Blue School Programme

Reservoir	Roof catchments	Poor				X	Clean
	Gutters	Poor	X				Good
	First flush	Poor		X			Good
	Leakage	Intense				X	None
	Cleanliness	Poor				X	Clean
	Cleaning frequency	Never				X	Frequent
	Painting conditions	Poor				X	Good
Sanitation	Water facilities	Poor			X		Good
	Toilets	Poor			X		Good
Hygiene	Cleanliness	Poor	X				Clean
	Promotion hygiene	None		X			Frequent
	Soap availability	None			X		Available
Environment	Volley-ball	Poor	X				Good
	"One child, a tree"	Poor		X			Effective
	School garden	Poor			X		Good
	Waste management	None	X				Good

Components		Built		Functionality
3.0	Bishwa Shanti	Unit	No.	Performance ratio
3,1	RWH reservoir	Per tank	2	82,86%
3,2	Sanitation facility	Per block	1	80,00%
3,3	Hygiene	Overall	1	56,00%
3,4	Volley-Ball	Structure	1	40,00%
3,5	Environment	Overall	1	60,00%





Indrayani Blue School

Introduction

The Blue School programme has been efficient in Indrayani, and the lives of the students improved. The staff takes advantages of the programme, and they are globally satisfied with the project. The quantity of rainwater is sufficient to satisfy the school water demand. An extra source of water has recently been provided by “Aid”, and the school benefits of a solar lifting system. During the first year of the BS programme, only rainwater – 46 m³ - was available and it was enough to satisfy all the needs. Students used to drink directly from the tank, but now tap water is preferred for drinking purpose. Doubts were emitted about the long storage of rainwater in the tanks, and it was believed tap water is better for drinking. Nevertheless, rainwater is still perceived as a reliable resource, and it remains the main source of water. The lifting system only works when sun is shining which limits the availability of tap water compare to rainwater. The presence of water is also appreciated for maintaining cleanliness in toilets. Health can be preserved, and the number of illnesses has greatly reduced. Water availability does not affect the children attendance, as kids used to be fine with bringing jars of water at school. The village also face a big migration problem and many families moved to cities. It was mentioned about 200 homes are available in the village, but only 100 are occupied. The initiative “one child, a tree” has been effective, and the trees are nicely growing. Goats used to eat small seedlings at the beginning of the initiative, however, the problem has been solved. The Polyhouse is managed by one teacher, and it is appreciated as it generates a fruitful production of vegetables which is consumed by the school. The school garden has largely been exploited for two years, but this year it cannot be used as much. The plastic cover is broken, and it has been removed to be fixed. It is planned to be repaired rapidly. The concept has also expanded within the community and it is very much appreciated.

Looking back on the infrastructures

All the infrastructures are in excellent conditions, functional and clean. Only few locks will need to be fixed in the sanitation facilities. The implementation of the BS programme in Indrayani was recent, and the school has not faced any big maintenance problems yet. If it occurs, the school will be in capacity to use its own funds for maintaining the infrastructures.

ID Indrayani

Location

28°10'39.69"N,84° 11'52.71"E

Number of beneficiaries

271

Year of Implementation

2017

With the support of Solidarit'eau ; Services industriels de Bagnes ; Services industriels de Genève ; services Industriels de Terre Sainte et Environs ; Municipalité de Wohlen ; Municipalité de Bever ; Municipalité de Meinier ; Municipalité de Bernex ;

For example, the community planned to develop a secondary school, which will only be financed with the funds of the local people. Most of the sanitation facilities were clean. Soap was not available, but it was said it was removed for the vacations and that it will be provided. The tanks have not been cleaned yet, and it will need to be done in the future. The volley-ball playground is in perfect conditions and the net is available.

Difficulties

- Debris tend to get stuck within the tap of the tanks, and it is difficult for the staff to clean those water access facilities.

- It was the first school to be monitored, and student interviews were not efficient. Kids were too young - from nursery to grade 8 – and questions were too difficult for their level of education.

Children were also very shy, and it was difficult to obtain answers from them. Very few students also attended school for the first day of school after a long vacation time, and, thus, only one group of students could be interviewed. Questions were updated, and the techniques of survey were adapted to be simpler. It has also been noticed it is important to interview a small group of students – maximum five students – in an informal way for a better efficacy.

Originalities

A cleanliness programme was introduced, and students are now responsible for cleaning the BS facilities twice a month. It appears to be an efficient method for involving students in the management of the BS facilities.

Conclusion

The BS programme was successful, and the community is satisfied about the project. The infrastructures are well maintained, and the staff is involved in their management. The water situation has improved, and the school is now provided with two main sources – rainwater and tap water – that allow to sustain all year. Rainwater is appreciated, and it used to be a source of drinking water before the provision of tap water.

Impact of the Blue School Programme

Reservoir	Roof catchments	Poor	■	■	■	■	X	Clean
	Gutters	Poor	■	■	■	■	X	Good
	First flush	Poor	■	■	■	■	X	Good
	Leakage	Intense	■	■	■	■	X	None
	Cleanliness	Poor	■	■	■	■	X	Clean
	Cleaning frequency	Never	■	X	■	■	■	Frequent
	Painting conditions	Poor	■	■	■	■	X	Good
Sanitation	Water facilities	Poor	■	■	■	■	X	Good
	Toilets	Poor	■	■	■	■	X	Good
	Cleanliness	Poor	■	■	■	■	X	Clean
Hygiene	Promotion hygiene	None	■	■	■	■	X	Frequent
	Soap availability	None	■	■	X	■	■	Available
	Volley-ball	Poor	■	■	■	■	X	Good
Environment	"One child, a tree"	Poor	■	■	■	■	X	Effective
	School garden	Poor	■	■	■	■	X	Good
	Waste management	None	■	■	■	X	■	Good

Components		Built	Functionality
4.0	Indrayani	Unit	No. Performance ratio
4,1	RWH reservoir	Per tank	3 94,29%
4,2	Sanitation facility	Per block	3 100,00%
4,3	Hygiene	Overall	1 92,00%
4,4	Volley-Ball	Structure	1 100,00%
4,5	Environment	Overall	1 93,33%





Jateshwor Blue School

Introduction

The water situation as well as the students living conditions greatly improved in Jateshwor. Before, the school did not have any water supply, and sanitation facilities were limited. Nowadays, the water quantity available - 53 m³ - is sufficient for drinking, washing and for maintaining cleanliness. However, the school committee is not sure if the water quantity will be sufficient to satisfy all the needs this year, as a dormitory has just been created. This initiative will increase the water demand, and one of the RWH tank will be dedicated to the hostel. As more water than the previous years will be used, the staff is preparing to face water scarcity. The quality of rainwater is appreciated, and it is considered as a reliable resource. Rainwater is always filtered or boiled before drinking. Since the Blue School implementation, no illnesses related to water quality have been reported. The community face a problem of migration towards city areas, and the number of students registered at school have decreased. This issue is not caused by water scarcity, but it is due to the higher level of education in urban areas which attracts student. The vegetable garden was not wanted at first stage of the programme implementation, but it was then requested when other communities completed their gardens. The initiative was smaller than in other sites, due to the rugged terrain and the difficult topography. The polyhouse is not used anymore by the school, but the concept has expanded within the community. It was said the gardening trainings were very successful and they benefited the community. The initiative “one child, a tree” was effective. Most of the trees have grown, however, the quality of the land is poor in the school and soil erosion affects the growth of the trees. The presence of monkeys also interferes with the growth of the trees.

Looking back on the infrastructures

The infrastructures are in good conditions, for a programme implemented six years ago. The school has not faced big maintenance problem. As it was one of the first BS to be implemented in the area, the technology of the first flush is not adequate. The water is collected in low quality plastic tanks. While in the newest BS, improved first flush collectors were integrated to the design of the RWH tanks.

ID Jateshwor

Location

28°08'38.23"N, 84°12'15.24"E

Number of beneficiaries

522

Year of Implementation

2014

With the support of Botza Association

Thus, in Jateshwor, the low quality of the first-flush collectors has not survived after six years of programme, and the plastic collectors are destroyed. Those systems need to be replaced, and it was also requested by the school. Kanchan Nepal could provide some expertise to propose a more durable solution for collecting first-flush in the oldest schools. The sanitation facilities are functional, only some handles need to be fixed on the handwashing facilities. The block of new toilets is very clean, while cleanliness is lacking in the repaired toilets and a deep cleaning is needed. Soap is directly available at the handwashing facilities, and the school do not face any problem with providing soap. The RWH tanks needs to be painted as the paint starts to deteriorate. Some gutters are also broken and need to be fixed. The school does not benefit of any spare funds for covering those reparations. The volleyball infrastructure was not available at the school anymore.

Maintenance requirements

- The plastic collector for the first flush are deteriorated after six years of programme, and a more durable solution may be assessed by Kanchan Nepal. In addition, the gutter system needs to be reviewed, with some broken gutters that need to be changed and some other gutters that must be reorganized to provide a first-flush system. The school does not have the spare funds for undertaking those reparations.

- The RWH tanks needs to be painted to avoid deterioration in the future.

- The repaired toilets need to be cleaned or refreshed as the cleanliness is lacking.

Request

- Rainwater is used as a source of drinking water, and it is filtered or boiled before being consumed. However, some children directly drink the water from the tap and the staff is concerned about the quality of water without treatment.

It was requested to be provided with a filtering system directly at the RWH tap to allow children to directly drink water from there.

- A locking system for the tank cover or a better tank cover was requested to avoid people going there

Conclusion

The BS programme benefited the students and the community in general. The infrastructures are functional and well maintained after six years of programme. The staff is satisfied of the project and involved in the maintenance of the facilities. Rainwater is appreciated and considered as a reliable source that can even be used for drinking purpose when it is filtered or boiled.

Impact of the Blue School Programme

Reservoir	Roof catchments	Poor				X	Clean
	Gutters	Poor		X			Good
	First flush	Poor		X			Good
	Leakage	Intense				X	None
	Cleanliness	Poor				X	Clean
	Cleaning frequency	Never				X	Frequent
	Painting conditions	Poor	X				Good
Sanitation	Water facilities	Poor			X		Good
	Toilets	Poor				X	Good
	Cleanliness	Poor			X		Clean
Hygiene	Promotion hygiene	None				X	Frequent
	Soap availability	None				X	Available
	Volley-ball	Poor	X				Good
Environment	"One child, a tree"	Poor		X			Effective
	School garden	Poor		X			Good
	Waste management	None		X			Good

Components			Built	Functionality
5.0	Jateshwor	Unit	No.	Performance ratio
5,1	RWH reservoir	Per tank	5	80,85%
5,2	Sanitation facility	Per block	5	90,00%
5,3	Hygiene	Overall	1	92,00%
5,4	Volley-Ball	Structure	1	0,00%
5,5	Environment	Overall	1	60,00%





Ramkot Blue School

Introduction

The water situation improved in Ramkot compare to the situation before the Blue School implementation. No water supplies were provided, sanitation facilities were lacking, and open defecation was a common practice. However, some RWH infrastructures are dysfunctional and the school still face water scarcity. The water quantity is not sufficient, and the school has already started to face water scarcity during the last dry season. This situation is expected to deteriorate with the third reservoir that recently started leaking. The school headmaster was seriously concerned about the future water situation. The need for reparations is quite urgent, as the school does not have any other water supplies. Rainwater harvesting used to be very much appreciated when it worked efficiently. It was simple to run the school, water was easily accessible and most of the needs could be satisfied. Students even attended school more often due to the easy access to water. Despite those deficiencies, the quality of rainwater remains appreciated by the school community. It is considered as a reliable resource, that can help reducing water scarcity. Rainwater is used as a source of drinking water, after filtration. No illnesses have been recorded regarding rainwater quality since the project implementation. The construction of sanitation facilities greatly improved the environmental conditions of the school, and open defecation ended. However, the cleanliness of those facilities is lacking. The dean of the school explained it was difficult to take good care of the toilets, as water is becoming too scarce.

At first glance, the overall environment of the school looked great – a luxuriant garden, nice classrooms, and a well-maintained volley-ball playground, etc. It was then surprising to hear about the deficiencies of the RWH infrastructures. It felt like the deficiencies are not caused by a poor management of the school committee, but more related to a lack of technical knowledge.

Besides, the monitoring was conducted while an opening ceremony occurred to celebrate the construction of a new school building by another NGO. It was then difficult to meet with the school community and challenging to obtain information.

ID Ramkot

Location

28°10'17.61" N, 84°10'05.94"E

Number of beneficiaries

418

Year of Implementation

2014

With the support of Botza Association

A second investigation need to be conducted by Kanchan Nepal to better access the causes of the dysfunctions.

Looking back on the infrastructures

Out of the four available RWH tanks in Ramkot, only one is functional, and the others need to be repaired. Two reservoirs have been leaking for a while and cannot be used. Another tank recently started to leak. The tank has the capacity to refill, however, rainwater cannot be stored for the whole dry season. The school committee tried to undertake reparations, but they could not establish the leakages reasons. The failures appeared to be complex, and the school committee do not have the knowledge for fixing the problem. It appears the school needs some technical support for better assessing the leakages causes.

The ferro-cement technology is very strong, and leakages are not expected to occur at this stage of the programme. Thus, it is unlikely the leakages come from the structure of the tanks. The problem is probably related to the guttering system or to some failure around the drainage area. Besides, the very specific topography of the school may have an impact on the dysfunctions. For instance, the school is located on a very steep land, with the RWH reservoirs located downward at the school and the roof catchment positioned higher near the village - about 200/300m higher. The roof catchment is connected to the reservoirs by a pipe that conveys rainwater downwards. The pipe setting-up may be deficient, and this could reduce the efficacy of rainwater harvesting. It was also mentioned by the school headmaster, that the tube is too thin for supporting strong water overflows. A deeper investigation, during the next rainy season, will be undertaken by Kanchan Nepal to better assess the leakages causes. Afterwards, a durable solution will be established to fix those leakages.

Not all the sanitation facilities are well managed, and some toilets are in average conditions. The toilets repaired by IRHA and Kanchan Nepal are functional, but the cleanliness is mediocre. Some moss is growing on the walls, and without a deep cleaning the facilities will quickly deteriorate. The ground of the girl toilets was also littered with rubbish. Some small reparations, such as fixing handles, need to be done by the school. In those toilets, water is not provided as the supply comes from one of the leaking tanks and cleanliness cannot be maintained. The other toilets – not provided by IRHA - are functional, in good conditions and clean. In those toilets even soap was provided.

The environmental conditions greatly improved, and the initiative “one child, a tree” have been very effective. Most of the trees are now very tall, and some even produce fruits. The school has been seduced by the measure, and now new seedlings are planted every year. However, due to water scarcity it is difficult to maintain the growth and around half of the plants died. The volley-ball infrastructure is still available, and it is appreciated by the students. The school garden was not directly implemented within the school but trainings were made to the community. The knowledge has been adopted by the villagers and it is expanding. For example, a visit was made in a farming household where the trainings techniques were adopted – construction of two polyhouses, reuse of urine as a fertilizer, beekeeping, RWH tank and tomato plantation, etc. Those methods are wisely used, and the household benefits of a fruitful garden.



Difficulties

It was noticed the school committee lacks technical knowledge for assessing maintenance issues, and for correctly maintain the RWH technologies. This is comprehensible as the staff is not specialized in rainwater technologies and cannot solved complex issues. A lesson learnt is that for a successful BS programme, long term support is required. Communities cannot be left alone for solving complex maintenance issues. They are in capacity to undertake small and easy reparations, but when it comes to more complex problems support is needed. Kanchan Nepal could act as an expert and could provide technical expertise to solve such complex management problem.

Conclusion

Overall, the BS programme benefited the school. The water situation and the environmental conditions improved. The school garden and the initiative "one child, a tree" have been very efficient. The playground is surrounded by trees and the vegetation is luxurious. Rainwater was very appreciated when all the RWH facilities were functional. Due to the lack of water the cleanliness of the sanitation facilities cannot be maintained. The need for reparations of the RWH reservoirs is quite urgent, as the water situation is deteriorating in Ramkot.

Impact of the Blue School Programme

Reservoir	Roof catchments	Poor					X	Clean
	Gutters	Poor	X					Good
	First flush	Poor		X				Good
	Leakage	Intense	X					None
	Cleanliness	Poor			X			Clean
	Cleaning frequency	Never					X	Frequent
	Painting conditions	Poor	X					Good
Sanitation	Water facilities	Poor			X			Good
	Toilets	Poor		X				Good
Hygiene	Cleanliness	Poor	X					Clean
	Promotion hygiene	None					X	Frequent
	Soap availability	None		X				Available
Environment	Volley-ball	Poor					X	Good
	"One child, a tree"	Poor					X	Effective
	School garden	Poor					X	Good
	Waste management	None		X				Good

Components		Built	Functionality	
6.0	Ramkot	Unit	No.	Performance ratio
6,1	RWH reservoir	Per tank	4	59,05%
6,2	Sanitation facility	Per block	2	70,00%
6,3	Hygiene	Overall	1	68,00%
6,4	Volley-Ball	Structure	1	100,00%
6,5	Environment	Overall	1	86,67%





Shivalaya Blue School

Introduction

Rainwater harvesting improved the situation in Shivalaya. Before, no water accesses were available, and few sanitation facilities were provided. The school now benefits of direct sources of water, as well as enough sanitation facilities. However, water remains scarce and rainwater cannot satisfy all the needs during the dry season. The school faces a maintenance problem – leakage of a 5 m³ RWH reservoir - that drastically reduces the amount of water available. Often during the dry season, the caretaker needs to walk to the village for collecting water, and students need to bring water jars. This problem also impacts the sanitation facilities, as water is lacking to correctly maintain cleanliness. Two years ago - before the leakages - the situation was better, and the school benefited of enough water resources. Rainwater was very valued, and it used to simplify the living conditions of the community. Despite the maintenance issue, rainwater remains appreciated as water is directly available at school in the rainy season. The quality of rainwater is recognized, and it is considered as a reliable resource. It is appreciated for drinking, especially since the school has been providing with a new filtering system by another NGO. No illnesses due to water quality were recorded since the programme implementation. Besides, it was difficult to appreciate the real functioning of the infrastructures, as the monitoring was conducted during the construction of a new school building. A RWH reservoir was dedicated to the new building construction, and rainwater was consumed for making concrete. Thus, more pressures were made on water resources, which were also accentuated by the intense use of toilets among workers. This high consumption of water was likely to conduce to a severe water depletion during the following dry season. For instance, at the time of the monitoring – November - the tank was almost empty, while the dry season was expected to persist until April.

The initiative “one child, a tree” has been effective. Most of the trees are now very tall. Due to the construction work, one tree needs to be secured as it threatens to fall on a building. When asking about the school garden, the headmaster of the school was not aware of the initiative. No more information could be provided on the measure, and it seems the impact has been limited in that school.

ID Shivalaya

Location

28°08'59.51" N, 84°10'51.01" E

Number of beneficiaries

425

Year of Implementation

214

With the support of Botza Association

It appears knowledge on the school garden was not transmitted between the different executive managers.

Looking back on the infrastructures

Three of the RWH reservoirs are in good conditions, while the fourth one – 5 m³ – leaks. The leaking tank started to deteriorate two years ago, and since then the school committee have not been able to establish the causes. Reparations cannot then be undertaken by the school. The problem appears to be complex, and the school committee does not have the knowledge for fixing the tank. Some technical support needs to be provided, for better assessing the leakage causes. As the school face important water scarcity, it is urgent to solve this problem. Painting will also need to be done on the RWH reservoirs. Due to the construction work and some changes in the road design, a RWH tank was covered with rocks and debris.

Pressures were made on the structure, and debris needs to be rapidly removed after the construction work for avoiding potential deteriorations. It was said it will be fixed when the new building will be constructed. The guttering system is deficient, and issues are faced. As a matter of fact, debris aggregate in the small drains which complicates their removal. The gutters of a first-flush system are also broken and fixed by a piece of wood. It was requested to be provided with new gutters, as the school does not have spare funds for conducting those changes. To improve the rainwater catchment area, it may be necessary to replace those gutters.

The sanitation facilities are functional and somehow clean. Due to water scarcity some handwashing facilities are not provided with water, however they are functional. It is also expected cleanliness will deteriorate throughout the dry season with water scarcity. Some old sanitation facilities -made by the government - are not used. It was explained enough toilets are available for all the students, and the school is unwilling to waste water for maintaining cleanliness in old toilets. Soap is not directly available at the handwashing sites, however, it is provided in classrooms. The volley-ball playground is in good conditions, and when the monitoring was conducted kids were playing.

Difficulties

Shivalaya seems to be the BS that suffers from the greatest water scarcity in the area. The need for repairing the leaking RWH tank is quite urgent, as the water situation rapidly deteriorates. Questions are emitted on the wise management of rainwater resources. The RWH reservoirs appear to dry up quickly, while water should be stored for longer compared to the situation in other BS around Pokhara. For instance, at the beginning of the dry season one tank was already empty, and another was about to be depleted. At this time of the year, the reservoirs should be quite full. It seems too much water is consumed by the school, and the reservoirs quickly deplete which accentuates water scarcity. Some specific rules should be set up, for controlling water usages and for limiting waste of water. It was also observed the school committee is solid, as the members won the award of the best committee by the local government. Thus, with such a strong management committee, it appears possible to easily implemented rules for controlling water usages.

Conclusion

Overall, the BS programme benefited the school. The water situation improved, even though water scarcity remains extremely important. Rainwater is very appreciated, and it helps facing water scarcity issues. Environmental conditions improved, and the initiative "one child, a tree" was efficient.

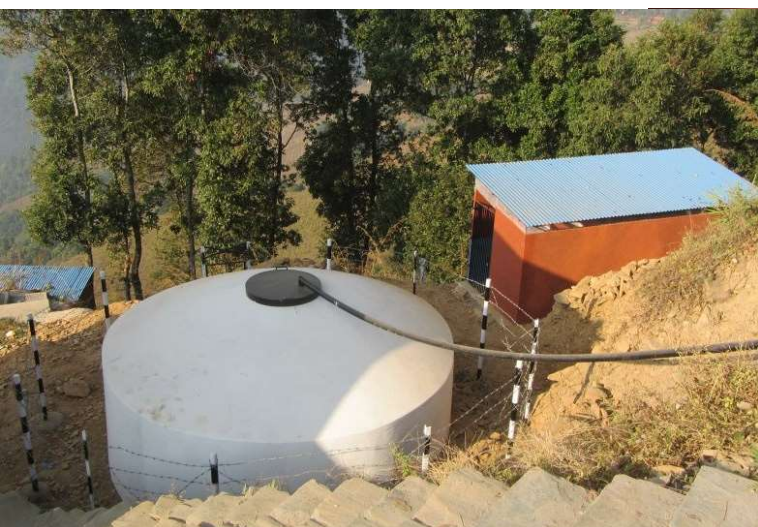
Pressures were made on the structure, and debris needs to



Impact of the Blue School Programme

Reservoir	Roof catchments	Poor				X		Clean
	Gutters	Poor		X				Good
	First flush	Poor			X			Good
	Leakage	Intense		X				None
	Cleanliness	Poor					X	Clean
	Cleaning frequency	Never					X	Frequent
	Painting conditions	Poor		X				Good
Sanitation	Water facilities	Poor					X	Good
	Toilets	Poor				X		Good
Hygiene	Cleanliness	Poor				X		Clean
	Promotion hygiene	None				X		Frequent
	Soap availability	None				X		Available
Environment	Volley-ball	Poor					X	Good
	"One child, a tree"	Poor					X	Effective
	School garden	Poor	X					Good
	Waste management	None			X			Good

Components			Built	Functionality
7.0	Shivalaya	Unit	No.	Performance ratio
7,1	RWH reservoir	Per tank	4	62,86%
7,2	Sanitation facility	Per block	3	90,00%
7,3	Hygiene	Overall	1	80,00%
7,4	Volley-Ball	Structure	1	100,00%
7,5	Environment	Overall	1	60,00%





Bijaya Blue School

Introduction

The implementation of the BS programme in Bijaya has greatly improved the water situation in the school. Water quantity is sufficient to cover all the annual water needs. Rainwater offers a safe and reliable access to water. Lifting system is also available in the school, but it is frequently mismanaged leading to water shortage. By juggling between rainwater and lifting water, the school is able to provide water all year round. For instance, when rainwater is fully consumed, the tanks are filled up with lifting water to avoid water scarcity in the dry season. Rainwater is considered of good quality by the school members. It is an appreciated water source, however, it was mentioned that if spring water was available, they would prefer to drink spring water. Nevertheless, as the closet spring is far from the school, rainwater remains very beneficial to the pupils. It was mentioned the students drink rainwater at school, however, the teachers still bring their own water jar. Before drinking, rainwater is boiled or filtered into the ceramic filter provided by Kanchan Nepal. According to the teachers, the number of diarrheal illnesses has drastically reduced, as the students have a better hygiene with rainwater. Also, cleanliness in the sanitation facilities is easier to be maintained.

The reforestation activities and the school garden have been very effective in Bijaya BS. All the trees are growing well - only 5 to 10% of the trees have died - and the school members are hoping to collect fruits next year. Due to the success of the plantation, the school members have even planted new trees (i.e. "Lapsi", lemon trees). The children are taking care of their own trees, even though it was difficult to manage during the lockdown. Vegetables are grown in the school garden and they are used to feed children in pension. By doing so, the school does not need to buy more groceries from the local market. After having followed the training on off-farming vegetables, many community members were interested in constructing polyhouses. Funds have been collected by the community from a social organization and a large number of polyhouses have been built in the neighborhood of the school.

ID Bijaya BS

Location

28.249506, 84.035158

Number of beneficiaries

68

Year of Implementation

2018-2019

With the support of Bernex, Chêne-Bougeries, SIG, SITSE, Grand-Saconnex

Looking back on the infrastructures

The facilities of Bijaya BS are in good conditions and functional. It has been observed that the cover caps of the RWH reservoirs were open, which increase the risk of rainwater contamination. The school members explained that the covers were open only to fill up the tanks with lifting water. It has been highly recommended to keep these cover caps closed. The RWH reservoirs and the roofs have not been cleaned yet. The school members engaged to wash the infrastructures every two years and to clean the roofs before each monsoon. Soap is available and managed by the school caretaker, which does not face any problem supplying soap. The sanitation facilities are functional and very clean. Handwashing sessions have been introduced in the school programmes. A waste management system is available, where biodegradable wastes are separated for compost and plastic is encouraged to be reused.

Indeed, the school has introduced a programme to reuse plastic. Non-degradable wastes are burned or buried in a pit. No menstrual management system has been developed, as the young girls in the school are not yet concerned with menstrual management.

Difficulties

The school has not faced major difficulties. All the facilities are functional and in good conditions. Few minor repairs must be undertaken (i.e. loose handles, broken door, gutter hole). The RWH reservoir used for sanitation purposes is slightly leaking. It has been recommended to fill up the cracks with liquid cement before the next monsoon. If needed, Kanchan Nepal will be available for technical support. The school members have engaged to undertake those minor repairs.

Conclusion

The BS programme has greatly improved the water situation in Bijaya BS. Nowadays, water is available all year round within the school premises, and the students benefit of clean and safe sanitation facilities. The school has not faced major difficulties and the committee members have the capacity to well maintain all the infrastructures.

Impact of the Blue School Programme

Reservoir	Roof catchments	Poor	Red	Orange	Yellow	Green	X	Clean
	Gutters	Poor	Red	Orange	Yellow	Green	X	Good
	First flush	Poor	Red	Orange	Yellow	Green	X	Good
	Leakage	Intense	Red	Orange	Yellow	Green	X	None
	Cleanliness	Poor	Red	Orange	Yellow	Green	X	Clean
	Cleaning frequency	Never	Red	Orange	Yellow	Green	X	Frequent
	Painting conditions	Poor	Red	Orange	Yellow	Green	X	Good
Sanitation	Water facilities	Poor	Red	Orange	Yellow	Green	X	Good
	Toilets	Poor	Red	Orange	Yellow	Green	X	Good
Hygiene	Cleanliness	Poor	Red	Orange	Yellow	Green	X	Clean
	Promotion hygiene	None	Red	Orange	Yellow	Green	X	Frequent
	Soap availability	None	Red	Orange	Yellow	Green	X	Available
Environment	"One child, a tree"	Poor	Red	Orange	Yellow	Green	X	Effective
	School garden	Poor	Red	Orange	Yellow	Green	X	Good
	Waste management	None	Red	Orange	Yellow	Green	X	Good

	Components		Built	Functionality
8.0	Bijaya	Unit	No.	Performance ratio
8.1	RWH reservoir	Per tank	2	90.48%
8.2	Sanitation facility	Per block	2	90.00%
8.3	Hygiene	Overall	1	100.00%
8.5	Environment	Overall	1	100.00%



Perceptions Students

- Having rainwater harvesting systems available at school simplifies the living conditions of the students. Qualitative water is directly available for them. Students mentioned they can use rainwater for multi-purposes such as drinking water, handwashing and washing in general. Compare to the situation before the BS, children do not have to worry about bringing water jars at school, only sometimes during the harsh dry season.
- The students appreciate the easy access to toilets. They declared open defecation reduced, which positively impact their school environment as it is cleaner. Children also appreciated to have access to clean sanitation facilities most of the year.
- It was difficult to establish if rainwater harvesting in schools reduced the water needs in the children's households. Most of students' households were provided with tap water while implementing the BS, which greatly improve their water situation. However, it is possible to affirm, the combination of rainwater harvesting and solar lifting system contributed to considerably reduce water scarcity within the BS area. Before those measures, all the family members used to walk between 5 minutes and 2 hours to collect water in various sources such as public tap, ponds, rivers, etc.
- Perceptions of rainwater greatly evolved, and now it is accepted as a reliable resource among the students.
- All the children stated rainwater is a precious resource, especially during the rainy season. Many students declared collecting rainwater in small containers to satisfy their daily needs in the monsoon. Rainfall is perceived as a benefit, since it provides abundant quantities of water. However, it was told by some students tap water is sometimes preferred as rainwater is not as pure.
- Most of students are not aware of the migration problem undergoing in their living area. Only few children were confronted to migration in their neighbourhood, but they could not explain the reasons.
- Throughout the discussions, it was observed students face inequalities in water access. Some households were provided with tap water, while some other lived in very scarce area. Those last students usually had to walk between 30 minutes to 1 hour for collecting water. This scarcity was particularly significant on the hill tops, where surface runoff is intense, and retention limited. Thus, it appears a better management of the water resources is required in those areas.

Overall, the students appreciated the BS programme, and they firmly stated the living conditions in their schools improved

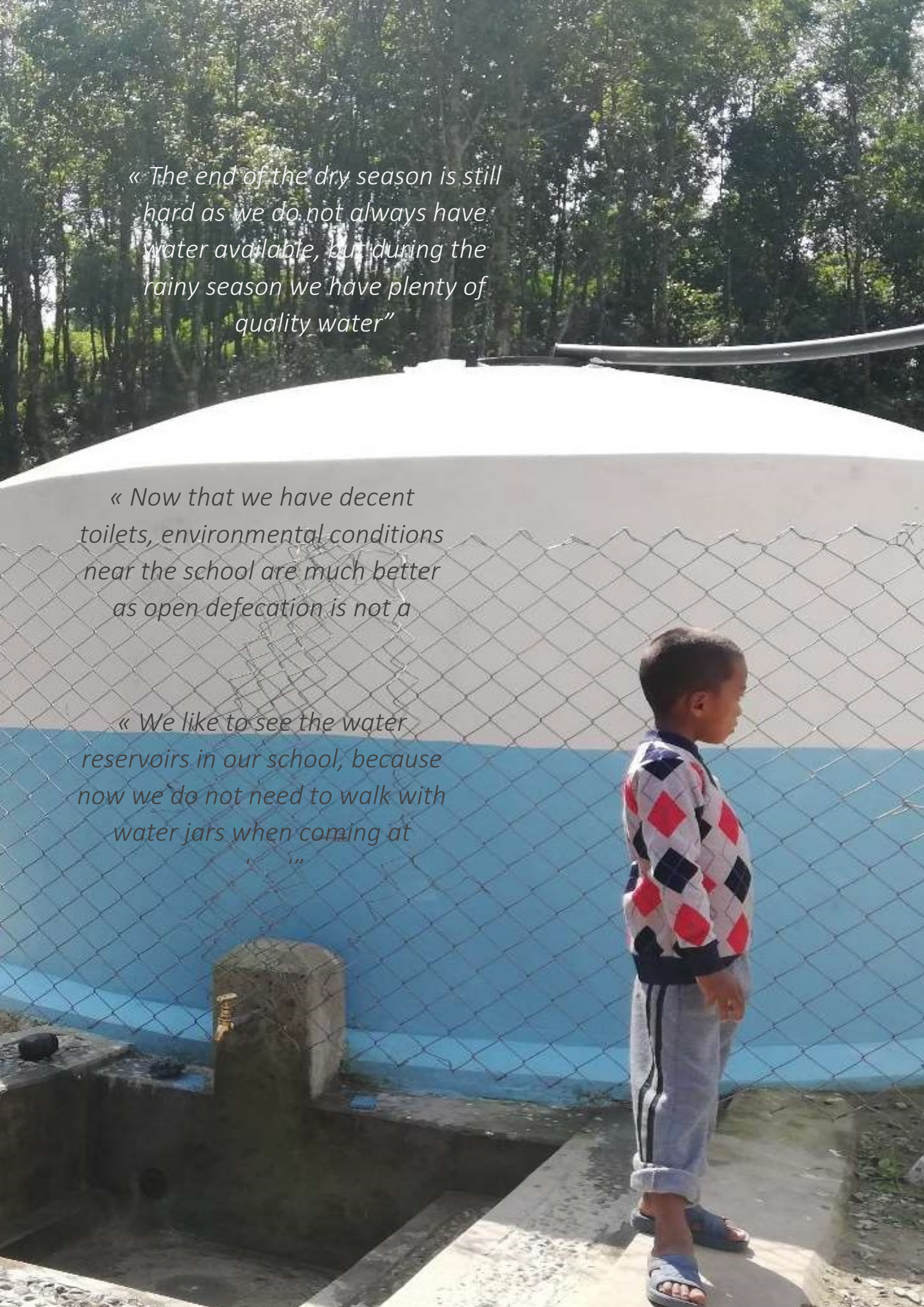


« The end of the dry season is still hard as we do not always have water available, but during the rainy season we have plenty of quality water »

« Now that we have decent toilets, environmental conditions near the school are much better as open defecation is not a

« We like to see the water reservoirs in our school, because now we do not need to walk with water jars when coming at

“ ”





Conclusions and Lessons Learnt

Overall, the results of the monitoring were satisfying, and after seven years of programme, the Blue Schools are still successful. The project improved the living conditions of the students and it benefited the entire community.

- Water scarcity drastically reduced compare to the situation prior the programme implementation. Water access is easier in all the schools, and almost all the schools benefit of enough water to satisfy the demand. Only Shivalaya and Ramkot expect to face water scarcity during the next dry season, as some of their RWH tanks need to be repaired.
- The improved access to water in the BS is partly due to rainwater harvesting, but also to the recent delivery of solar lifting system in the intervention area.
- Rainwater quality is appreciated by all the schools, and it is considered as a reliable resource that permits to satisfy almost all the needs.
- Most of the schools appreciate rainwater as a drinking resource, usually after filtration or boiling. Some schools mentioned tap water is preferred for drinking, as it is thought to be purer than rainwater which stagnates for a long period of time. Few schools requested to be provided with a filtration system in order to treat drinking water before consumption as a prevention.
- Since the programme implementation, no water-related illnesses have been reported in any of the BS.
- Five schools have not faced serious maintenance problem, and only need to undertake minor reparations - fixing handles, repairing the guttering system, painting reservoirs, etc. However, Shivalaya and Ramkot face serious maintenance problems – leakages – that will require urgent technical expertise for assessing the causes. Most of the schools do not have spare funds for undertaking consequent reparations - except Indrayani and Anandajyoti.
- The construction of sanitation facilities ameliorated the environmental conditions in the schools. Open defecation is not a practice anymore, and cleanliness is properly maintained in the toilets. During the dry season when water is rarer, cleanliness remains difficult to maintain.
- Hygiene and handwashing are promoted in every schools.
- Soap is not necessarily provided to the student within the schools, and some solutions will need to be found to ensure it is provided in all the schools. Liquid soap or solid soap holder could be installed to make sure soap remains near the handwashing facilities.
- The school garden initiative has not necessarily been repeated within the schools' perimeter throughout the years, however, it is successful as the concept spread over the communities. For instance, it is common to observe the implementation of the techniques trained during the workshops among households.
- The trees planted with the initiative "one child, a tree" contribute to ameliorate the environmental conditions of the schools. Most of the trees are growing, and some are now very tall. However, a great number of seedlings have been destructed - usually due to goats, monkeys, soil erosion, road construction and water scarcity, etc.

- It was observed the migration problem in the area is complex, and it is difficult to affirm it only depends on water scarcity. As a matter of fact, the decision to move is usually a combination of different reasons, where water scarcity represents only one reason. The main factor for migration seems to be related to the better level of education in city areas. However, the combination of rainwater harvesting and solar lifting system appear to have reduced the willingness to move away because of water scarcity.
- A difference in the degree of maintenance was observed between the oldest BS and the recent ones. The first schools to be implemented appear to be less successful – except Jateshwor – which can be explained by the shorter duration time of implementation. It seems intensive support to the schools during the implementation phase, positively influence the success in maintaining infrastructures.
- It was observed the strong implication of the school committee members positively impacts the BS management. For instance, when headmasters are qualified and involved in the school management, the BS programme tends to be more effective. Besides, for a successful programme the BS knowledge needs to be transmitted to the succeeding executive managers.

Recommendations

- ✓ Long-term support must be provided to ensure efficient BS maintenance. The BS committees are capable of undertaking small reparations, however, they are unqualified to overcome complex issues. As a matter of fact, teachers are competent for teaching school materials, however, they are not specialized in rainwater technologies. In case of major issues, some technical expertise should be provided by KN to help establishing effective solutions. Without that technical support, communities may neglect the infrastructures.
- ✓ Establishing a BS network by linking schools together, would benefit the communities. As schools tend to face the same issues, developing a platform for sharing experiences could help solving recurrent problems. For instance, some BS developed original activities which could be shared with the other schools. With such network, innovative activities could spread over communities. It would also be an opportunity to empower local communities in managing their infrastructures. The platform could also go beyond the BS components, and sustainable resource management in general could be discussed.





Reconstruction in Schools of Kathmandu, Nepal

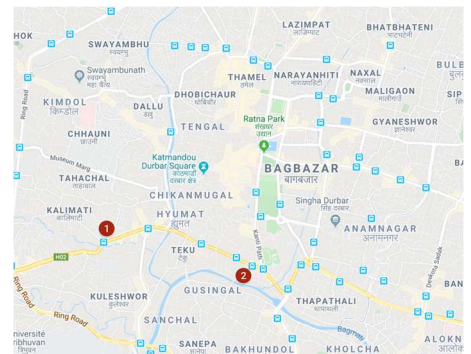
Description

Just before noon on 25 April 2015, Nepal was struck by a 7.8-magnitude quake with the epicenter in the city of Gorkha, resulting in over 9,000 deaths, 21,000 injuries and millions of homeless. Only two weeks after, on 12 May 2015, another a 7.4- magnitude earthquake hit the east part of Kathmandu in the Everest area. The situation was particularly concerning, and according to the United Nations more than 8 million of Nepalese were affected, hundreds of thousands of people were displaced in improvised camps and many infrastructures were destructed. In addition, a controversial constitution triggered protests in the south of Nepal and resulted in a four-month blockade at the Indian border, Nepal’s main trading partner, leading to a new government in October 2015. Guthi and IRHA worked together to develop the “Emergency Rain” project and the following “Rain community” programme in order to assist the reconstruction effort. Support was provided to improve the living conditions of the affected communities of Bhaktapur, as well as of the students of Jana Prabhat and Viswa Niketan.

The following components were carried out to support the reconstruction of the schools:

- Provision of a sustainable access to safe drinking water – i.e. rainwater harvesting;
- Provision of a sustainable access to sanitation facilities combine with the respect of good hygiene practices;
- Trainings on rainwater, sanitation and Hygiene

Location



Location

Kathmandu Metropolitan City, Nepal

2 Schools

Jana Prabhat (1), Viswa Niketan (2)

Implementation

2015 to 2017

Monitoring

December 2019

Implemented by





Jana Prabhat School

Introduction

The reconstruction of Jana Prabhat has been very effective, and the water situation greatly improved. Prior the programme implementation, the water situation was very bad and the old RWH system could not provide enough water to all the affected communities. With the rehabilitation of the old RWH reservoir – 12 m³ - and the construction of a new one – 25 m³ - the school has more leverage, and water can be used for different purposes. However, the water quantity remains limited and it is not enough to satisfy all the needs. In the dry season water becomes very scarce, and sometimes students need to bring water jars from their homes. Nevertheless, the staff does not need to buy huge quantities of water anymore, and the school saves large amount of money. Before the project, the cost of water used to be very high and it was difficult to afford it. It was mentioned that despite the insufficient water quantity, the access to water remains very much easier. The quality of rainwater is appreciated, and it is perceived as a reliable resource. After the use of the filtration system, rainwater is used as a source of drinking water. The children attendance at school increased after the reconstruction, however, this surge amplified the water demand which created more pressure on the water resources. The construction of sanitation facilities was also very beneficial, and it improved the health and hygiene conditions around the school.

Looking back on the infrastructures

All the Infrastructures are functional, very well maintained and clean. The school has not faced any big maintenance problem. Spare funds are available for fixings small issues, as well as for undertaking bigger reparations. The school does not have funds for providing soap. It is supplied by different organizations or by the students, and then it is not always available. The school staff is also very active and involved in the project. No doubts are emitted regarding the maintenance of the infrastructures in case of major problem. This perception is even reinforced by the fact the plumbing microbusiness, created under the project “emergency rain”, is now solid enough to help fixing big maintenance issues.

ID Jana Prabhat

Location

27°41'53.79" N, 85°17'37.68" E

Number of beneficiaries

600

Year of Implementation

2016

With the support of Canton of Geneva, City of Geneva, Meyrin, College du Léman

Opportunities

The school is a resource school for other institutions, where external teachers often come for attending meetings, workshops and trainings. This status places the school as a privileged site for conducting advocacy on rainwater harvesting. The school committee is motivated to develop a rain center, where advocacy could be conducted toward other schools. Developing such network is an efficient manner to expand the concept of rainwater across other institutions. A room within the school perimeter was proposed for developing this advocacy center. It is readily available, but it would need to be equipped – with carpets, benches, TV, etc. It is planned to be dedicated for conducting extra curriculum activities with small kids, however, if the cooperation with IRHA continues the room could also be used as a rain center.

Workshops with other school committees could be developed, to expand the concept of rainwater around the educational community of Kathmandu. Such advocacy is particularly needed in the context of the metropolitan city of Kathmandu, as the water situation is extremely concerning. As a matter of fact, the water management is very poor and most of the resources are depleted. Groundwater which underlies the city is the major source of water in Kathmandu, however, the resource has been overexploited and it is nearly depleted. In a city where rainfalls are very intense, rainwater appears to be very valuable, and a better management of this resource needs to be undertaken. Thus, conducting advocacy on rainwater around Kathmandu is necessary, and working with Jana Prabhat to develop a rain center could be an original manner to involve the school in the promotion of rainwater.

Besides, after the great success of the projects “emergency rain” and “rain community”, the school could officially be inaugurated as a BS. The school committee is very involved in the programme, and it would be relevant to include the school in the BS network. To fully complete the programme, the initiative “one child, a tree” could also be launched in the school, as it was requested by the school committee. The construction of another RWH reservoirs was also requested, as the water quantity is not sufficient, and the water demand increases.

In the context of inaugurating the school as a BS, the proposition could be considered.

Conclusion

Overall, the project improved the living conditions of the students in Jana Prabhat. The reconstruction was very effective, and most of the earthquake damages are no longer visible. The staff is very happy with the project, and the benefits were acknowledged. The school committee is very motivated to move forward, and they want to develop new activities with Guthi and IRHA.

Impact of the Blue School Programme

Reservoir	Roof catchments	Poor	Red	Orange	Yellow	Light Green	X	Clean
	Gutters	Poor	Red	Orange	Yellow	Light Green	X	Good
	First flush	Poor	Red	Orange	Yellow	Light Green	X	Good
	Leakage	Intense	Red	Orange	Yellow	Light Green	X	None
	Cleanliness	Poor	Red	Orange	Yellow	Light Green	X	Clean
	Cleaning frequency	Never	Red	Orange	Yellow	Light Green	X	Frequent
Sanitation	Water facilities	Poor	Red	Orange	Yellow	Light Green	X	Good
	Toilets	Poor	Red	Orange	Yellow	Light Green	X	Good
Hygiene	Cleanliness	Poor	Red	Orange	Yellow	Light Green	X	Clean
	Promotion hygiene	None	Red	Orange	Yellow	Light Green	X	Frequent
	Soap availability	None	Red	Orange	Yellow	Light Green	X	Available

Components		Built		Functionality
1.0	Jana Prabhat	Unit	No.	Performance ratio
1,1	RWH reservoir	Per tank	2	100,00%
1,2	Sanitation facility	Per block	1	100,00%
1,3	Filtration system	Per system	1	100,00%
1,4	Hygiene	Overall	1	92,00%





Viswa Niketan School

Introduction

The reconstruction of Viswa Niketan was successful and the water situation improved. With the earthquake in April 2015, the old RWH system collapsed and the water situation was very concerning. It was decided to reconstruct the RWH system, and to provide a large reservoir - 50 m³ - to the school community. The school now has access to enough water to satisfy most of the needs, even though the supply decreases during the dry season. To ensure the reservoir never dries up, an effective management system has been established. When the level of rainwater decreases in the reservoir, it is recharged with groundwater from the well. That well is also recharged during the rainy season with the rainwater surplus deriving from the reservoir. Thus, in period of dryness groundwater can be used as a backup solution to recharge the RWH reservoir. The school managers were very satisfied with the project, and they mentioned the living conditions in the school improved. Before the school could not afford to buy water, and the water situation was very critical. The students had to come with their own water. Nowadays, large amount of money is saved as water is directly available at school. Rainwater is perceived as a reliable resource, especially when it is used in combination with groundwater. The quality of rainwater is appreciated, and it is used as a source of drinking water after filtering. Recently, the water quality was tested, and the results were satisfying. No illnesses related to water were recorded. The number of students attending school increased - 2200 to 3000 students – which is partly due to the availability of water but also to higher education quality, cleanliness, new buildings, etc. Prior the programme, sanitation facilities were poor and flush toilets were not available. The construction of sanitation facilities was very beneficial, and the WASH conditions improved in the school.

Looking back on the infrastructures

All the Infrastructures are functional, very well maintained and clean. The school has not faced any serious maintenance problem. Spare funds are available for maintaining the infrastructures. For instance, the school recently maintained the filtering system with its own funds. The caretaker is in charge of the maintenance, and in case of a bigger problem the school would call Guthi for technical support.

ID Jana Prabhat

Location

27°41'34.09"N, 85°18'42.41"E

Number of beneficiaries

2220

Year of Implementation

2017

With the support of Canton of Geneva, City of Geneva, Meyrin, College du Léman

The plumbing microbusiness created under the project “emergency rain”, would also be in capacity to fix big maintenance issues. The school management committee is strong, and it received many awards. Thus, no doubts are emitted regarding the maintenance of the infrastructures in case of major problem. Taps inside the sanitation facilities were removed, as children tend to waste water. It was said it is not problematic, as most of the time toilets are used for urinal purposes, and water is available at the handwashing facilities. With that change, the school can better manage water and limit wastes. Soap is provided within the sanitation facilities, however, it tends to disappear. Small soap bars are provided to limit loses. It was said providing liquid soap could be an effective solution for controlling soap waste. The staff is very involved in the development of activities within the school and interested in developing new projects.

Opportunities

- After the great success of the projects “emergency rain” and “rain community”, the school could officially be inaugurated as a BS. The school committee is very involved in the programme, and it would be relevant to include the school in the BS network. The school committee is also motivated to plant trees and requested support for greening the school. As the initiative “one child, a tree” is a component of the BS, in the context of inaugurating the school as a BS, the request to provide seedlings could be considered.

- A new school building was constructed, however, the school committee faces issue to manage its storm water as it is ineffectively diverted. The gutters are directed towards the playground, which then tends to be flooded during the rainy season. The committee requested help to redirect those storm waters toward the well or the RWH reservoir. Also, as the number of students is increasing, the pressure on water resources is increasing, and the managers thought about constructing another tank for collecting the excess storm water. However, the

Conclusion

Overall the project was very efficient and the living conditions of the students in Viswa Niketan improved. The reconstruction was successful, and most of the earthquake damages are no longer visible. The staff is very satisfied with the programme, and the benefits were acknowledged. The school committee is motivated and interested to develop new activities with Guthi and IRHA.

Impact of the Blue School Programme

Reservoir	Roof catchments	Poor	Red	Orange	Yellow	Light Green	X	Clean
	Gutters	Poor	Red	Orange	Yellow	Light Green	X	Good
	First flush	Poor	Red	Orange	Yellow	Light Green	X	Good
	Leakage	Intense	Red	Orange	Yellow	Light Green	X	None
	Cleanliness	Poor	Red	Orange	Yellow	Light Green	X	Clean
	Cleaning frequency	Never	Red	Orange	Yellow	Light Green	X	Frequent
Sanitation	Water facilities	Poor	Red	Orange	Yellow	Light Green	X	Good
	Toilets	Poor	Red	Orange	Yellow	Light Green	X	Good
Hygiene	Cleanliness	Poor	Red	Orange	Yellow	Light Green	X	Clean
	Promotion hygiene	None	Red	Orange	Yellow	Light Green	X	Frequent
	Soap availability	None	Red	Orange	Yellow	Light Green	X	Available

Components			Built	Functionality
2.0	Viswa Niketan	Unit	No.	Performance ratio
2,1	RWH reservoir	Per tank	1	100,00%
2,2	Sanitation facility	Per block	1	90,00%
2,3	Filtration system	Per system	1	100,00%
2,4	Hygiene	Overall	1	92,00%





... Empower young generations
today to build up resilient
communities tomorrow

Contacts

IRHA Maison Internationale de l'Environnement 2
Ch. de Balxert 9, 1219
Châtelaine Suisse
Tel: +41 22 797 41 57
www.irha-h2o.org
mail : secretariat@irha-h2o.org

