

Foowong

(Wes Nichols, 20/08/2020)

In 2018, eight villages covering five culturally diverse groups agreed to put aside their past enmity to ensure that they could enjoy the mutual benefits that a safe, clean water supply could bring to their communities. The resultant water supply system is now a common and enduring thread that, no matter what else happens, will unite them and be protected by them for everyone to enjoy into the future. This is their story.

1.0 Project Background

The Supurunda Water Supply Project area, is located 30kms by road north-west of Goroka in Daulo District, which is part of Eastern Highlands Province. The project was funded by Rotary International as the Non-Government Organisation (NGO). The Goroka Rotary Club was responsible for the project management of the project and its secretary at the time, Osivo Ombuano, was the Project Manager. Osivo is a qualified school maths teacher by profession.



Figure 1: Location Map.



Figure 2: The Supurunda Spring Source being inspected by Michael Demas.

The project supplies clean water to 3,000 villagers in 8 villages for the first time ever. It is spring-fed and is delivered via a gravity-feed system that has minimal moving parts – this makes ongoing maintenance easy and cost effective. Construction materials were purchased locally in PNG and construction was completed by the villagers within a 6 week



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timeframe. Over 7 kms of poly pipe were trenched as part of the project and poly tanks were installed for water storage in the system.

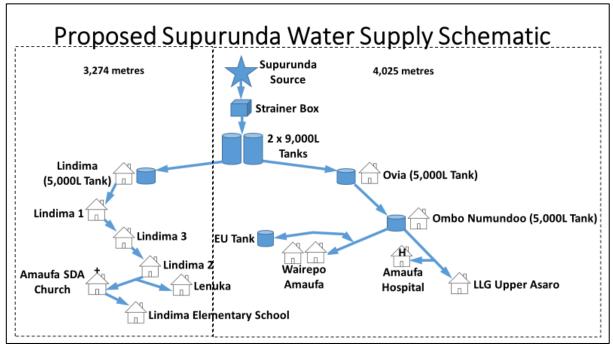


Figure 3: Supurunda Water Supply Schematic Diagram.

The spring source has a confirmed flow of 2.25L/sec and bacteriological testing at Goroka University, chemical field testing and chemical laboratory testing have confirmed the water source is of good quality water (provided that the source is protected from contamination into the future).

The spring source can supply up to 65L/person/day for the population of 3,000 persons. Even though it is not fit to drink, water from the Asaro and Gota Rivers can augment the water supply by being used to irrigate crops. This drives the community towards economic development.

The project had a cost of US\$68,000 (approximately PNG Kina 200,000) and was funded by Rotary International across a number of Rotary Districts and included Rotary Clubs in Australia and PNG. Competitive tenders from four tenderers ensured value for money for the supply of materials for the project.

WHO Guidelines

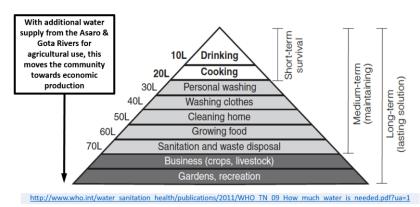


Figure 4: WHO guidelines showing the quantities of water required for activities involving water usage.

2.0 Project Administration - MOU & Policy

A Memorandum of Understanding (MOU) was developed between the five tribal groups (in a total of 8 villages) in the water supply area and the owner of the water supply source to share the water between the villages before the project started. This MOU was used as the basis for developing a policy document after the project was completed and this policy document is registered with the local court and is enforceable under the law.





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Administer project payments locally Established a separate bank account, account for expenditure and maintain an inventory of MEMORANDUM OF UNDERSTANDING project items. Arrange for appropriate training. To collect information to evaluate the project outcomes. between ROTARY CLUB OF GOROKA, RI No. 29443 Arrange purchasing of supplies and materials. Provide information and reports to RC Toowong in a timely manner. Undertake or arrange to have undertaken publicity of the project and its goals. Undertake promotion and publicity of the project and the outcomes. ROTARY CLUB OF TOOWONG, RI No. 17791 Supurunda Water Supply Project Committee The Rotary Club of Toowong Shall: A. Receive and disburse project funds in consultation with the Rotary Club of Goroka. B. Provide prescribed reports following reports from and/or consultation with the Rotary Club 1. Subject The Supurunda Water Supply Project: Global Grant #_ Asaro district, Eastern Highlands Province, Papua New Guinea. Undertake publicity within Australia and to TRF where appropriate Support the Rotary Club of Goroka in anyway necessary. The Supurunda Water Supply Committee Shall: A. To provide labour and resources to undertake the works of the project. B. To arrange for provision of food and accommodation during project works. C. To provide labour and resources for the ongoing operation and maintenance of the water 2. Fullows: This document serves to establish a framework of cooperation and agreement between the aforementioned parties as it pertains to the implementation of a project financed by a Rotary Foundation Global Grant. supply scheme under the oversight of a Supurunda Water Supply Committee. 3. Primary Contacts Report regularly as requested by the Rotary Club. RC TOOWONG SWSP - COMMITTEE REPRESENTATIVE Modification within the scope of the instrument shall be made by mutual consent of the parties by the issuance of a written modification, signed and dated by all parties, and approved by The Ovia, Daulo District P.O. Box 7644 East Brisbane, Qld 4169 P.O. Box 1364, Goroka EHP 441, PNG otary Foundation prior to any changes being performed. Australia EHP 441 +675 721 945 92 +61 (0)418 483 240 Phone +675 726 675 84 Any real or perceived conflicts of interest must be disclosed to The Rotary Foundation, including any Rotarians serving as paid staff or board of directors for the cooperating organization. Email John.ponga@gmail.com wes.nichols@bigpond.com 10. Signatures <u>Understandings</u> A. All parties affirm that this Global Grant is initiated, controlled, and managed by the Rotary By signing below, the aforementioned parties agree to the terms of this memorandum of understanding. Clubs and/or districts involved in the project. The Rotary Clubs of Goroka and Toowong affirm that the Supurunda Water Supply Committee is reputable and responsible and acts within all governing laws of the project All parties acknowledge that this Global Grant, if approved, will be awarded to the Rotary Clubs of Goroka and Towong and not to Supurunda Water Supply Committee. All project funds will be in the custody of the partner Rotary Clubs and will not be managed by the Supurunda Water Supply Committee. Mr John Onga E. The Supurunda Water Supply Committee must abide by The Rotary Foundation grant terms The Supurunda Water Supply Committee and its involvement in this project may be subject to financial and operational review/audit by The Rotary Foundation. Mr Roger Hogg The Rotary Club of Goroka Shall: A. Through Rotarian and (Teacher/Assistant Rotary Secretary) Mr. Osivo Ombuano, direct and supervise the project design and works at the site. Supurunda Water Supply Committee – Chairman B. Oversee and work alongside the Supurunda Water Supply Committee representative Mr.

Figure 5: Memorandum of Understanding (pre-construction document).

Supurunda Water Supply Policy

is to the ongoing sustainability of a water supply for the combined community into the future

appreciate the water supply by looking after it.

The Supurunda Water Supply Committee

ritten down and announced as law thereafter.

rom the Supurunda Water Supply Committee Maintenance Fund

Maintenance and Sutainability

WASH Training

Penalties

n the community, including any person passing through the community's villages

EXECUTED AS AN AGREEMENT EXECUTED FOR AND ON BEHALF OF THE ROTARY CLUB OF GOROKA This document serves to establish a framework of cooperation and agreement between the people from the villages o Ovia, Ombo Numundoo, Wairepo, Amaufa, Lindima, Lindima 1, Lindima 2, Lindima 3, Lenuka and LLG Upper Asaro as it dent, Rotary Club of Goroka EXECUTED FOR AND ON BEHALF OF THE SUPURUNDA WATER SUPPLY PROJECT (Host Club), the Rotary Club of Port Moresby, several Australian Rotary Clubs and The Rotary Foundation. Much thought, echnical evaluation, survey, written documents, questions, and many meetings were put into the project. The combined fillages contributed a united workforce to construct the water scheme as part of their investment into having a continuous water supply for the community. Sworts (suppervisor) The community has elected the Supurunda Water Supply Committee to make policies and organize meetings to oversee and look after the water supply. It is recognised that this water supply was donated to us by gracious people whom their names, faces, and places we don't know. For this reason, these clans combined and will remain united to show they EXECUTED FOR AND ON BEHALF OF THE SUPURUNDA WATER SUPPLY COMMUNITY VILLAGES: Pastor Monda Gombai Supurunda Water Supply Committee Chairm Therefore, laws have been written so as to safeguard the good running of the water supply so that it will benefit everyo Moses Kerekere Ovia Community Representative Paul Mondo Ombo Numundoo Community Representative The Supurunda Water Supply Committee shall meet as often as is deemed necessary but must meet at least once annually o hold the Annual General Meeting (AGM). The AGM is to be used to account for the costs for the past year, ongoing unding requirements, election of committee members, reviewing and making of policy/law and other general business. Any new policy/law ideas that arise in the water supply committee meetings that are passed by the committee will be Wairepo Community Representative Lisi Ambane Joseph Ombo Lindima Group of Communities Representative Vincent Alarge In addition, The Supurunda Water Supply Committee shall: 1) provide oversight, labour and resources for the ongoing operation and maintenance of the water supply scheme; and 2) provide continuing (at least, annually) Water, Sanitation and Hygiene (WASH) training for the community. Avivo Gimisiv Lenuka Community Representative AVIRO Churches Representative Ma Elvis Saremble School Representative Miss Coonshops 14 Each household within the community's villages shall be levied 50 toea per month. This is to be paid into the Supurund Water Supply Committee Maintenance Fund to maintain and sustain the water supply into the future. The amount of the evy shall be reviewed at each Annual General Meeting of the Supurunda Water Supply Committee. Fram Elvis Budito Maria Kaina Court Chairman Hon WASH training will be conducted for all school students at least once each year (Adults can attend). This will be funded Rural Police Station Com Stamp and Signature: Any person over the age of accountability doing any damages to the pipes without knowing what he or she is doing an destroys the water supply equipments is liable to face the penalty of fine K150.00. But, any person over the age of Witness Name: Mr Michael Apie (Commissioner of Oaths) accountability does any damages to the water supply equipments knowingly is liable to face the penalty of K250.00 or No tree is to be cut where the water way is and no bush fire is allowed where the water source is, fine will be K100.00. Washing of eating utensils, coffee beans, and bathing right under the tap is forbidden therefore, water must be carried away from the taps to do washings, failing to do so will result in facing the water supply committee and being fined 5/3/19

Figure 6: The legally enforceable policy document adopted by the communities after project completion and administered by the Supurunda Water Supply Committee.



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3.0 WASH Program

A Water and Sanitation and Hygiene (WASH) education program was rolled out prior to construction commencing with sessions for the villagers and school children. A briefing was held for the Supurunda Water Supply Committee and this helped to ensure the program was rolled out effectively to the entire population. The WASH program will be run each year for school children.









Figure 7: WASH Program Training – how to make and use a Tippy Tap; training of students at Wairepo Primary School; adult training courses run by local health nurse Susie Murawao, Education Officer Ameni Yaruta and Project Manager Osivo Ombuano.

The WASH program included the construction of latrine-type toilets with combination pedestal seat and lid. Also, the waste-water from the concrete catch basins under each of the communal taps is piped out away from dwellings into garden areas and is utilised to aid food production.

Washing is not allowed to occur at the outlet taps. All clean water for clothes, personal and cooking utensil washing purposes, must be collected in containers at the tap and then taken to the dwellings to perform these tasks. Again, the waste-water from these activities is collected and utilised in nearby gardens. Dish racks and clothes lines were constructed outside dwellings to allow these items to dry hygienically in the sun before being used.

Waste/rubbish is disposed of in pits and then buried by covering it with earth.

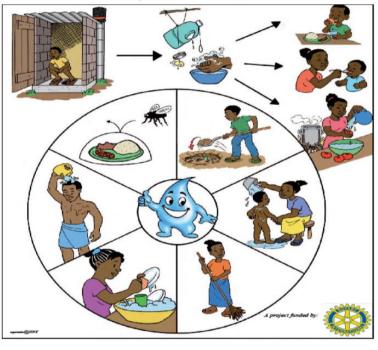


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WAYS TO KEEP HEALTHY

Ol rot bilong **STOPIM** binatang bilong kamapim sik lo haus.



- 1. ALWAYS COVER FOOD
- 2. COVER THE RUBBISH
- 3. WASH EVERY DAY
 - 4. WASH EATING UTENSILS PROPERLY
- 5. ALWAYS CLEAN THE AREA
 - 6. WASH CHILDREN EVERYDAY
- 7. WASH FOOD BEFORE COOKING

Figure 8: An excerpt from the WASH training Powerpoint presentation – the WASH poster. This poster has been put up at strategic locations near taps and toilets and its title translates as "Ways of stopping bacteria that cause sickness at home."



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Figure 9: WASH in practice – toilet with tippy tap and soap-on-a-rope; latrine-style toilet construction; dish racks for the drying of cooking and eating utensils after they're washed.

4.0 Construction of the Project

The ground-breaking ceremony was held on 26th August 2018 and construction took place in September/ October 2018 once materials were delivered by truck from Lae. Project Manager (Mr Osivo Ombuano and his skilled workforce team of plumbers, carpenters, concreters, pipe layers, and other water supply installers trained the local workforce in the installation and maintenance of the water supply system.

Everyone (men, women and children) is involved in the construction phase. This gives each one of them some ownership of the project and it goes a long way to ensure that the system is protected and preserved. All sand and gravel for the project, used for mixing concrete was sourced from local creeks and rivers was carried in billums (woven carry bags) to stockpiles adjacent to the construction sites. The vertical height from the water source to the first village is 250m. The strainer box and reservoir tanks are strategically placed to break the pressure head of water to prevent damage to the system. Taps were provided to serve clusters of houses, school buildings, churches and health clinics.



Figure 10: Ground-breaking ceremony 26th August 2018 with District 9600 Governor Wendy Protheroe, Assistant Governor Wendy Schulz and local dignitaries in attendance.







Figure 11: Rotarian and Project Manager Osivo Ombuano (standing at left with Rotary shirt and red cap) with his skilled team of "Water Boys".



Figure 12: Sand and gravel sourced from the river 2km away were transported by hand and stockpiled ready for use at the construction sites; hand trenching in progress ready to lay pipe – all pipe is buried for fire and damage protection.



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Figure 13: Materials for the project are purchased locally, transported to the site laydown area and are laid out in readiness for carrying by hand to the installation sites.



Zoowong Toowong



Figure 14: The weir under construction and the completed weir with by-wash and fencing. Piping leads from here to the strainer box.



Toowong



Figure 15: Strainer box (two stage sediment trap) formwork; complete with epoxy lining; water-filled; and with the lid on. Piping from here feeds the reservoir tanks.



Figure 16: The two 9,000L reservoir tanks fed from the strainer box; and one of the village distribution tanks.



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Figure 17: Construction work – final pour for the 2 x 9,000L tank stand base; piping from main water pipeline junction to taps; and newly completed tap.

5.0 Official Opening Ceremony

lan Cameron from the Mitchelton Rotary Club and Wes Nichols from Toowong Rotary Club provided mentoring for the project delivery team as Project Directors. They visited PNG in February 2019 for the official opening of the Supurunda Water Supply Project and to audit it.

Around 2,000 people attended the opening ceremony on 14/02/2019, with all of the 8 villages represented in their traditional dress and it included traditional singing and dancing as well as many speeches. The people were very happy to have clean, fresh water in their village.

Pastor Kombai said that this Opening Ceremony was the biggest celebration they'd held since independence in 1975. Many speeches were made by local dignitaries as well as the guest speaker, Mr Peter Hasu, who was the newly appointed Principal of Goroka High School (the largest high school in PNG). We can only imagine the preparation time put into this celebration with construction of the special grandstand, invitations, rehearsals, etc.



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Figure 18: Opening Ceremony - the Grandstand and dancers; part of the 2,000+ crowd; L-R Wes Nichols, John Onga (Goroka Rotary Club), Ian Cameron & Osivo Ombuano (Goroka Rotary Club); Pastor Monda Kombai (Supurunda Water Supply Committee Chairman) giving his speech; and signing of the Policy document.

Pigs play a very important role in Papua New Guinean culture and represent social values and are a symbol of status. Thirteen pigs (an unusually large number), provided by each of the villages, were cooked in a mu-mu (pig and vegetables roasted in a ground oven), a traditional method of cooking large quantities of food for celebrations. At the end of the opening day, these pigs and other food were divided and presented to various parties in honour of their contribution to the project.

As a comparison, at the most recent celebration prior to this one (held 18 months earlier) only 1 pig was shared. When we asked why so many pigs were offered up, we found out that, as well as for the celebration, the pigs were being used



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to settle past grievances. Peace and conflict resolution was happening right there in front of us and all as a by-product of supplying safe, clean water. This was an extremely serious and important part of the celebration.



Figure 19: A very valuable and significant part of the ceremony – 13 pigs were cooked in a mu-mu (fire pit) and were distributed to settle past grievances. This was an unexpected by-product of the cooperation required by the water supply system.

6.0 Audit

lan Cameron and Wes Nichols audited the project on 15th February 2019. The Supurunda WS project has been constructed and commissioned in accordance with the Rotary Global Grant project objectives. Highlights included:

- All construction work was completed to a high standard.
- The scope of the project was expanded from 42 taps to 52 taps.
- The European Union (EU) tank, which was sitting empty in a field, was connected to the Supurunda Water Supply system and the EU distribution network was repaired.

7.0 Water Supply Committee

The Supurunda Water Supply Committee met for the first time on 15/02/2019 and will oversee the operation and maintenance of the water supply scheme. A monthly levy on households will raise funds for the maintenance of the water supply scheme. They are a very professional team and have everything in place to ensure the sustainability of the project.



Figure 20: Inaugural Supurunda Water Supply Committee meeting with all villages, churches, education, women and other local representatives with Wes Nichols and Ian Cameron in attendance.



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8.0 Extension of the Water Supply System

Since the initial project was completed, the water supply system has been extended to the nearby village of Osomea. A 5,000L tank from another unsuccessful EU project was relocated to Osomea to be used as a distribution tank for their village. More materials (piping and taps) were purchased and the extension was constructed to service 12 taps in the village.



Figure 21: Extension to Osomea – relocated EU 5,000L tank; additional supplies purchased; trenching to lay main supply line and lines to taps; completed tap in Osomea; and some of the Osomea villagers celebrating the arrival of water in their village.



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9.0 Beneficial Modification to the Weir Intake

The weir has been modified to include a long overpass strainer that prevents debris from entering and contaminating the weir's water supply. The strainer runs from the spring source and over/above the water banked up in the weir containment pond to beyond the weir's overflow.



Figure 22: The innovative elevated strainer drain that runs from the inlet, overpasses the ponded water behind the weir and exits beyond the weir's overflow.

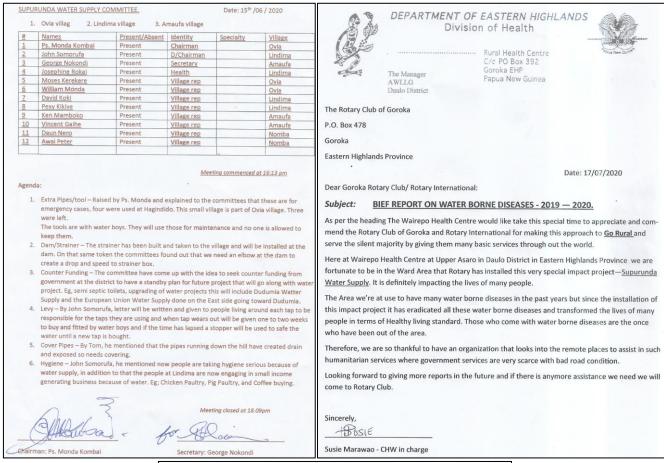


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10.0 Sustainability - 16 Months On (July 2020)

The Supurunda Water Supply Committee continues to meet, the WASH program training is still in force and the health benefits are being realised. Minutes from their recent meeting and reports from the local school and health centre (included below) provide the evidence of the success of this life-changing Rotary project.



DEPARTMENT OF EASTERN HIGHLANDS **Division of Education** Wairepo Primary School P.O. Box 869. GOROKA 441, Eastern Highlands Province, PNG The Rotary Club of Goroka P.O. Box 478 Eastern Highlands Province Date: 05/06/2020 Dear President: Ms. Orpah Peter Subject: SCHOOL REPORT FOR WATER SUPPLY AND THANK YOU. I write on behalf of the Wairepo Primary School as per the heading. First and foremost from my heart I thank Goroka Rotary Club and Rotary International for the wonderful service they have brought to our community. We have missed this service for a long time and because of that the whole school usually depend on school tank but this does not last long after the rain we have to go out of the school to fetch water. But now no more looking for water! Thank you very much for saving our life you guys are doing marvellous work in the community! Secondly, water was a big problem in the school, normally during rainy times we are lucky and use water from the tanks. Students usually get water borne sickness and this confuses us whether they acquired it from the school or home. Now we see some changes in the number, it has decreased which means the school is ok but they get them from homes or somewhere. Thirdly, we appreciate the WASH training too, it has help us the teachers and students and enlightened us. Now the students know what is WASH which is very vital in the lives of every individual. We did WASH training ourselves in the school two times this year, 2020 already Thank you very much and we will still remember Rotary Club of Goroka and Rotary international. H nothing O

Maine Gonohopo - Head Mistress



(Wes Nichols, 20/08/2020)



3RD WASH TRAINING AT WAIREPO PRIMARY SCHOOL





- 1. Gideon Osiho (Dudumia) in Orange.
- 2. Ef-Ef (Amaufa) in gray.
- 3. Mrs. Gonohopo (H/Mistress) in green and red.

This was done at Wairepo Primary School in June 08th,2020.

Method used here was open lid method to allow the water to come out of the pierced hole at the bottom, after washing hands close the lid stops water flowing out...taught by Ameni during WASH.

Tippy Tap method will be in the next report.







Compiled by Osivo Ombuano



(Wes Nichols, 20/08/2020)



EVIDENCE AND IMPACT OF SUPURUNDA WATER SUPPLY



New septic toilet ready to be built at Linda Resource Centre.



Pastor Anton before the Supurunda Water Supply. He gets water in the wheelbarrow every afternoons and morning to clean and feed the pigs.

New project rising up at Lindima village, John Somorufa D/C of SWP and church group making cement for their new church and also at the same time displaying for any one who wants buy at K4.00 per brick the money goes to their church group. It is all because of water at their door step in the village.





Today he has no problem with water because there is one tap in his area.

Compiled by Osivo Ombuano



(Wes Nichols, 20/08/2020)



11.0 The Overall Outcome

This has been a spectacularly successful project. It is providing water to communities who never imagined they would ever see clean, running water in their villages in their lifetime. This project and its predecessor, the Dudumia Project, are being used as templates for five more projects that are now in progress.

A big thank you to all those who made a contribution. You have definitely helped to change lives for the better.



Figure 23: The calendar that was produced to publicise the project locally in PNG.



Figure 24: Celebrating never having to walk to the river to collect polluted water again; women dancing for joy to receive "first-time-water" in their village.







Figure 25: Enjoying fresh, clean, safe water running from two of the 50+ taps in the Supurunda Project area.



Figure 26: The sign on the road leading into the project area – a monument that announces the project in perpetuity.



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Ian Cameron Biography

Ian has retired after 34 years' civil engineering experience principally in the field of water engineering. Ian has worked across projects in the Water, Transport, Mining, and Energy sectors in his career.

lan was a member of AWA from 1988 until 2017 and served on the AWA Queensland committee for 8 years (2000-01 to 2007/08).

In recognition of his expertise, he was awarded, in 1998, a Churchill Fellowship for research into the biological removal of contaminants from water and, in 2011 the Water Professional of the Year Award in the AWA Queensland Branch Water Awards. In May 2020, Ian was appointed to the Rotary Cadre of Technical Advisers for Water and Sanitation (Oceania).

lan has an ongoing interest in mentoring, volunteering, and supporting water and sanitation projects in developing countries through Rotary International. Ian is currently providing mentoring with his colleague Rotarian Wes Nichols for other potential village water supply projects in Sausi, Benga, Obura, Wairepo and Kranget Island in PNG.

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Wes Nichols Biography

Wes holds a Master of Applied Science (Geophysics), is a Member of the Australian Institute of Mining & Metallurgy, Member of the Australian Society of Exploration Geophysicists and is a Fellow of the Institute of Quarrying Australia. He has held executive roles (including chairman) in several industry-related organisations.

Wes has over 32 years' experience in the fields of exploration and mining geology and geophysics, including planning, design, supervision and operational aspects. As part of the various requirements of the roles he has been employed in, he has:

- designed and constructed water supply bores and water quality monitoring bores in both large-scale mining operations and for landholders;
- designed and executed exploration drilling programs that cater for preventing cross-contamination of aquifer systems; and
- designed and operated several gravity feed water supply systems for both rural and community applications.

In his capacity at a statutory safety executive level, Wes is a qualified and authorised Site Senior Executive under both the Coal Mining Safety and Health Act and the Mining and Quarrying Safety and Health Act in Queensland. He has designed, written and implemented Workplace Health and Safety Management Systems for a number of organisations in both the mining and non-mining sectors.

Wes has presented a number of conference papers in Australia and has been a member of the organising committees for large-scale mining-related conferences in Australia. Wes has a passionate interest in empowering and training people in developing countries to become self-sufficient and self-sustaining, particularly with respect to water and sanitation projects. Wes is International Director for the Rotary Club of Toowong and District International Service Chair for Rotary District 9600.

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Osivo Ombuano Biography

Osivo holds a Certificate of Teaching in Papua New Guinea (PNG). His day job is teaching upper primary school and lower high school mathematics. His other passion is helping his fellow people, including via the installation of water supply systems in rural areas of PNG.

Osivo was the on-site supervisor and driver of the Dudumia Water Supply project in his home village. His drive and success helped him to step up into the role of Project Manager for the Supurunda Water Supply Project. He is now the champion for several water supply projects in the Eastern Highlands and surrounding regions. Osivo is also a passionate Rotarian and has held several executive positions (including President) in the Rotary Club of Goroka.

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