



# වර්ෂා

වර්ෂා Varsha වර්ෂා

## Water and Food Security through Rainwater Harvesting Systems to Nuffield School for Deaf and Blind Jaffna



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Rainwater Harvesting systems at the Nuffield School for the Deaf and Blind Jaffna were declared open by the H.E. Eric Walsh, High Commission of Canada in Sri Lanka on the 15th February 2025. Lanka Rain Water Harvesting Forum Installed 14 x 16,000 liter rainwater Harvesting system, 2 well water recharge systems and repaired of 30,000 liter disused rainwater harvesting system with funding support from Let Us Help Now Foundation of Canada and Canada Funds for local Initiatives ( CFLI).

The Nuffield School for the Deaf and Blind, established in 1956, located in Kaithady, Jaffna district house 136 hearing-impaired and 8 visually impaired students.

These students, hailing from diverse parts of the nation, find a nurturing environment at the school where they can grow academically, socially, and emotionally.

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The Nuffield school location has salty ground water for most of the year, which cannot be used for drinking or farming. There are no other major sources of water. The land is not suitable for traditional farming due to the limestone geology of the land. The school has a 14-acres of land and has 17 buildings on its property.

Installation of rainwater harvesting systems at Nuffield School commenced in January 2024 was completed and handed over by March 2024. The 15 rain water harvesting systems has the capacity to collect 254,000 liters of water. This stored water is intended to support the school's needs for up to seven months during the dry season. The water collected is used for drinking as well as gardening by the school. Thus providing water security and food security to its inhabitants.

By harnessing an abundant natural resource, the initiative has reduced the school's dependence on external water sources, thus cutting costs and ensuring a reliable supply. More importantly, it has created a sustainable model that can be replicated in other institutions and communities facing similar challenges.

One of the most impactful aspects of the rainwater harvesting project is its integration with the school's agricultural programs. These programs serve as both practical learning platforms and vital contributors to the school's sustainability efforts. Raised bed gardens, located near the main hall, are a prime example of this integration. These gardens are vibrant with vegetables and herbs, which are nurtured with water from the rainwater harvesting system. Students actively participate in planting, maintaining, and harvesting crops, learning valuable lessons about soil health, plant growth, and the importance of sustainable farming practices.





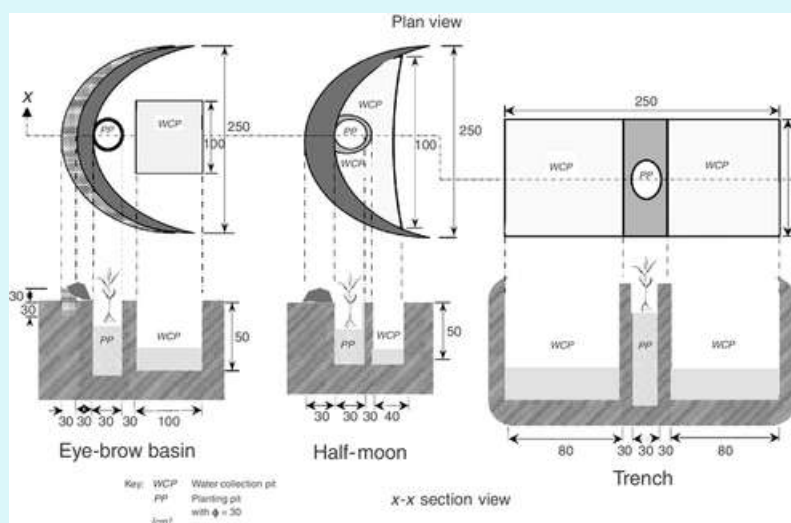
## 'Forgotten' water harvesting system transforms 'barren wasteland' into thriving farmland

Water scarcity and land degradation pose severe challenges in arid and semi-arid regions. Traditional water harvesting techniques, such as crescent structures, offer sustainable solutions for restoring soil fertility, increasing agricultural productivity, and replenishing groundwater levels. This article explores the crescent water harvesting system, its design and implementation, benefits, challenges, and potential applications in modern climate adaptation strategies.

The spread of desertification and unpredictable rainfall patterns threaten food security and biodiversity in many parts of the world. In response, innovative yet simple water management techniques have been rediscovered to mitigate these impacts. One such method is the crescent water harvesting system, which has been successfully used to transform barren wastelands into fertile farmland in regions such as the Sahel, Senegal, and Burkina Faso.

### Principle and Design of Half-Moon Structures

The half-moon technique involves constructing semi-circular bunds or ditches with their openings facing upslope. These structures are strategically positioned to capture and retain runoff water during rainfall events. Typically, each half-moon has a diameter 4 meters and is excavated to a depth of 30 to 50 centimeters. The excavated soil is used to build an embankment on the curved side, enhancing water retention capacity. The arrangement of these bunds in a staggered pattern ensures that runoff not captured by one structure is intercepted by another downslope, maximizing water infiltration and soil moisture retention.



### Benefits and Impact

- **Soil Rehabilitation:** By capturing runoff, these structures reduce soil erosion and promote the deposition of sediments and organic matter, leading to improved soil fertility.
- **Enhanced Vegetation Growth:** The retained moisture within the bunds creates favorable conditions for plant establishment, increasing vegetation cover and biodiversity.
- **Groundwater Recharge:** The infiltration of water facilitated by the half-moons contributes to the replenishment of the water table, supporting sustainable water resources.
- **Groundwater Recharge:** The infiltration of water facilitated by the half-moons contributes to the replenishment of the water table, supporting sustainable water resources.

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## කෘෂිකර්මාන්තය සහ මිනිස් පරිභෝජනය සඳහා වැසි ජලය ඵලදායී සහ තිරසාර ලෙස භාවිතා කිරීම සඳහා භූගත ජලය නැවත ආරෝපණය කිරීම.

කෘෂිකර්මාන්තය සහ මිනිස් පරිභෝජනය සඳහා වැසි ජලය කාර්යක්ෂම, ඵලදායී සහ තිරසාර ලෙස භාවිතා කිරීම සඳහා භූගත ජලය නැවත ආරෝපණය කිරීම.

කාලගුණික රටා වෙනස් වීම හේතුවෙන් ශ්‍රී ලංකාව මෑතකදී ආපදා වල වාර ගණන හා තීව්‍රතාවය වැඩි වීමට මුහුණ දී තිබේ. කාලගුණය වෙනස් වීම හේතුවෙන් සිදුවන හදිසි ගංවතුර, දිගු නියඟ සහ නායයෑම් වැනි ව්‍යසන ජීවිත හා ජීවනෝපායන් අහිමි කර ඇති අතර රටේ සියලුම ආර්ථික අංශවලට අහිතකර ලෙස බලපායි.

ශ්‍රී ලංකාවේ වියළි කලාපයට සාමාන්‍ය වාර්ෂික වර්ෂාපතනය මිලිමීටර් 1,750 ට වඩා අඩු වන නමුත් වෙනස් වන වර්ෂාපතන රටා හේතුවෙන් වසර තුළ ව්‍යාප්තිය මෑතකදී වෙනස් වී ඇත. වර්ෂාපතනය ගොඩබිමට වැටී, පසට කාන්දු වී සිදුරු අවකාශයන් හරහා ජල මට්ටමට ගමන් කරන විට ස්වාභාවික භූගත ජලය නැවත ආරෝපණය වේ. මෙම ක්‍රියාවලිය ඉහළ තීව්‍රතාවයක් ඇති වර්ෂාපතනය සමඟ බාධා ඇති වී ඇති අතර එය වසරේ මාස කිහිපයකට සීමා වී ඇති අතර එහි ප්‍රතිඵලයක් ලෙස අනපේක්ෂිත ගංවතුර සහ නියඟ යන දෙකම ඇති වේ. වර්ෂාපතනයේ ඉහළ තීව්‍රතාවයේ ප්‍රතිඵලයක් ලෙස, භූගත ජලය නැවත ආරෝපණය කිරීමට හෝ භූගත ජලය අවශෝෂණය කර ගැනීමට ඇති ඉඩකඩ අඩු වන අතර, ඒ වෙනුවට ජලය ජල මූලාශ්‍ර වෙත ගලා යයි. එවිට ගලා යන ජලය මෙම ජල මූලාශ්‍රවල ධාරිතාව ඉක්මවා ගොස් ගංවතුර ඇති කරයි. අධික වැසි සහ ගංවතුර සමයේදී කෙටි කාලයක් තුළ ජලය ප්‍රදේශයෙන් ඉවතට ගලා යන විට, ජලධර නැවත පිරවීම සඳහා පසට කාන්දු වීමට ඇති අවස්ථාව අඩු වන අතර, එහි ප්‍රතිඵලයක් ලෙස සාමාන්‍යයෙන් කෙටි වියළි කාලවලදී නියඟ ඇති වේ.

දේශගුණික විපර්යාස, වගා කටයුතු සඳහා වර්ෂාපතනය සහ සුළු වාරිමාර්ග ජලාශ මත යැපෙන වියළි කලාපීය ගොවීන් විසින් සිදු කරන ලද සාම්ප්‍රදායික වැසි පෝෂිත සහ වාරිමාර්ග ගොවිතැනට සෘජුවම බලපා ඇති අතර, අවශ්‍ය කාල සීමාව තුළ ප්‍රමාණවත් ජල පරිමාවක් නොලැබේ.



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වියළි කලාපයේ පවතින තත්ත්වයන් සමඟ, දේශගුණයට ඔරොත්තු දෙන ජල කළමනාකරණ ව්‍යාපෘති භූගත ජලය රඳවා තබා ගැනීම, වැඩිදියුණු කිරීම සඳහා භූගත ජලය නැවත ආරෝපණය කිරීමේ ක්‍රම ලංකා වැසි ජලය රැස් කරන්නන්ගේ සංසදය හඳුන්වා දුන් අතර එමඟින් දිගුකාලීන නියඟයකදී පවා එම ප්‍රදේශ වල ජලය තහවුරු කෙරේ.ගොවි ප්‍රජාවන් අතර එම ශිල්පීය ක්‍රම ප්‍රවර්ධනය කිරීම මගින් නියඟ කාලවලදී ජල හිඟය හේතුවෙන් බෝග හානිය අවම කරන අතරම බෝග පැවැත්ම සඳහා පාංශු ජල ලබා ගැනීම සහතික කෙරේ .

භූගත ජලය නැවත ආරෝපණය කිරීම සිදු කරනු ලබන්නේ භූගත ජලය නැවත ආරෝපණය කිරීමේ ඒකක ලෙස හඳුන්වන ළිං වලට වැසි ජලය යොමු කිරීමෙනි. මෙම ඒකක භූගත ජලධර වැසි ජලය මගින් නැවත පිරවීමට ඉඩ සලසයි. තෝරාගත් ගම්මානවල ගෘහස්ථ මට්ටමේ වැසි ජල රැස්කිරීමේ ඒකක අප දැනටමත් ස්ථාපනය කර ඇත. තලාව ,මන්නාරම,බදුල්ල හා කිලිනොච්චිය යන ප්‍රදේශ වල පවුල් විශාල ප්‍රමාණයක් භූගත ජලය නැවත ආරෝපණය කිරීමේ ප්‍රතිලාභ භුක්ති විඳිති.

තලාව ගම්මානයේ ගම් වැසියෙක් , ඔවුන් මුහුණ දුන් අභියෝග සහ ඒවා ජය ගත් ආකාරය සිහිපත් කරමින්, "භූගත ජලයේ කඩිනත්වය සහ අඩු භූගත ජල මට්ටම හේතුවෙන් පානීය ජලය පමණක් නොව අනෙක් කටයුතු සඳහාද ජලය රැස් කිරීමේදී අපට බොහෝ දුෂ්කරතාවන්ට මුහුණ දීමට සිදු විය. නමුත් මෙම ව්‍යාපෘතියෙන් ළිං ආරෝපණය කිරීම සිදුකල බැවින්, අපට හොඳ තත්ත්වයේ ජලය නොමිලේ ලබා ගත හැකිය."

භූගත ජලය නැවත ආරෝපණය කිරීම, දේශගුණික විපර්යාසයන්ට එරෙහිව පරිසර පද්ධතිවල ජල ධාරිතාව සහ පරිසර පද්ධතිවල ජල පෝෂක ප්‍රදේශ ආරක්ෂා කිරීම සඳහා උපකාරී වේ. මෙය සමස්ත පද්ධතියේම ජලය රඳවා තබා ගැනීම වැඩිදියුණු කිරීම පරිසර පද්ධතියේ සියලුම ජීවීන්ගේ යහපැවැත්ම සඳහා වැදගත් කාර්යක් වේ.



වැසි ජලය මගින් ළිං ආරෝපණය කිරීම



## நிலத்தடி நீர் சேமிப்பும் விவசாயமும்

விவசாயம் என்பது ஒரு நாட்டின் முதுகெழும்பைப் போன்றது. இவ்விவசாயத்தினை திறம்பட மேற்கொள்வதற்கு நீர் இன்றியமையாததொன்றாகும். நிலத்தடி நீர் பற்றாக்குறை காரணமாக பல விவசாயிகள் தங்கள் நிலங்களை தரிசுநிலமாக வைத்திருக்கிறார்கள் நீர் பற்றாக்குறை என்பது விவசாயத்தில் பாரதூரமான விளைவுகளை ஏற்படுத்தும் அதேநேரம் இது ஒரு தீவிர பிரச்சனையுமாகும். இதனால் பயிர்ச்செய்கை குறைவடைவதோடு விவசாயிகளின் வருமானமும் பாதிப்படைகின்றது. இதனால் இவர்கள் பாரிய சவால்களுக்கு தினமும் முகம்கொடுத்து வருகின்றனர். இவ்வாறான நிலையில் காணப்பட்ட ஒரு கிராமத்தை மழைநீர் சேகரிப்பு அமையம் சென்று சந்தித்தது. இக்கிராமமானது முல்லைத்தீவு மாவட்டத்தில் ஒட்டுசுட்டான் பிரதேச செயலகத்திற்கு உட்பட்ட வித்தியாபுரமாகும். இம்மாவட்டம் உலர் வலயத்திற்குட்பட்டு காணப்படுவதனால் இங்கு நீர் தட்டுப்பாடு காணப்பட்டு வருகின்றது. இங்கு வருடத்தின் இறுதிப்பகுதிகளில் இங்குள்ள சிறுகுளங்கள் மற்றும் கிணறுகளில் காணப்படும் நீரானது குறைந்துவிடும். இதனால் இம்மக்கள் நீர்ப்பிரச்சனையை எதிர்நோக்கி வருகின்றமை இயல்பாகிவிட்டது. இம்மக்களின் வாழ்வாதாரம் விவசாயம் செய்வதேயாகும். குறிப்பாக சிறுதானிய உற்பத்தி மற்றும் மரக்கறி வகைகளை உற்பத்தி செய்வதில் இங்குள்ளவர்களில் பெரும்பான்மையானவர்கள் ஈடுபட்டு வருகின்றனர். இங்கு மழைநீர் சேகரிப்பு அமையத்தினர் 2023ம் ஆண்டு தனது பணியை தொடங்கியது. அதாவது இவர்களின் நிலத்தடி நீரினை மேம்படுத்தலுக்கான அமைப்பினை 2023ம் ஆண்டு அரையாண்டு காலப்பகுதிகளின் நிறுவினர். இதன்பின் 2025ம் ஆண்டு முற்பகுதிகளின் நாங்கள் அங்கு மீண்டும் சென்று அவர்களின் நிலைப்பாட்டினை அறிந்துகொண்டோம். அதாவது அரர்களின் நீர் பற்றாக்குறையும் விவசாய நடவடிக்கை பற்றியும் நாம் வினாவியபோது, திரு.ரவிச்சந்திரன் என்பவர் இவ்வாரு கூறினார்.

"நான் ரவிச்சந்திரன்: நாங்கள் வித்தியாபுர கிராமத்தில் வசித்து வரும் நான்கு அங்கத்தவர்களைக்கொண்ட குடும்பமாகும்: எனது பிரதான தொழில் விவசாயமேயாகும். இங்கு நீர்ப் பற்றாக்குறையானது பாரிய சவாலாக இருந்து வந்தது. யுத்தத்தால் பாதிக்கப்பட்டு மீள் குடியேற்றத்தின்பின் அரச மற்றும் அரச சார்பற்ற நிறுவனங்களின் உதவியுடன் வீடு மற்றும் கிணறு கட்டி விவசாயம் செய்து வருகின்றேன். இங்கு கிணறு வெட்டிக்கட்டப்பட்டாலும் போதிய அளவு சுத்தமான நீரைப் பெற முடியாது அல்லலுற்றோம். கடும் வெப்பக் காலத்தில் இப்பிரச்சினை மேலும் பல இடையூறுகளைக் கொடுத்தது. போதுமான நிலப்பரப்பு இருந்தபோதும் எங்களால் முழுமையாக விவசாயம் செய்யமுடியாது இருந்தது. காரணம் நீர் பற்றாக்குறையாக காணப்பட்டதனால் நாங்கள் கோடைக்காலங்களில் பயிர்ச்செய்கையை மட்டுப்படுத்தியே செய்துவந்தோம்.



The half-moon technique has been successfully implemented in various regions,

Sahel Region, Africa: In countries like Niger and Burkina Faso, farmers have adopted half-moon bunds to restore degraded lands, resulting in increased crop yields and improved food security.

Kenya: The Maasai community has utilized half-moons to rejuvenate pastures, enhancing livestock grazing areas and promoting ecological balance.



While the half-moon system is cost-effective and utilizes locally available materials, it is labor-intensive, requiring significant manual effort for construction and maintenance. Additionally, the technique's success depends on appropriate site selection, considering factors such as soil type, slope gradient, and rainfall patterns.

#### பக்கம் 6 இன் தொடர்ச்சி

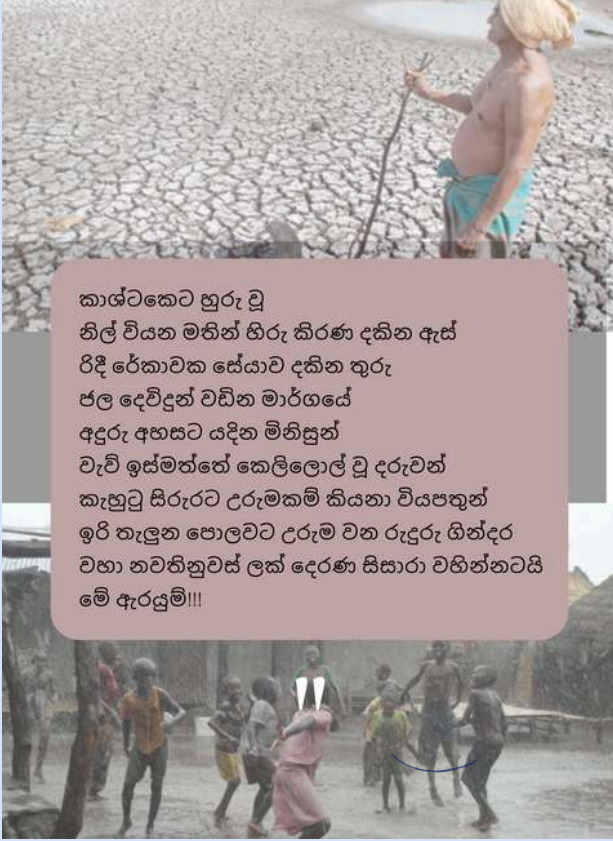
இவ்வேளையில் தான் இருண்டதோர் வானுக்கு விடிவெள்ளி போல் எமக்கு இந்நிலத்தடி நீர் சேமிப்பு பற்றிய அறிவும் அமைப்பும் கிடைத்தது. 2023ம் ஆண்டு எமக்கு இந்த அமைப்பு செய்து தரப்பட்டது. அதன் பின் வந்த மழைக்காலங்களில் நாங்கள் முழுமையாக மழைநீரினை கிணற்றினுள் சேமித்து வந்தோம். தற்போது எனது நிலப்பரப்பில் 75% மான அளவு விவசாயத்தில் ஈடுபட்டு வருகின்றேன். வருங்காலங்களில் முழுமையாக விவசாயம் செய்வதற்கு எதிர்பார்த்துள்ளேன். தற்போது எனது நிலத்தில் நான் நிலக்கடலை மற்றும் உழுந்து போன்ற தானியங்களையும் வெங்காயம் பூசணி போன்ற மரக்கறிவகைகளையும் தர்பூசணி மற்றும் பப்பாசி போன்ற பழவகைகளையும் செய்து வருகின்றேன். இதனால் போதியளவான வருமானத்தினையும் பெற்று சந்தோசமாக எனது குடும்பத்தினை வழிநடத்திச்செல்கின்றேன். இதற்கு முக்கியகாரணமான மழைநீர் சேகரிப்பு அமைப்பினருக்கும் USAID நிறுவனத்தினருக்கும் எனது குடும்பம் சார்பாகவும் எனது கிராமம் சார்பாகவும் நன்றிகளையும் இதுபோன்ற செயற்பாடுகளை மேலும் முன்நடாத்த இறைவனின் ஆசியும் வேண்டிநிற்கின்றேன்". என அவர் தெரிவித்தார்.

இவரது இந்த உணர்வுபூர்வமான கருத்துக்களை மழைநீர் சேகரிப்பு அமையத்தினராக நாங்கள் கேட்டு மனமகிழ்வோடு மற்றவர்களோடும் இவரது கருத்துக்களை பகிர்ந்துகொள்வதில் மகிழ்வடைகிறோம்.





## CHILDREN'S CORNER



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මේ ඇරයුම්!!!

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# වර්ෂා

වර්ෂා Varsha வர்ஷா

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