

2013

An Cuardach ar Infreastruchtur Pobail - Bhainistithe Athleimneach in Eirinn

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2013

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Liam McCarton

sean ohogain Dr

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Léacht An Roth

Déardaoin 5 Nollaig 2013



“An Cuardach ar Infreastruchtúr Pobail-Bhainistithe Athléimneach in Éirinn”

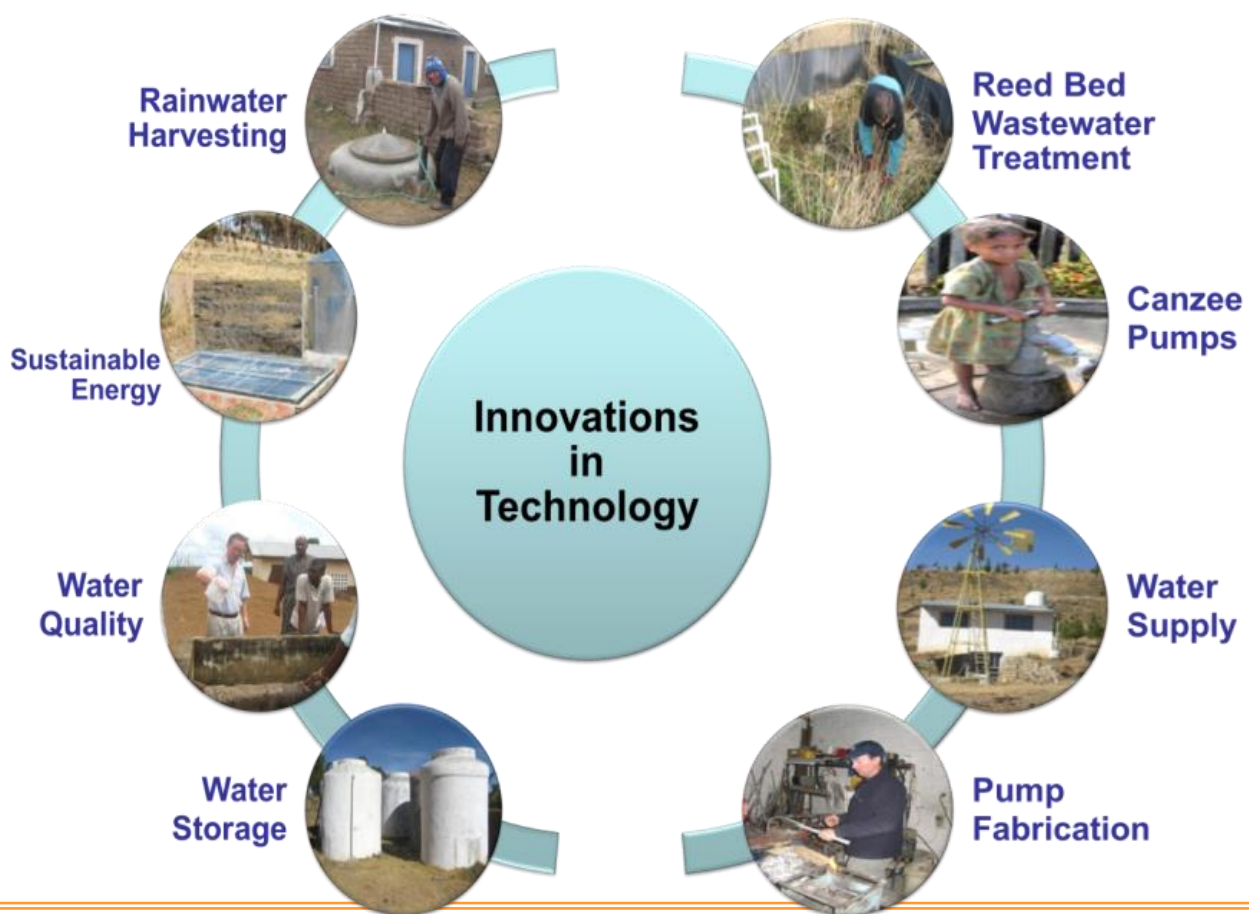
le Seán Ó hÓgáin agus Liam McCarton
Scoil na hInnealtóireachta Sibhialta
Institiúid Teicneolaíochta Bhaile Átha Cliath (ITBÁC)

www.dit.ie/dtc





Ni bhaineann Nuálaíocht le Teicneolaíocht amháin



- **Nualaíocht i nDearadh do Bhailiú Báistí / Innovation in Rainwater Harvesting Design**
 - Pilot Rainwater Harvesting Study 2005 – 2009, DOEHLG
 - School Rainwater Harvesting Study 2009-2012, DOEHLG
- **Córais do Chóireáil Fuíolluisce – Gan aon sceitheadh / Zero Discharge Wastewater Treatment Systems**
 - Reed Bed WWT System, 1996-2002, - Fingal Co. Co.
 - Hybrid Reed Willow Bed WWT System, 2007-2012 - South Dublin Co. Co.
- **Teicneolaíocht Chuí / Appropriate Technology**
 - Sierra Leone , 2009-2013 – EU Funded Program
 - Water, Wastewater, Solar, Wind, Pump technology, 2011, EMAS, Bolivia,
 - Low Cost Pump Design , 2012 CANZEE, UK
- **Cúrsaí Traenála / Training Courses**
 - TECSPAR Technology Transfer Project, 2005-2008 EU Alfa Programme in association with Polytechnic University of Catalonia, Spain and the University of Padua, Italy and University of Medellin, Colombia, University of San Luis Potosi, Mexico and the University of Concepcion, Chile.



Fadhbanna infreastruchtúir ag pobail tuaithe in Éirinn.



- **Soláthar uisce**
- **Cóireáil fuíolluisce nó Séarachais**
- **Soláthar Fuinnimh**
- **Iompar**

An Cuardach ar Infreastruchtúr Pobail-Bhainistithe Athléimneach



TEICNEOLAÍOCHT

- Uisce
- Séarachais
- Fuinneamh

POBAIL

- an Bholáiv
- Oileán Eigg

RIALÚ

- Singeapór
- Philadelphia

Teicneolaíochtaí le dul i ngleic leis na dúshláin



- **Bailiú Báistí**
- **Leapacha Giolcacha/Leapacha Sáileach**
- **Córais Fuinneamh – Gaoithe, Gréine, Uisce.**
- **Taisteal**

Cás-Staidéir



- **Éire**.....An Roinn Comhshaoil, Ceathrú Chalaídh, BÁC Theas
- **Albain**.....Eigg
- **Meiricea Theas**.....An Bholaiv
- **An Afraic**.....Sierra Leone

Múineann Gá Seift!



- **Struchtúir phobail...chun an teicneolaíocht féinsholáthraithe a roghnú agus a chuir ag obair**
- **Struchtúir phobail ...chun na tionscadail seo a mhaoirsiú agus a riar.**
- **Struchtúir phobail...chun an infreastruchtúir a bheith pobalbhainistithe**

Nuálaíocht



- **Ní bhaineann Nuálaíocht le Teicneolaíocht amháin**
- **Tá smaoineamh/fealsúnacht
smaointe nualaíochta
chomh tábhactach céanna.**

we cannot solve
our problems with
the same thinking
we used when
we created them

~ Albert Einstein



Éire.....An Roinn Comhshaoil

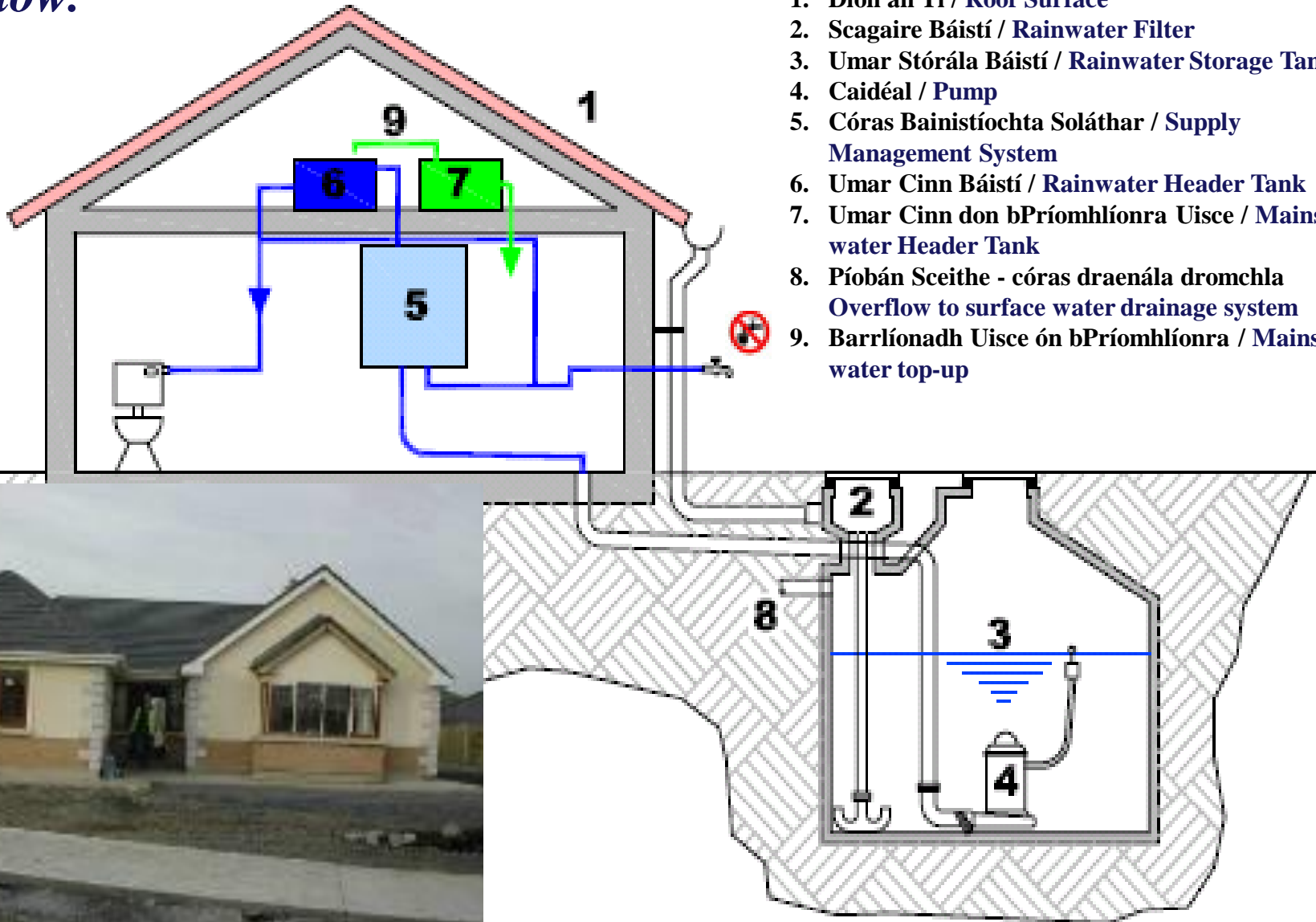


Suiteáil Tí, Contae Cheatharlach

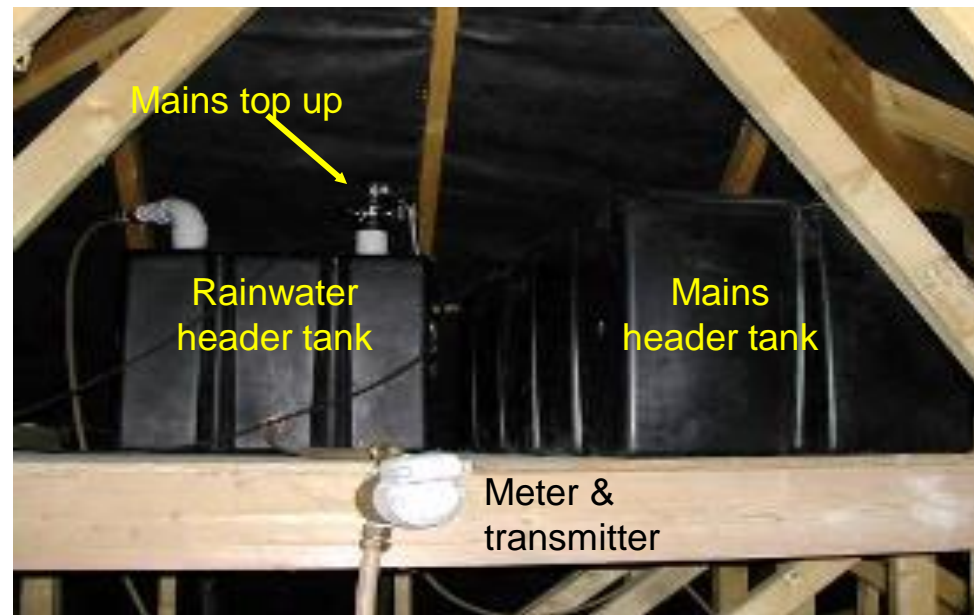
Domestic Installation, County Carlow.

Compháirteanna don Báiliú Báistí RWH System Components

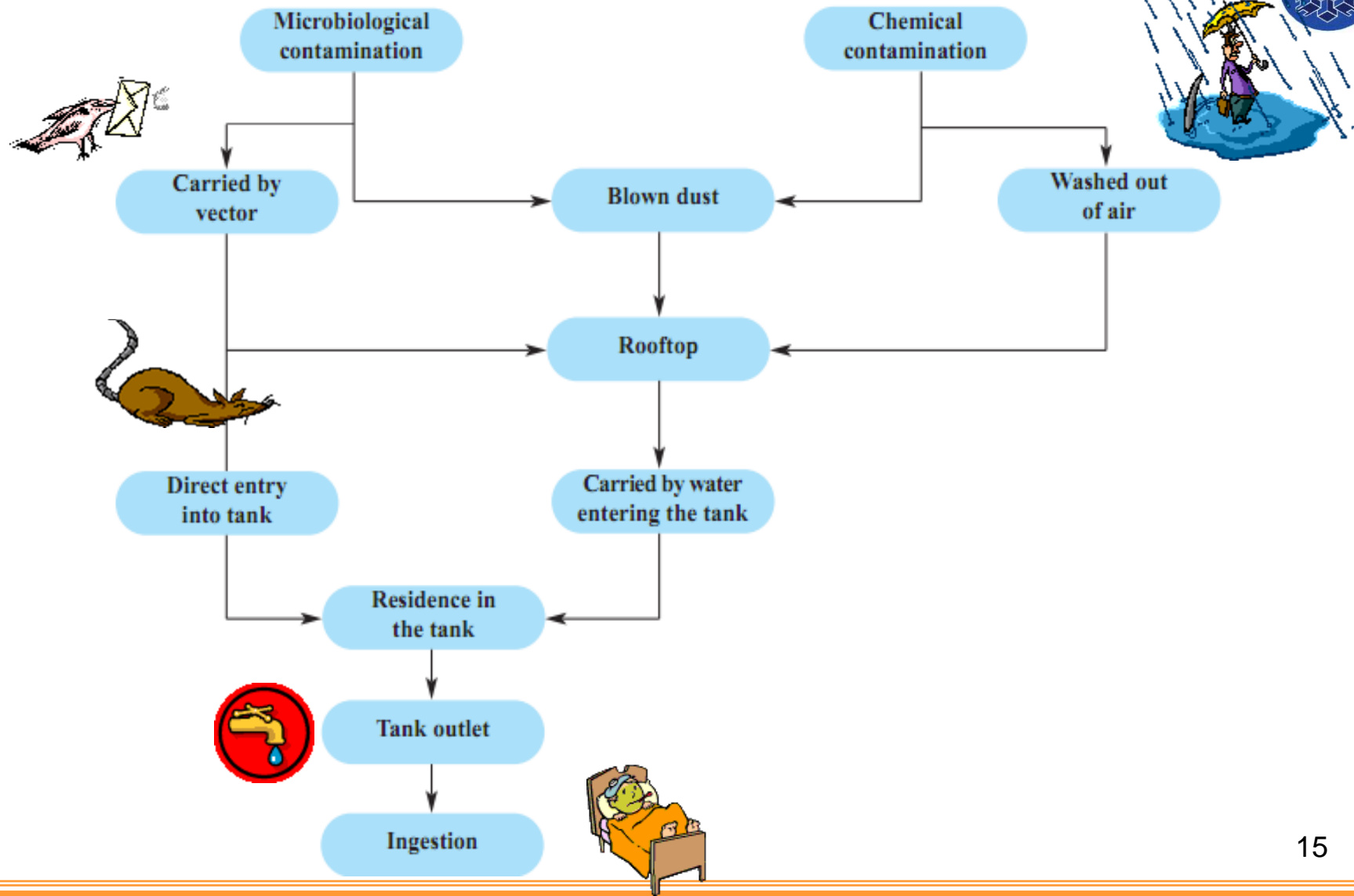
1. Díon an Tí / Roof Surface
2. Scagaire Báistí / Rainwater Filter
3. Umar Stórála Báistí / Rainwater Storage Tank
4. Caidéal / Pump
5. Córas Bainistíochta Soláthar / Supply Management System
6. Umar Cinn Báistí / Rainwater Header Tank
7. Umar Cinn don bPríomhlíonra Uisce / Mains water Header Tank
8. Píobán Sceithe - córas draenála dromchla
Overflow to surface water drainage system
9. Barrlíonadh Uisce ón bPríomhlíonra / Mains water top-up







Bailiú Báistí



Bailiú Báistí

Caidéal / Pampa:

Teaschoireáil / Heat Treatment

Brú Ard / High Pressure

Bailiú ón Díon / Roof Catchment:

Díghníomhachtú teasa /

Heat Inactivation

Radaíocht UV / UV Radiation

Córas Uisce Te / Hot Water System:

Cóireáil Teirmeach / Thermal Treatment

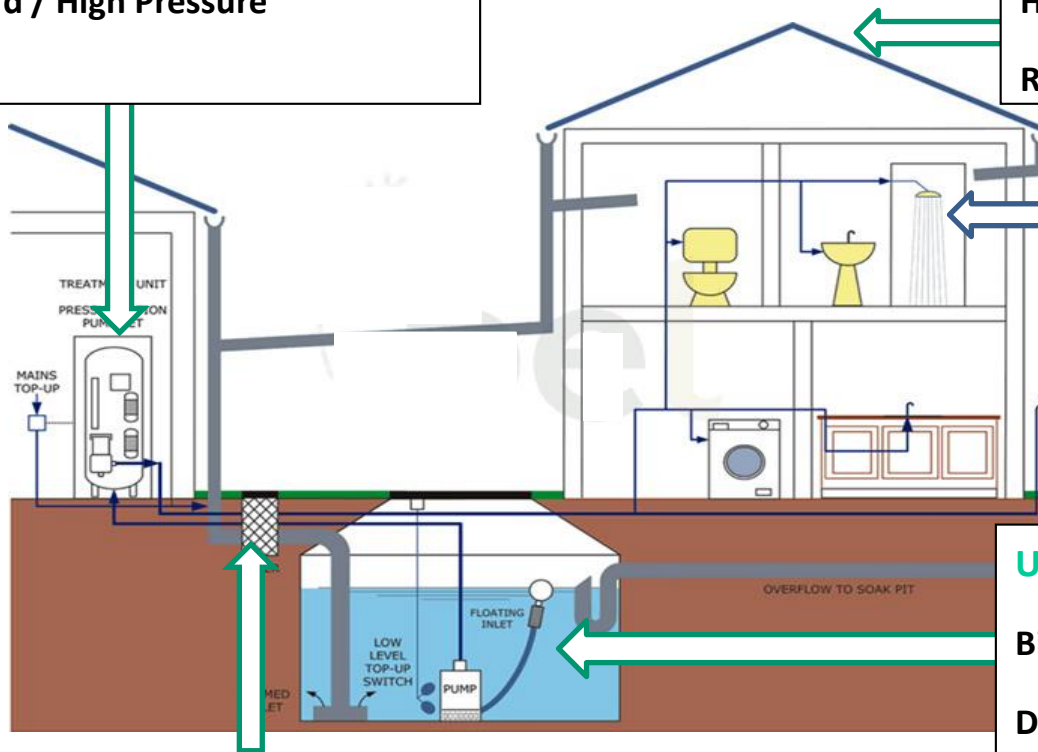
Umar Stórála / Storage Tank:

Biofilm

Dríodrú / Sedimentation

Scagadh / Filter:

Solaid ar fuaidreamh a bhaint / Suspended Solids Removal

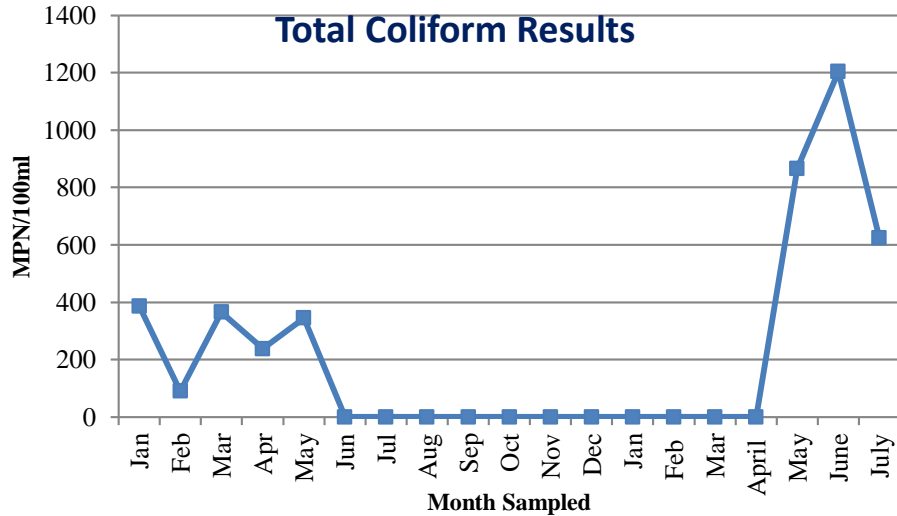


Bailiú Báistí: Torthaí

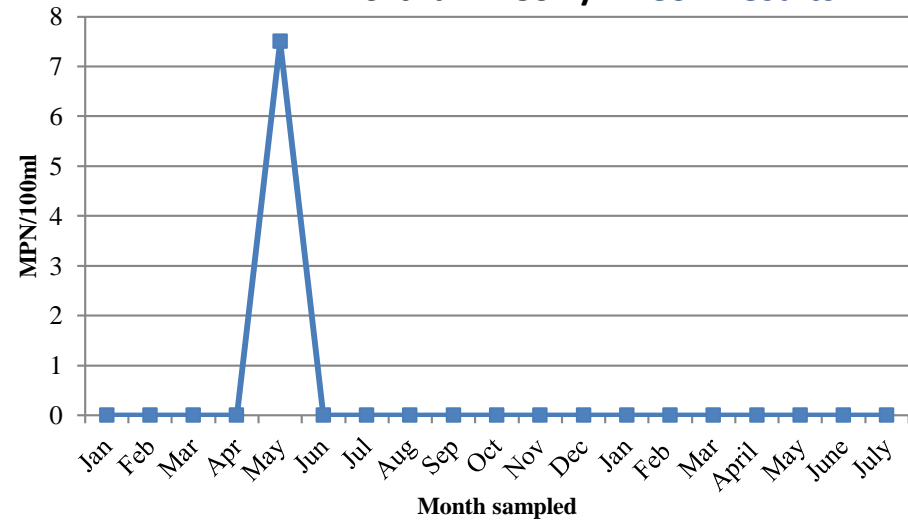


Torthaí Iomlán Drólannach /

Total Coliform Results

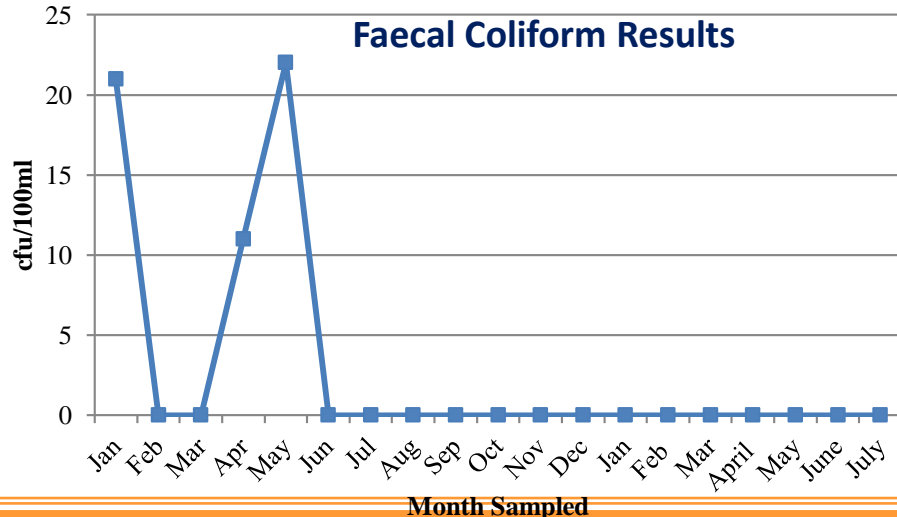


Torthaí E. Coli / E. Coli Results



Torthaí Bachailín Drólannach Faecach

Faecal Coliform Results



Caighdeán Uisce/Water Quality:

Caighdeán Uisce Snámhna an AE:

EU Bathing Water Stds. 100%

Caighdeán Uisce Óil an AE:

EU Drinking Water Stds. 37%

- **Staidéar ITBÁC**

“Rátaí díghníomhachtaithe teirmeach uisce te ag teocht 55° agus 60° ”

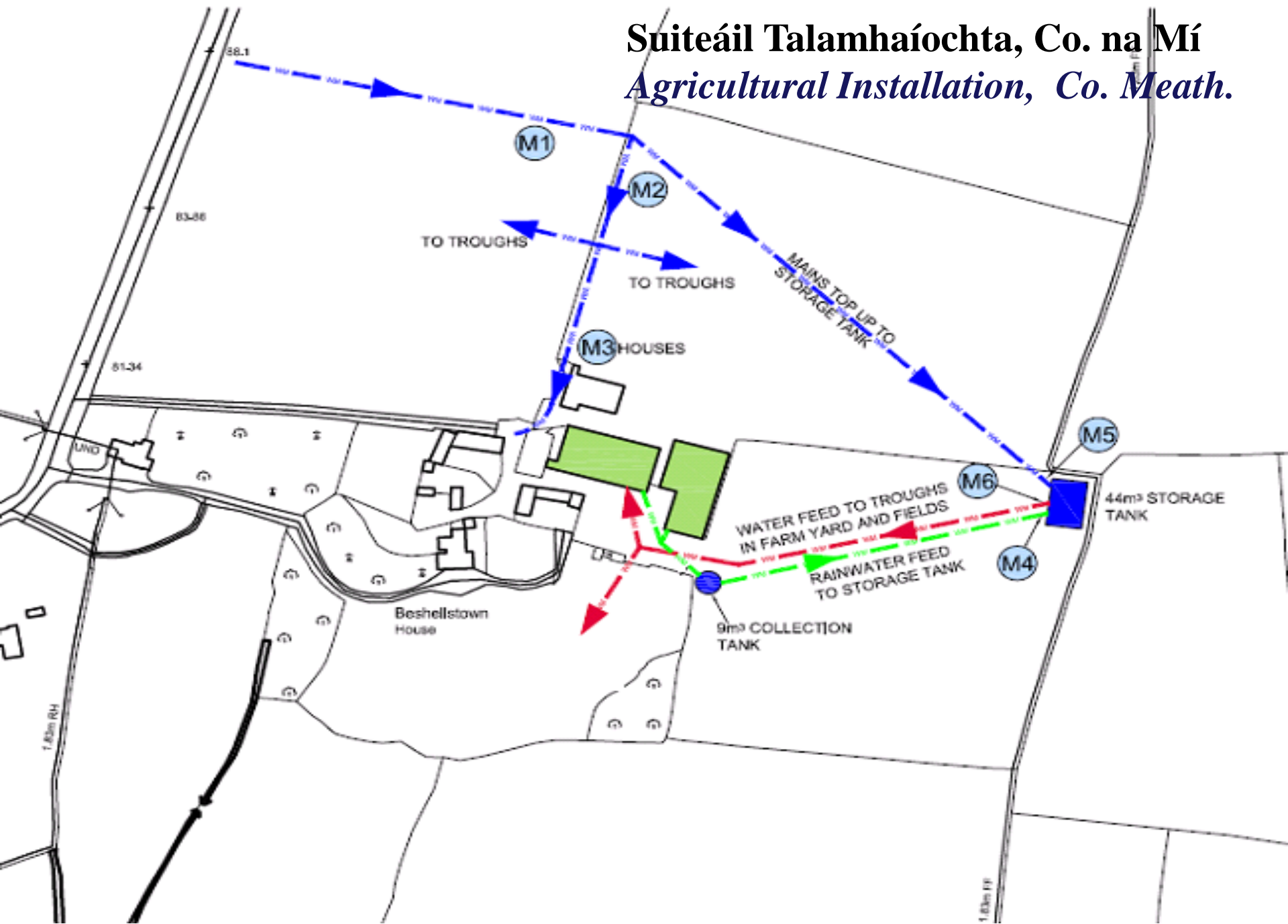
“thermal inactivation rates at hot water temperatures of 55° and 60° ”

Suiteáil Talamhaíochta, Contae na Mí
Agricultural Installation, Co Meath.



Suiteáil Talamhaíochta, Co. na Mí

Agricultural Installation, Co. Meath.





Ceathrú Chalaidh



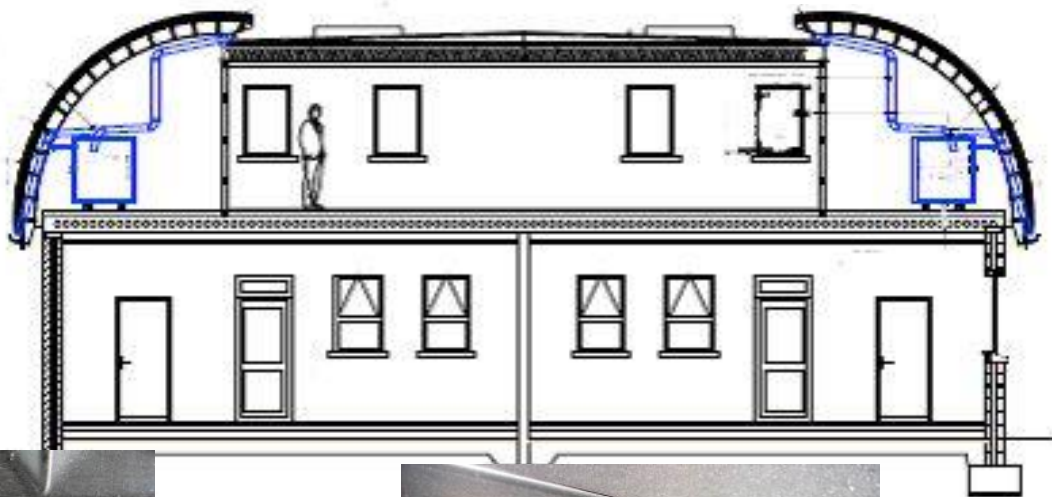
Carrowholly National School, Westport, Ireland





1. CEAPADH ÓN DÍON / ROOF CATCHMENT

2. CÓRAS SCEITHE BAILIÚ BÁISTÍ AGUS SCAGAIRÉ RWH SYSTEM OVERFLOW & FILTER



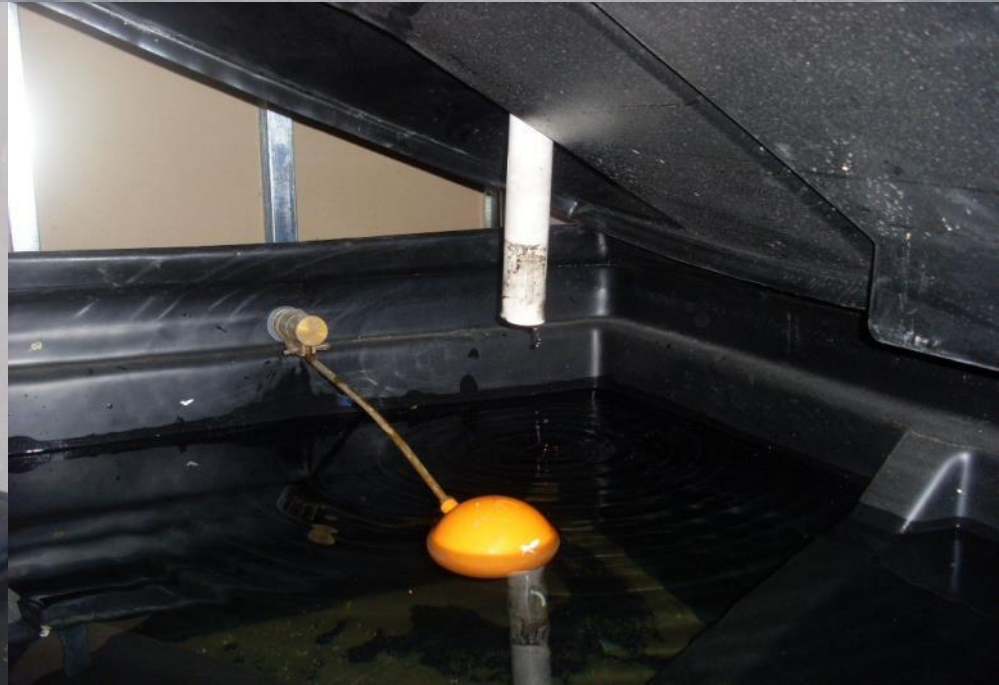
3. UMAR CINN BAILIÚ BÁISTÍ RWH HEADER TANK



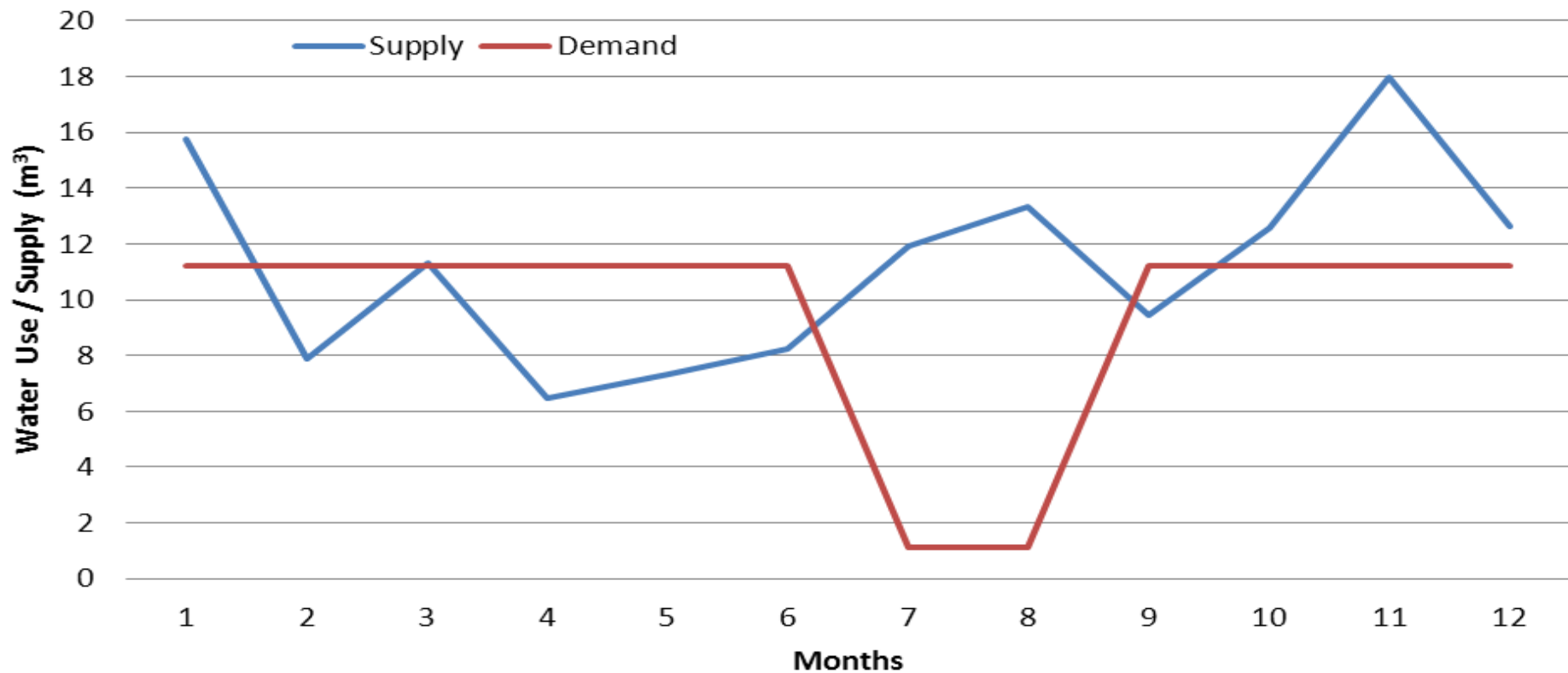
5. SCEITHEADH BAILIÚ BÁISTÍ RWH OVERFLOW



4. BARRLÍONADH UISCE ÓN bPRÍOMHLÍONRA / RWH MAINS WATER TOP UP

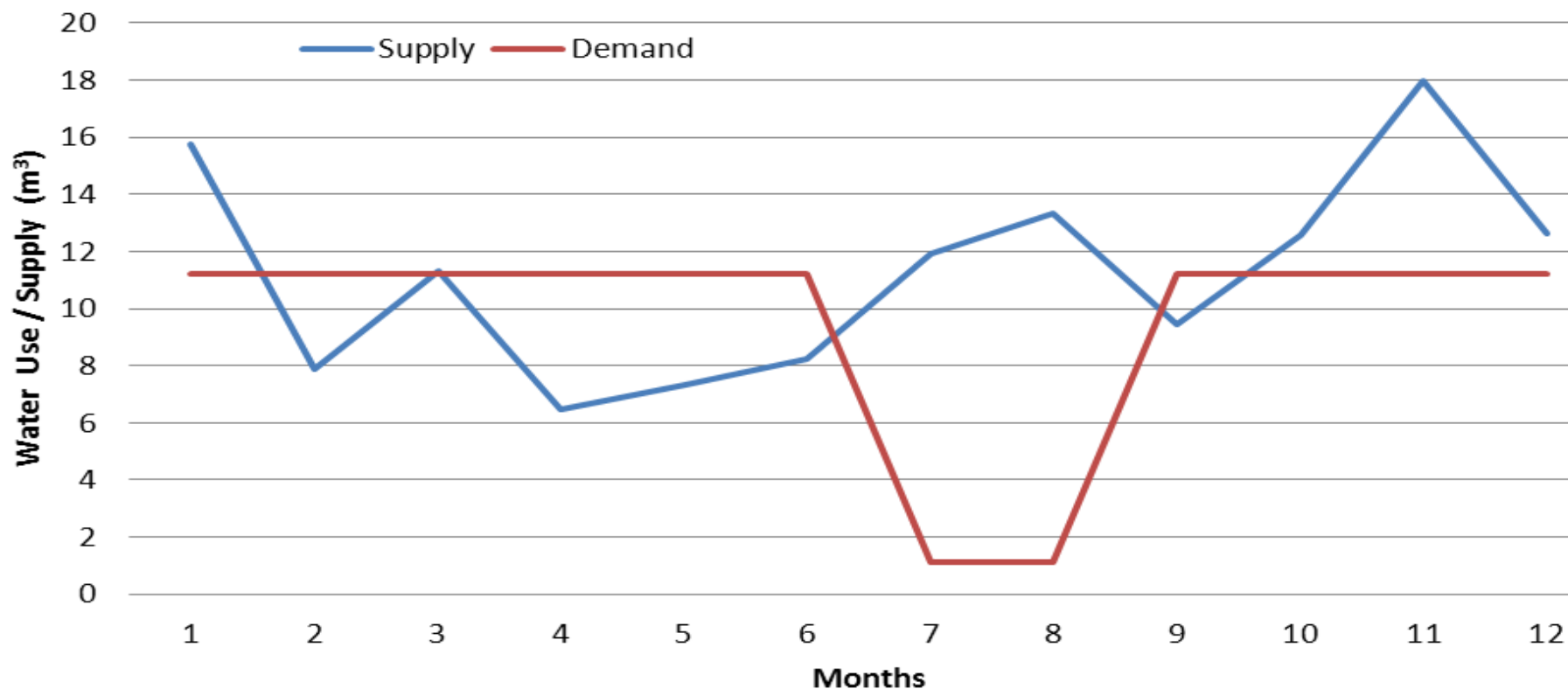


Monthly Supply-vs-Monthly Demand



- **2.81 m³/dalta/bhliain** an úsáid in aghaidh an duine a bhí i gceist thar 21 mí
- **1.49 m³/dalta/bhliain** an úsáid uisce (nach bhfeadfaí a ól-WC) in aghaidh an dalta
- *Per capita consumption over the twenty one month period of the study was recorded as **2.81 m³/pupil/year***
- *Non potable (WC) water use consisted of **1.49 m³/pupil/year**.*

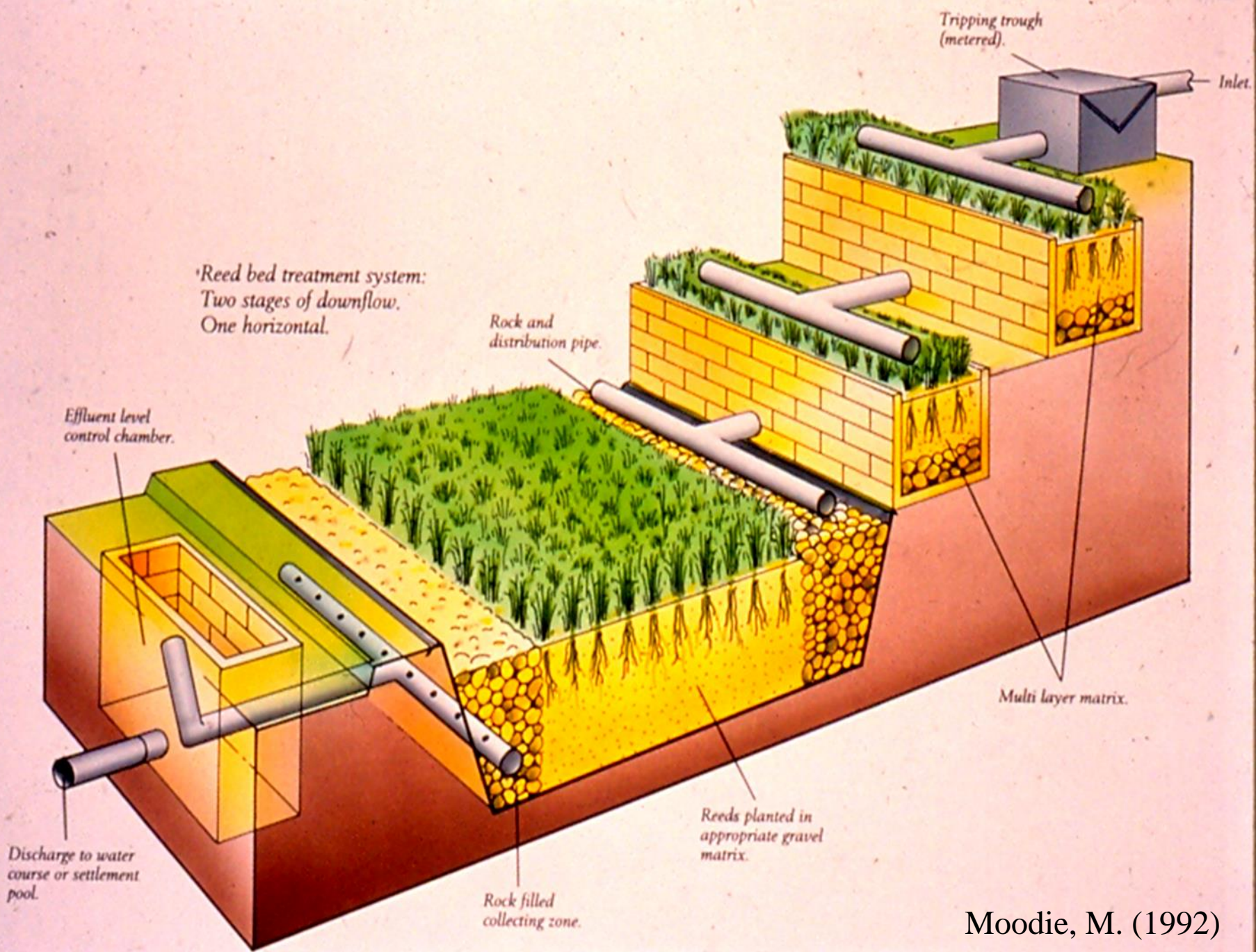
Monthly Supply-vs-Monthly Demand



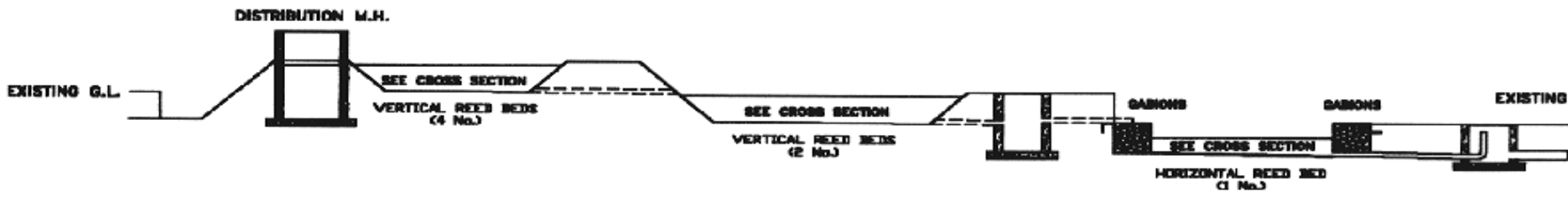
- **Bailiú Báistí:** 52% d'úsáid iomlán an t-uisce nach bhfeadfaí a ól (WC)
- **An bPríomhlíonra / Na Mains:** Chuir 48% den t-uisce ar fáil
- *RWH system - 52% of the total non potable (WC) water usage.*
- *Mains water top up provided 48%.*

Éire BÁC Theas agus Fine Gall

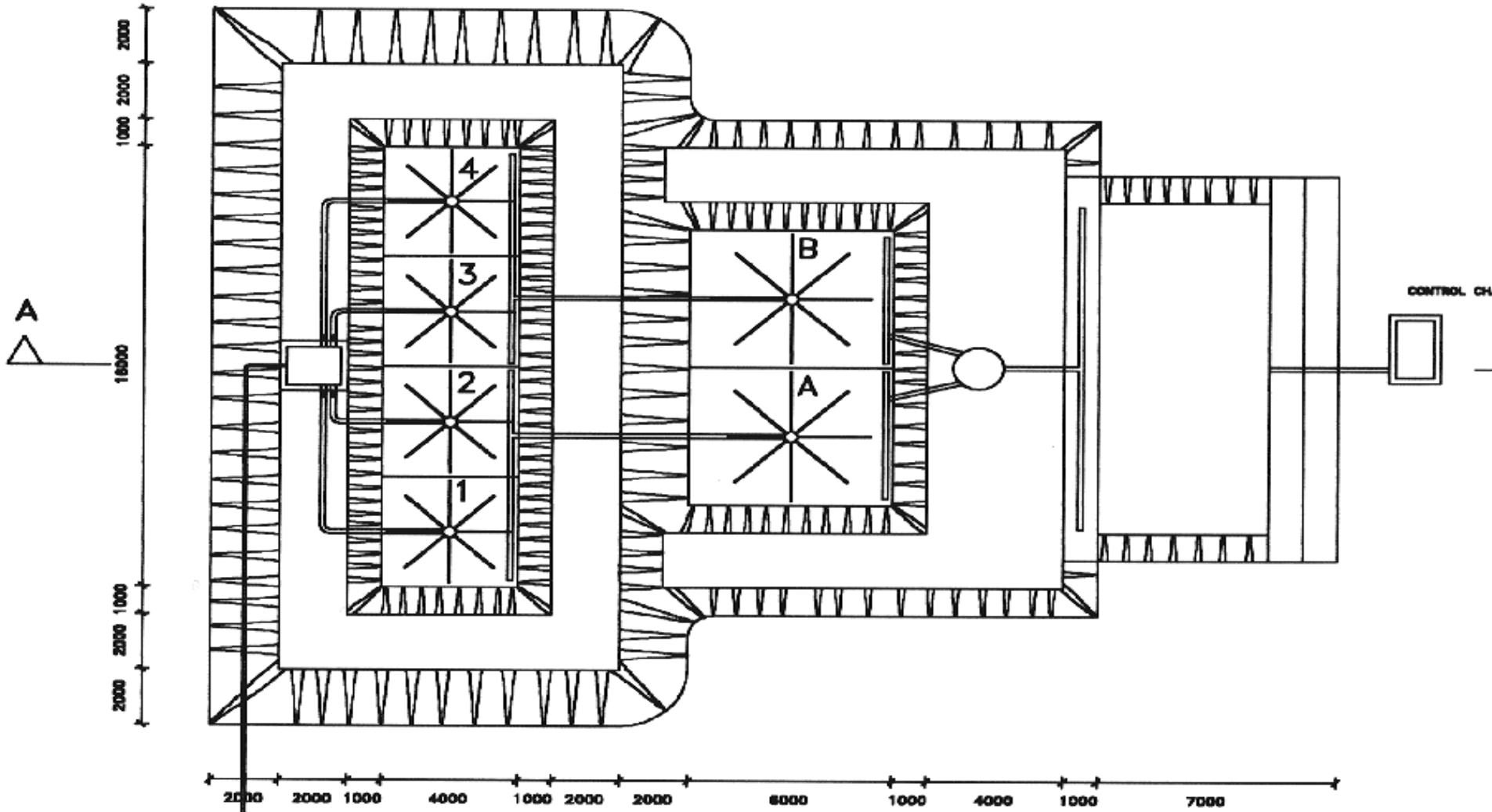




*Reed bed treatment system:
Two stages of downflow.
One horizontal.*



Section A-A











Cóireáil Treasach: Córas na Leapacha Sailí

Tertiary Treatment: Willow Bed System



Átha Cliath Theas



Saoráid Hibrideach: Leaba Giolcaí & Sailí

Hybrid Reed and Willow Bed Facility

- Dearadh agus toghadh Córas Cóireála Leaba Giolcaí Hibrideach ag Lána Uí Loingsigh i limistéar riaracháin Comhairle Contae Átha Cliath Theas
- A hybrid reed bed treatment system (RBTS) was designed and constructed at Lynch's Lane, County Dublin in the administrative area of South Dublin County Council (SDCC).

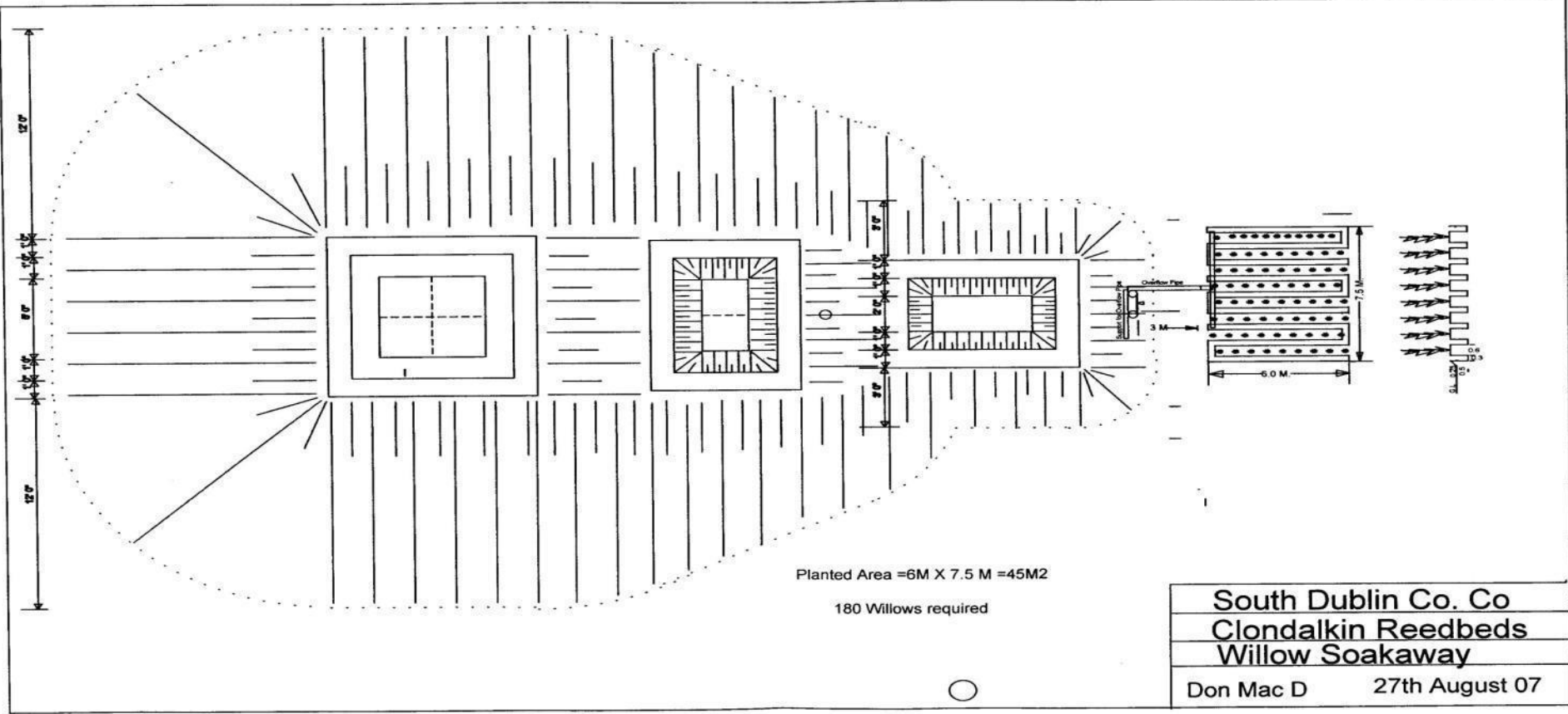
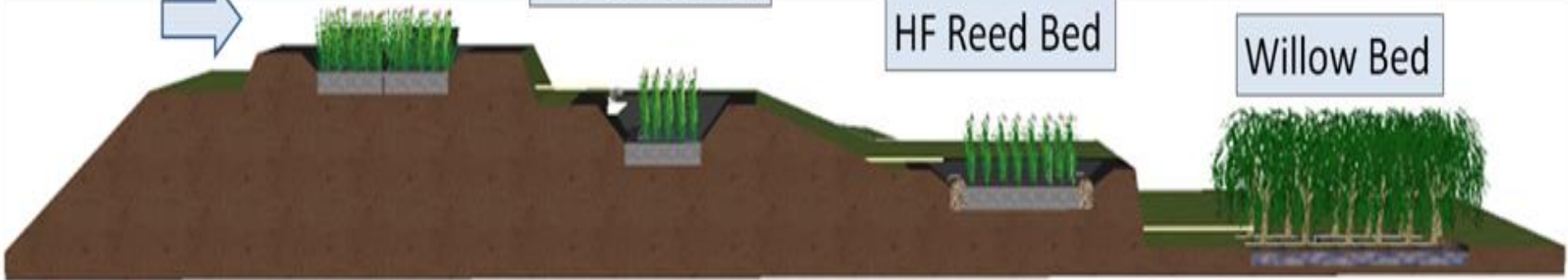
Influent

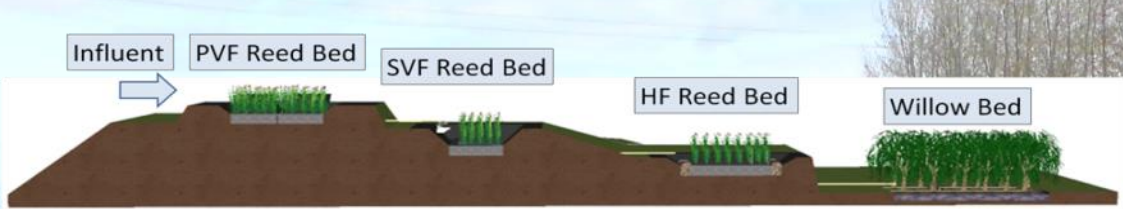
PVF Reed Bed

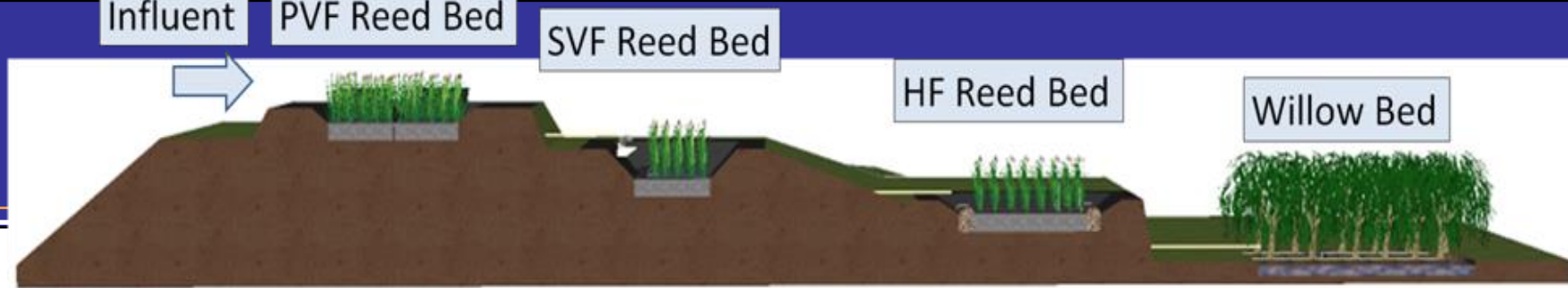
SVF Reed Bed

HF Reed Bed

Willow Bed







	PVF bed	SVF bed	HF bed	Willow bed
Design Surface Area / pe	1 m²/pe	1 m²/pe	1 m²/pe	3 m²/pe
Surface Area	15m²	15m²	15 m²	45m²
Number of Cells	4	2	1	Number of ridges 8, Number of channels 9
Area provided for influent	16 m²	8 m²	1.8m²	Average channel/ridge width 0.44m
Media Depth	0.6m	0.6m	0.6m	channel/ridge depth 0.54m
Porosity	0.37	0.37	0.37	













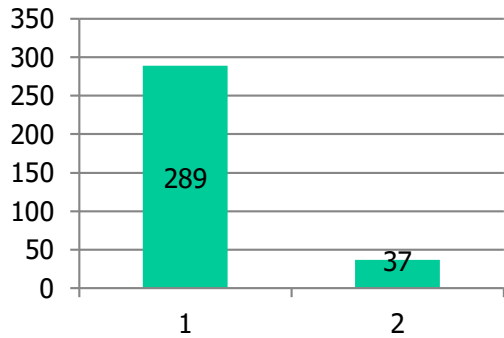
Sreabha / *Flows:*

- Rinneadh taifead an t-am ar fad ar insreabhadh / *Inflows were continuously recorded.*
- An meán-ráta lódála hidrálach / *The average hydraulic loading rate: 4.7 m³/d.*
- Raon Insilteach / *Influent Range: 11 - 22 p.e.*

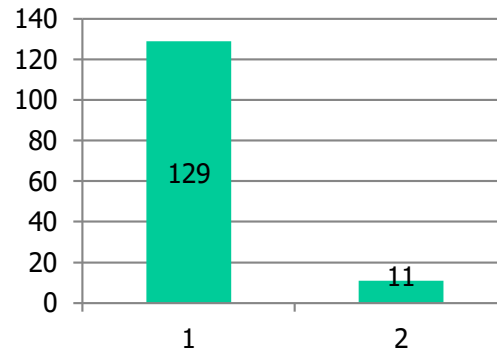
Feidhmíocht ar an Iomlán

Overall Performance

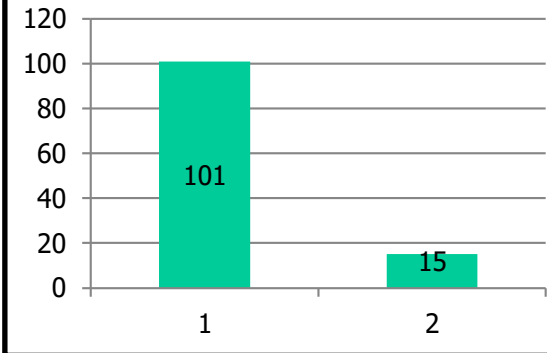
COD (mg/l)



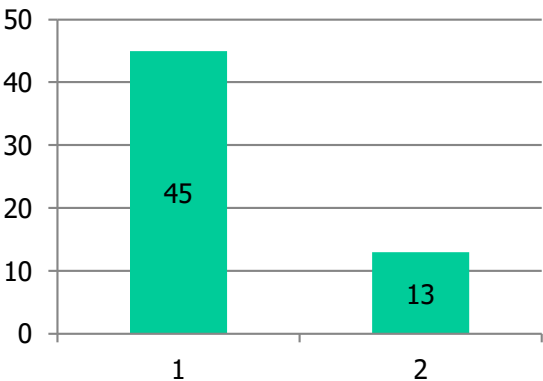
BOD₅ (mg/l)



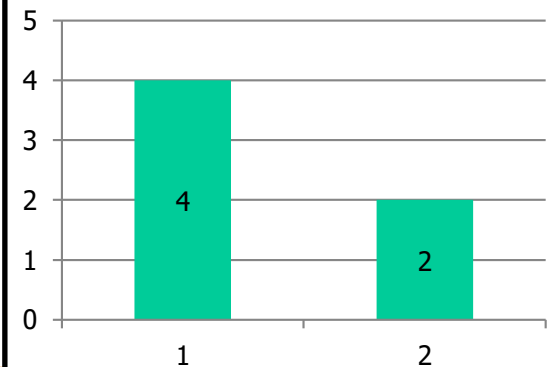
TSS (mg/l)



NH₄ (mg/l)



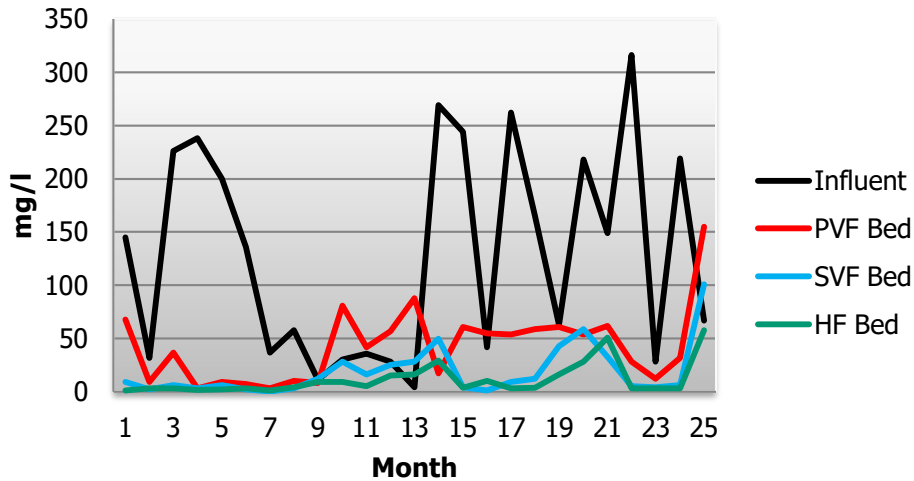
PO₄ (mg/l)



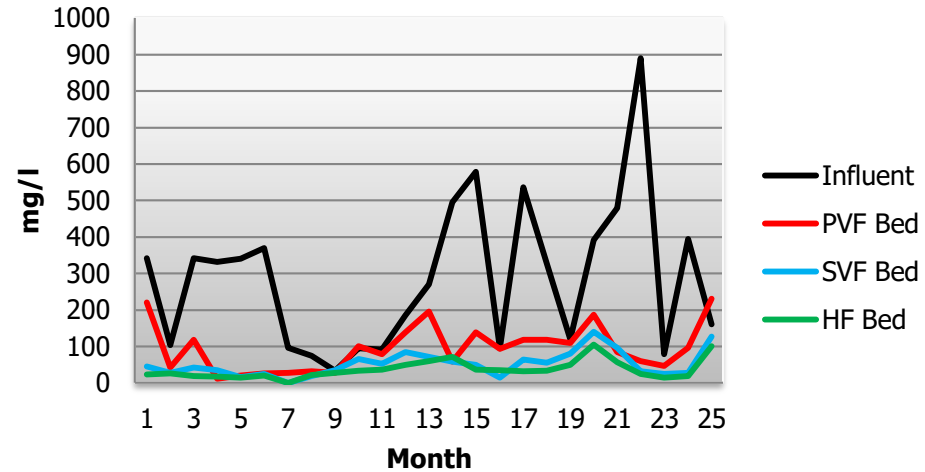
Torthaí



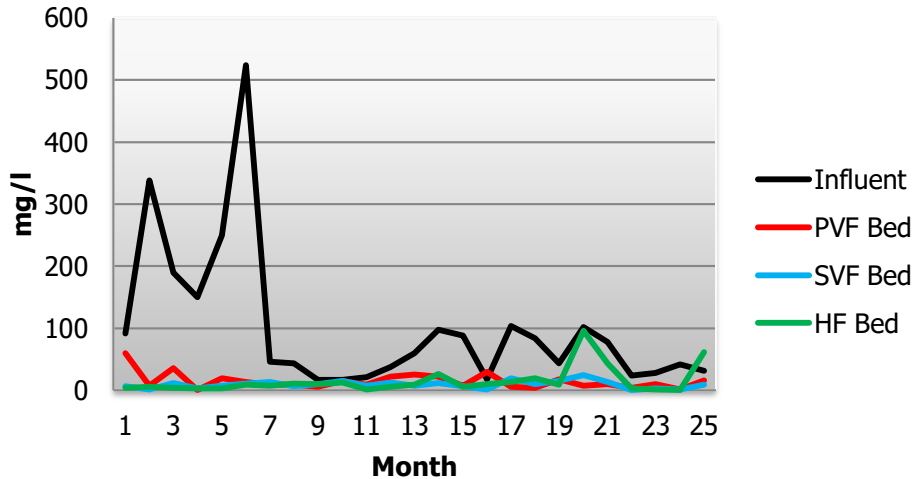
BOD₅



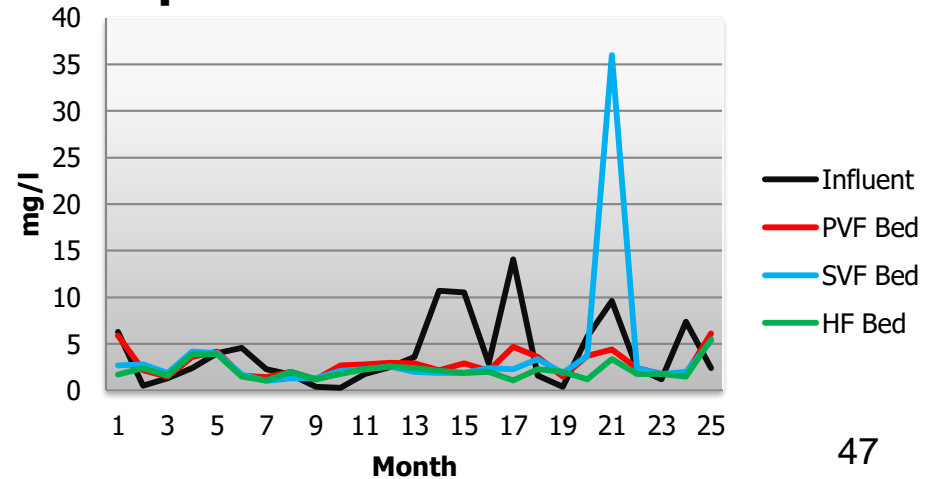
COD



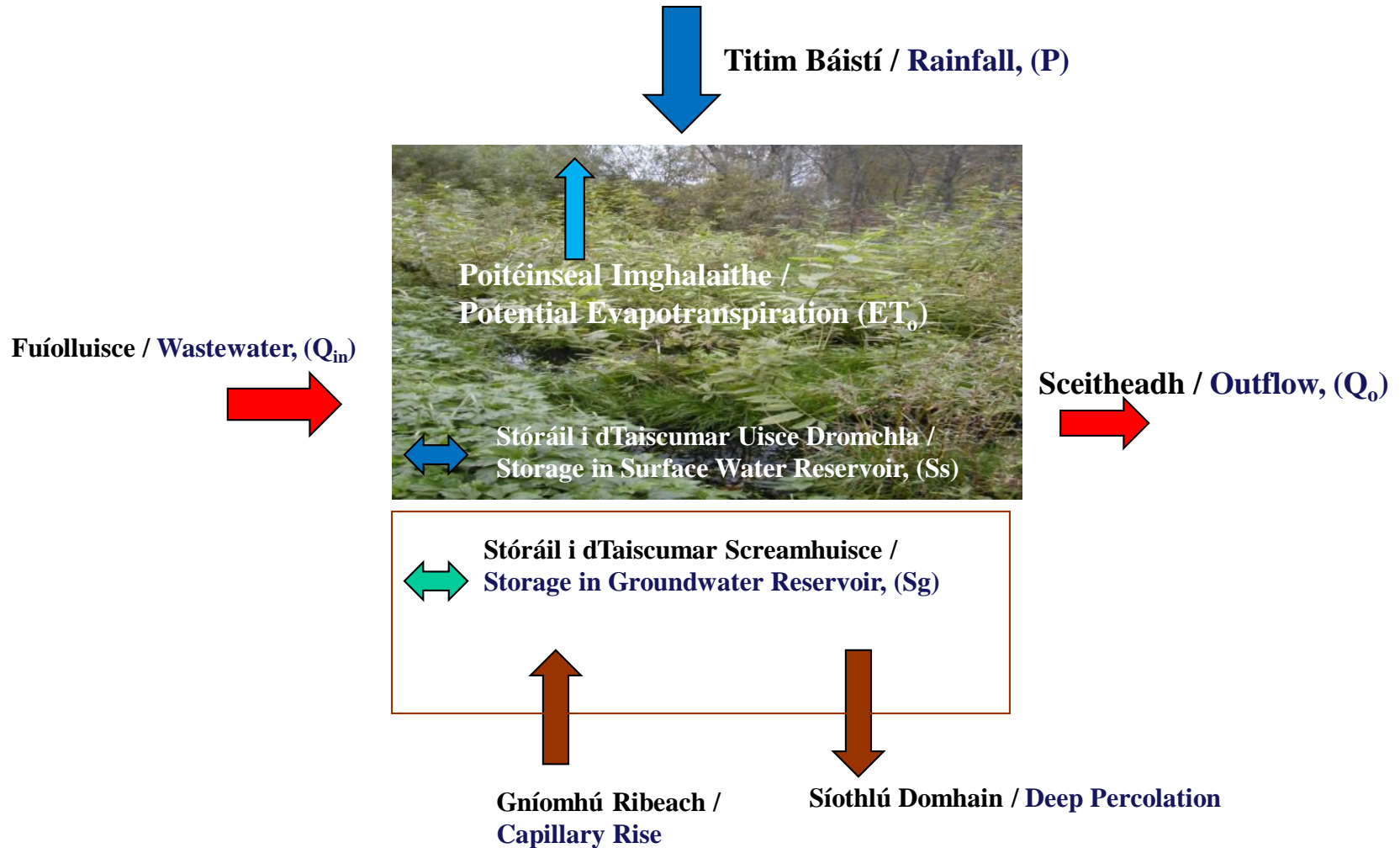
TSS



Phosphorous



Leapacha Saileach



Feidhmiú an Leaba Sailí



- Ní raibh aon sceitheadh ón leaba sailí le linn an tréimhse monatóireachta / No outflow was observed from the willow bed during the monitoring period.
- Go minic, bhí tréimhsí ann nuair a bhí an leaba sailí tirim go hiomlán / There were frequent periods when the willow bed was dry throughout.

Feidhmiú an Leapa Sailí



- **Níl aon Sceitheadh**
 - **Zero Discharge**

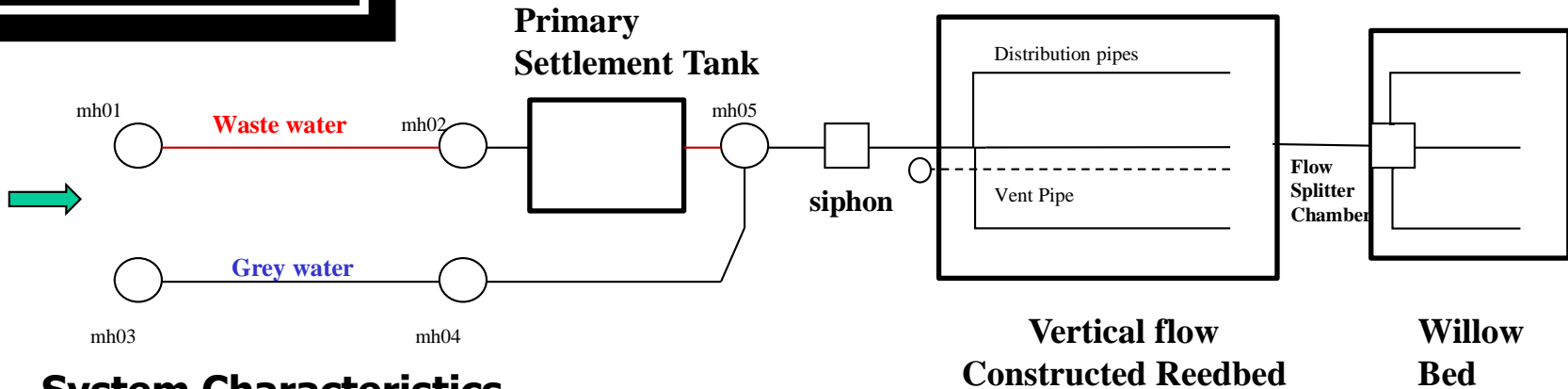
- **Níl aon Mhonatóireacht**
 - **No monitoring**

Feidhmiú an Leaba Sailí



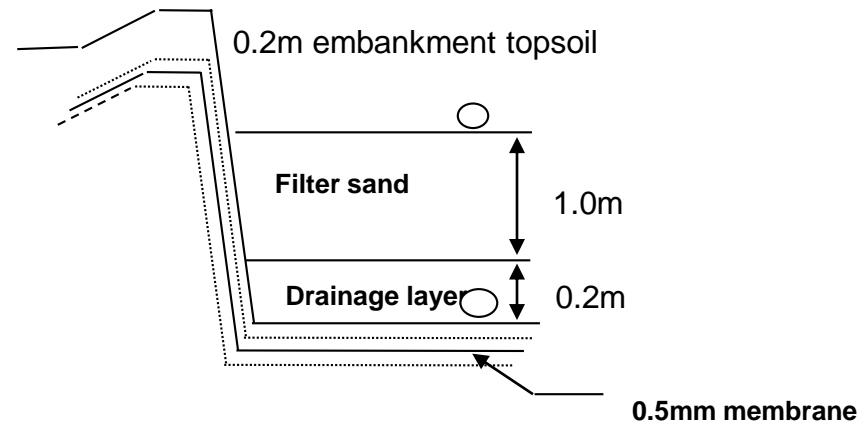
FEIDHMITHE FÉIDEARTHA EILE **OTHER POTENTIAL APPLICATIONS**

CÓRAS HIBRIDEACH TEACH AONAIR SINGLE HOUSE HYBRID SYSTEM



System Characteristics

- Inflow separated at source
- **VFRB**
 - Surface loading rate $2\text{m}^2/\text{p.e.}$
 - Surface area 8m^2
 - Filter Depth 1.0m (graded sand, $0.25 < d_{10} < 1.2\text{mm}$)
 - Drainage layer 0.2m (40mm aggregate)
 - Bentonite liner ($1.0 \times 10^{-10} \text{ m/sec}$)
 - Siphon pumping system
 - Distribution System 32mm perforated pipework
 - P.Australis, Density 4 plants/ m^2
- **Willow Tertiary Treatment System**
 - Compacted natural clay liner







01 19 2004



01 09 2004



01 17 2004







An Cuardach ar Infreastruchtúr Pobail-Bhainistithe Athléimneach



TEICNEOLAÍOCHT

- Uisce
- Séarachais
- Fuinneamh

POBAIL

- an Bholáiv
- Oileán Eigg

RIALÚ

- Singeapór
- Philadelphia

An Bóthar go Gendema



TIONSCADAL AISTRITHE TEICNEOLAÍOCHTA, DTC DTC TECHNOLOGY TRANSFER PROJECT



EC



RADA-SL



NMJD



DTC

PROJECT TITLE: Working Together for Sustainable Health,

Water and sanitation in Pujehun District

PROJECT LOCATION: Pujehun District Southern Region,
Sierra Leone

FUNDING AGENCY

FUNDED BY: EC THROUGH CHRISTIAN AID IN PARTNERSHIP
WITH RADA-SL, NETWORK MOVEMENT
FOR JUSTICE AND DEVELOPMENT (NMJD)
AND DEVELOPMENT TECHNOLOGY
CENTRE (DTC), DUBLIN

Soláthar Uisce Pobal Bhainistithe Community Managed Water Supply



Soláthar Uisce Pobal Bhainistithe Community Managed Water Supply

RULES TO OBEY.

NO ABUSIVE LANGUAGE = 5,000

NO FIGHTING = 10,000

NO LAUNDRY = 4,000

NO WASHING = 3,000

DO NOT URINATE HERE = 2,000

IGNORANT OF THE LAW,

NO MERCY

BY ORDER

An gnás gach maidin / The Morning Ritual





Ionad Acmhainní / Resource Centre



Suiteálacha an Ionaid Acmhainní / Resource Centre Installations



Torthaí:



BREISLUACH
ADDED VALUE

AISIOMPÚ NUALAÍOCHTA
REVERSE INNOVATION

An Bholaiiv

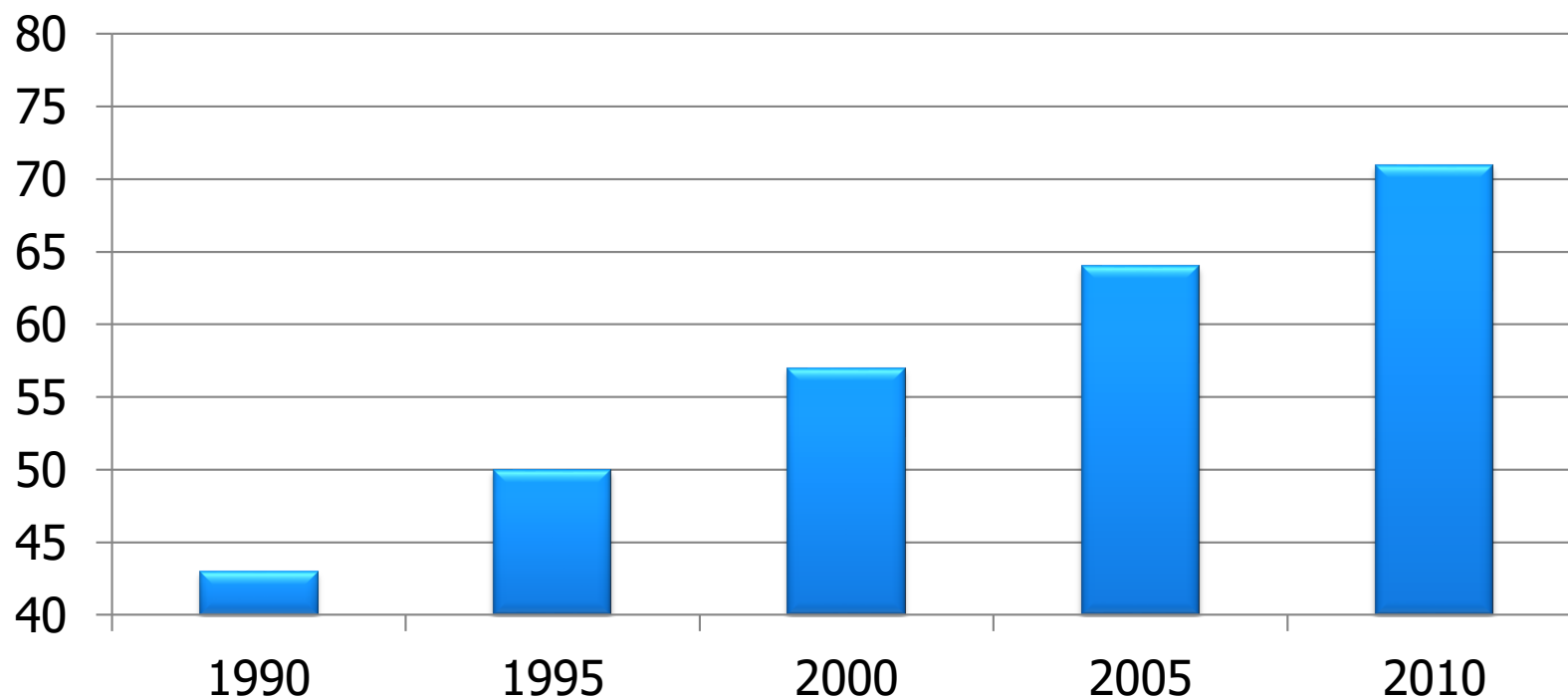


BOLIVIA WATSAN



Rural Water

■ Rural Water



IONAD TRAENÁLA EMAS / EMAS TRAINING CENTRE



COINCHEAP EMAS / EMAS CONCEPT



- **Teicneolaíocht – Déan féin é:** caithfidh an bunábhair go léir a bheith ar fáil go háitiúil agus in acmhainn don úsáideoir.
Do it yourself technology: all the material has to be locally available and within the financial means of the user.
- **Breislúach:** Más mó breislúach a thugtar d'uisce, sin más mó a bhíonn an t-úsáideoir ag brath ar an uisce. Más mó a bhíonn daoine ag brath ar an uisce, sin más mó a theastaíonn ón úsáideoir cothabháil a dhéanamh ar an tseirbhís.

Added Value: the more added value is given to the water, the more dependent becomes the user, and the more dependency exists, the more the user is willing to maintain the service.

Pumpaí



- **Gnáthpumpa - Standard pump**
- **Pumpa Ardbhrú - High pressure pump**
- **Pumpa Cainníochta - Quantity pump**
- **Pumpa Uisciúcháin - Irrigation pump**
- **Pumpa Muileann Gaoithe - Windmill pump**
- **Pumpa Gníomhachtúcháin - Activation pump**



Pumpaí Gaoithe



- **baintear úsáid as an pumpa EMAS traidisiúnta atá ceangailte le gléas a bhaineann leas as cumhacht na gaoithe chun uisce a phumpáil.**



uses the traditional EMAS pump attached to a mechanism which harnesses the power of the wind to pump water.

Pumpaí



**Go leor pumpaí ag toibreacha pobal /
Multiple Pumps at community well**

**•Feabhas ar
Thoibreacha
tochailte le
lámh /
Improved
Hand Dug
Wells**



•Báiliú Baistí - Rainwater Harvesting

Tancanna



**TANCANNA
CITHFHOLCTHA /
SHOWER TANKS**

**CLÚDAIGH AR THANCANNA
BAILIÚ BÁISTÍ /
RWH TANK COVERS**



**TANCANNA STÓRÁLA DO
BHAILIÚ BÁISTÍ
RWH STORAGE TANKS**



**SCAGTANCANNA DO BHAILIÚ
BÁISTÍ / RWH FILTER TANKS**

Seomraí Folctha



**EMAS latrine for urban applications
with odour filtration unit attached**

VIP Latrine with air pipe

SOLAR



Téitheoir uisce gréine tí ar chostas íseal / Low cost household solar water heater



Téitheoir uisce gréine i La Paz ar chostas íseal / Low cost Solar water heater, La Paz

SOLAR



**Teach nócháin pobail le
Téitheoir gréine don uisce
Community Wash House
with solar water heaters**



**Téitheoir uisce gréine le pláta – níos
éifeachtaí / Solar water heater with plate
fitted to improve efficiency**

**Téitheoir uisce
gréine le scátháin –
níos éifeachtaí /
Solar water heater
with mirrors to
improved efficiency**



SHOWER



Shower Units at training centre with water pumped through solar water panels

FERROCEMENT SINK

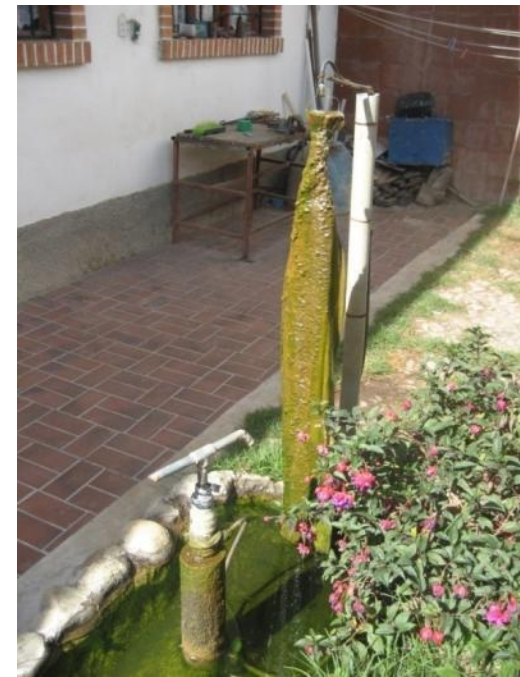


Ferrocement Sink fitted to EMAS shower house

FILTERS



Rainwater filter comprising fleece material



Iron removal using a fleece material filter



Latrine odour removal system using straw material housed in an air chamber

Ag deanaimh Puimpeannaí



Purchasing supplied in La Paz



Fabricating the EMAS Standard pump valves



Fabrication of EMAS Quantity pump valves

Luacht Méadaithe “Added Value “



Family rainwater harvesting water supply system

Tobair



Family activating well in Corapata

Fitting the standard EMAS handpump to family well in Corapata



Seirbhísí Pobail



Photo showing village supplied from manual pumping from wash house



Community Wash House with solar water heaters



“An Cuardach ar Infreastruchtúr Pobail- Bhainistithe Athléimneach in Éirinn”



- **Ní Custaiméir / Tomhaltóir an Pobal**
Community is not a Consumer / Customer
- **Pobal / Community:**
 - **Foireann Deartha / Design Team**
 - **Foireann Airgeadais / Finance Team**
 - **Feidhmiú & Cothabháil / Operation & Maintenance**



EIGG ELECTRIC

Eigg is not connected to the mainland electricity supply. After decades of diesel generators, Eigg Electric provided 24 hour power for the first time in February 2008.

EIGG RENEWABLE POWER COMES FROM

Hydro
Three hydroelectric generators produce electricity from running water. The biggest hydro above Eigg produces 100kW, with two smaller 50kW turbines on the side of the island.

Wind
Four small wind turbines below An Eigg produce 20kW.

Sun
Two arrays of photovoltaic (PV) cells produce 100kW.

ENOUGH FOR EVERYONE

There is a finite amount of electricity available. To ensure nobody goes short, each house has a maximum use limit at any one time of 5kW and each business 10kW.

This is enough for most homes; low energy lights, a TV, an electric kettle, a computer and a washing machine all together run on less than 5kW. Spreading our use throughout the day is easy and OWM meters tell us how much we're using moment by moment.

From the renewables sources, the high voltage grid delivers electricity around the island, and transformers convert the power to domestic village homes and businesses.

Then of course we have underground for our Grid.

Power is regulated and stored at a control building. Close by are back-up generators, for periods when renewables sources are in-short supply.

Alternative Fuels

Energy Production

Transport

Energy Saving

Education

Food

Waste Management

A very special GREEN ISLAND

Follow our Big Green Footsteps

We welcome you to our island. 85 people live here (2009). Stunning geology, rich wildlife, a vibrant and sometimes violent history and a dynamic community go together to make Eggs a special place. In 1997 the community bought the whole island with the help of friends and supporters worldwide. We now have the chance to steer a course for our own future.

Why *Big Green Footsteps*?

Together we decided, in 2008, to reduce our use of fossil fuels and to make the most of our island's natural assets. We are adapting our way of life to depend less on oil and coal. Renewable energy, less fossil fuels, more efficient use of what we use, insulation, transport alternatives, reducing all waste and growing as much as we can are all parts of our approach.

We are ambitious to ensure what we do here on Eggs helps to secure our future, but also that of our wider world. Without action our future is uncertain.

Take *Big Green Footsteps* Back Home

We want you to enjoy exploring what we're doing for our community and our future. We also hope you will be inspired to take action yourself when you get home.

We're an island, surrounded by water, but we invite other communities to think of themselves as small islands and make changes to improve everyone's future.

We hope what we have done will inspire you to do something for your wider world. Why not follow in our *Big Green Footsteps*?

DOSE

DOSE

DOSE



www.islandsgoinggreen.org

www.isleofeggs.org



Alternative Fuels



Energy Production



Transport



Energy Saving



Education



Food



Waste Management

EIGG ELECTRIC

Eigg is not connected to the mainland electricity supply. After decades of diesel generators, Eigg Electric provided 24 hour power for the first time in February 2008.



EIGG RENEWABLE POWER COMES FROM

Water

Three hydroelectric generators produce electricity from running water. The biggest hydro above Laig produces 100kW, with two smaller 5-6kW hydro on the side of the island.

Wind

Four small wind turbines below An Sgair produce 24kW.

Sun

Two arrays of photovoltaic (PV) cells produce 10kW.



Alternative Fuels



Transport



Energy Saving



Education



Food



Waste Management

ENOUGH FOR EVERYONE

There is a finite amount of electricity available. To ensure nobody goes short, each house has a maximum use limit at any one time of 5kW and each business 10kW.

This is enough for most homes; low energy lights, a TV, an electric kettle, a computer and a washing machine all together run on less than 5kW. Spreading our use throughout the day is easy and OWL meters tell us how much we're using moment by moment.

MORE THAN WE NEED

Sometimes Eigg Electric produces more electricity than is needed, so we use the excess to heat community buildings. If you see a fan heater on in the waiting room or community hall, we're not wasting electricity, we're making too much!

THE EIGG ELECTRIC GRID



From the renewable sources, the high voltage grid delivers electricity around the island, and transformers convert the power to domestic voltage into homes and businesses.

11km of cable was laid underground for our Grid.

Power is regulated and stored at a control building. Close by are back-up generators, for periods when renewable sources are in short supply.

THE EIGG ELECTRIC GRID



















Singapór / Singapore – “Innovations in strategic vision leads to innovations in technology”



Bailiú Báistí / Rainwater Harvesting

Bailiú Báistí ó cheantair
cosanta agus
neamhchosanta /
collected from unprotected
and protected catchments

Uisce Impórtáilte Imported Water

- ó Mhalaeisia
- Malaysia

NEWater

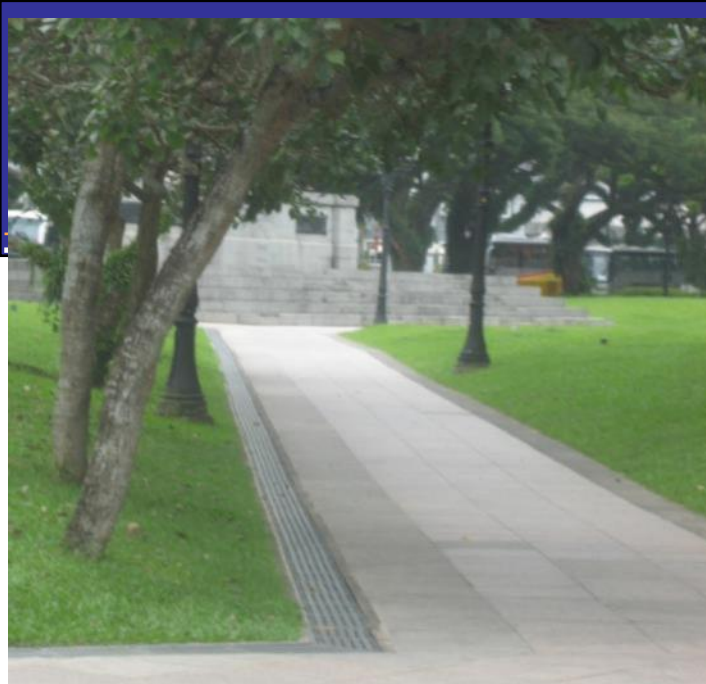
- Uisce athshlánaithe
ó thionscail
- Reclaimed water for
non potable industry

Díshalannú / Desalination

- Athshlánaithe
- Uisce na farraige
(amach anseo)
- Reclaimed
- seawater (future)

“Water dominated every Government policy”

Singepór:
Bailiú Báistí ó cheantair uirbeach neamhchosanta
Unprotected Urban Water Catchments





**Bailiú Báistí ar an
láthair**
Rainwater harvested
on-site

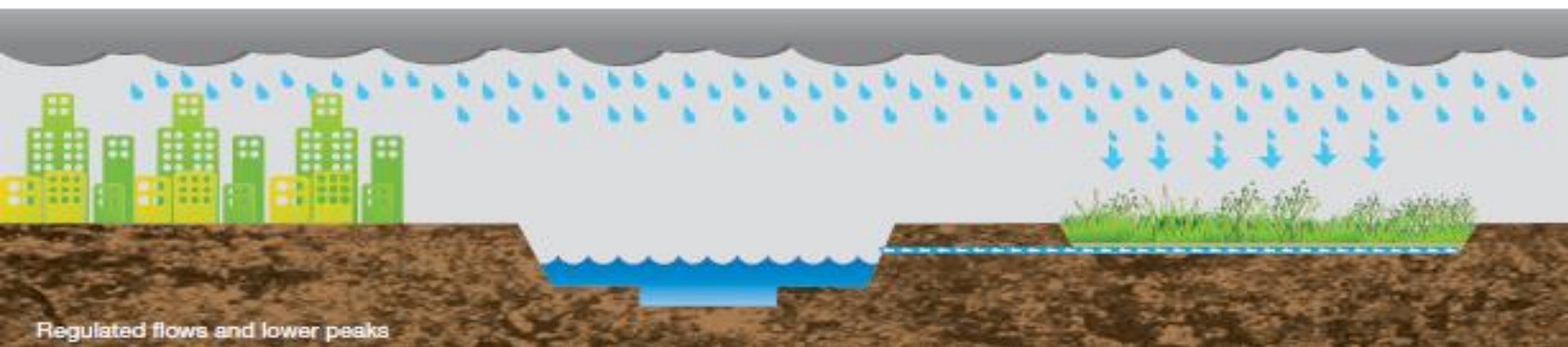


**Báisteach seolta
chuig canálacha**
Rainwater channelled
to canals



**Scaoilte chuig
taiscumair**
Discharged
to Reservoirs

“Two thirds of
Singapore is
already a water
catchment”



Baráiste na Muiríne / Marina Barrage

D·I·T



Soláthar Uisce / Water Supply:

Damming of the Marina Channel created a 10,000 hectare water catchment meeting 10% of Singapore Potable Water Supply Demand



Rialúchán Tuilte / Flood Control:

- High rainfall with low tide \equiv weir
- High rainfall with high tide, \equiv , rainwater pumped over barrier to sea



Díol Spéise Maireachtála / Lifestyle attraction

- “we used to keep people away from our water...now we want to attract them to the water as a resource, amenity”
- Active Beautiful, Clean (ABC)

Singeapór – acmhainn is ea fuíolluisce “wastewater is a resource”



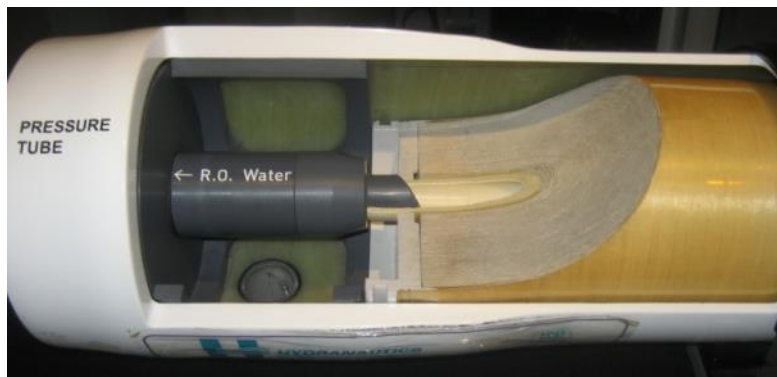
NEWater

Fuíolluisce athshlánaithe ar ardchaighdeán
d’úsáideoirí tionsclaíoch (uisce nach bhfuil le hól)

- Tionscal Earraí Leictreonacha
- Giniúint Cumhachta
- Aerchóiriú

High quality reclaimed wastewater for non potable
industrial users

- Electronics industry
- Power generation
- Air conditioners



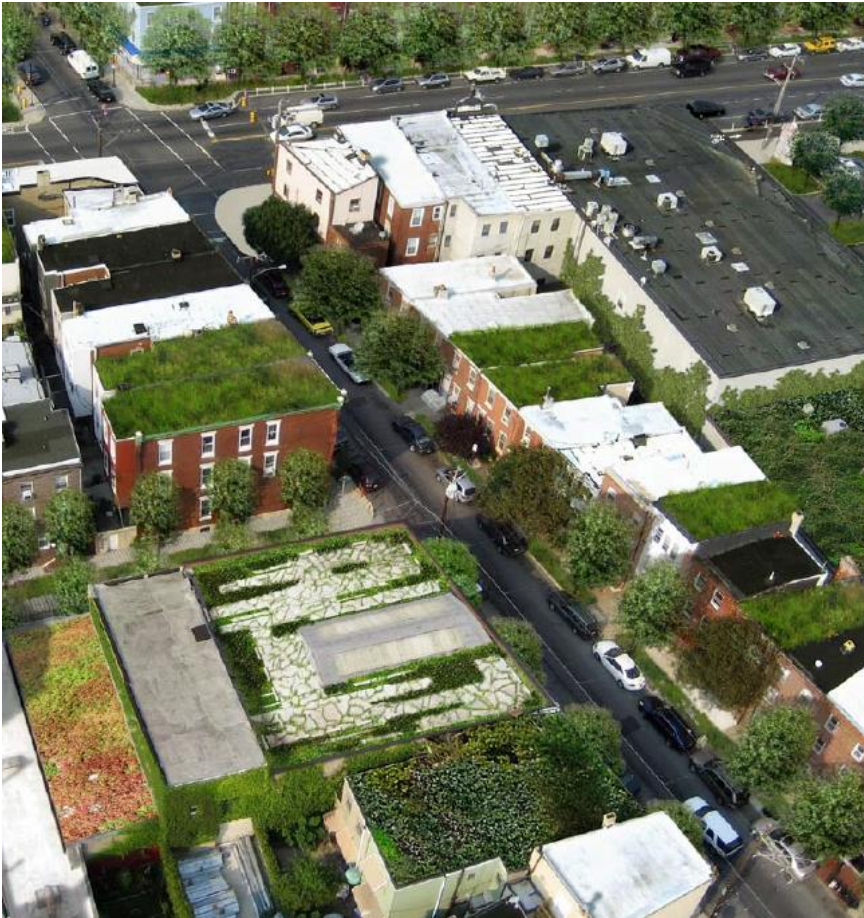
Nuálaíocht – Ní Teicneolaíocht amháin! Innovation - not just technology!



- *“The Singapore example indicates that it is unrealistic to expect the existence of an efficient water management institution in a country, in the midst of other similar mediocre management institutions...*
- *Water management institutions in a country can only be as efficient as its management of other development sectors.”*

(Tortajada, C, 2006)

Philadelphia's Green City, Clean Waters Using Collective Impact to Drive Change



“As we evolve Philadelphia into America’s most sustainable and green city, the opportunities ahead will be limited only by the confines of our imaginations and the extent of our determination.”

Howard Neukrug
Philadelphia Water Commissioner

“Cities across the nation are now looking at Philadelphia as the preeminent model for managing stormwater through green infrastructure.” “This approach will benefit Philadelphians by protecting their drinking water, making rivers and streams more attractive recreation amenities, and supporting economic growth.”

Paul King
President & CEO
Pennsylvania Environmental Council

“An Cuardach ar Infreastruchtúr Pobail- Bhainistithe Athléimneach in Éirinn”



Bling Glas ?

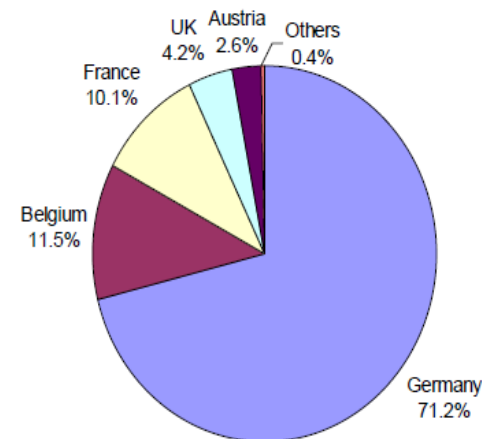


Beartais Spreagtha san AE:



An Ghearmáin

- Bailítear Cáin Bháistí ón méid uisce a ritheann chun srutha isteach sa séarach stoirme áitiúil ó bhrat dromchla neamh-thréscaoilteach an tí.
- Rain taxes collected for the amount of run off into the local storm sewer that is generated from the impervious surface cover of the property.



An Fhrainc

- Tá lacáiste cánach de 40% suas go dtí €5,000 curtha ar fáil do Chórais Bailithe Báistí
- A tax rebate of 40 % up to a maximum of € 5000 is be provided to systems.



An Bheilg

- Reachtaíocht Náisiúnta – Caithfidh Córais Bailithe Báistí a bheith suiteáilte i bhfoirgnimh nua go léir do leithris agus d'úsáid uisce lasmuigh.
- National Legislation - all new constructions need to have RWH systems installed for the purpose of flushing toilets and external water uses.



Group Water Scheme

A model for decentralised infrastructure supply in Ireland



Prior to 1950s/1960s – need for piped water supplies in rural communities.



Group schemes flourished in the 1960s/1970s,

- local co-operatives and farm organisations
- the sector was providing drinking water to some 25% of the rural population.
- NFGWS (1997 / 1998)

A decentralised infrastructure model: GWS approach ensured local ownership and ultimately the rapid expansion of water infrastructure in rural communities much quicker than the development of Public Water Supply schemes.

- **Tá brú faoi láthair ar chórais mhóra lárnacha**
- **Seans anois againn le córais nua atá díláraithe**

we cannot solve
our problems with
the same thinking
we used when
we created them

~ Albert Einstein



“An Cuardach ar Infreastruchtúr Pobail-Bhainistithe Athléimneach in Éirinn”

Réiteach faoi
Thionchar Seachtrach
Externally Driven Solution

An Earnáil mar atá:
Easpa rannpháirtíocht an Phobail
Easpa Inniúlachta sa Rialtais
Níl aon Bheartas Forbartha Pobail

Existing Sector :
Lack of Community Involvement
Lack of Capacity in
Government Sector
No Community Development
Policy

An Córas faoi láthair:
Ón bharr anuas
Current System -
Top - down

Athrú Straitéise
Change of Strategy

Pobail a Chumasú tré
Aistriú Teicneolaíochta
Empowering Communities
Through
Technology Transfer

Oiliúint & Feasacht Phobail
Public Education & Awareness

Réitigh faoi thionchar
an Phobail
Community Driven
Solutions

An Earnáil sa Todchaí:
Teicneolaíochtaí Inbhuanaithe Feiliúnach
curtha in oiriúint ag an bPobal chun dul i
ngleic le tosaíochtaí Eacnamaíoch,
Comhshaoil agus Sóisialta

Future Sector :
Appropriate Sustainable
Technologies adapted by
Community to meet Economic,
Environmental & Social preferences.

Ón Bhun Aníos –
Ón Bharr Anuas
Bottom Up – Top Down

“An Cuardach ar Infreastruchtúr Pobail- Bhainistithe Athléimneach in Éirinn”



- **Struchtúir Phobail – Forbair agus Treisigh**
Community Structures – Develop & Reinforce
- **Oiriúnú na Teicneolaíochta - Aisiompú Nualaíochta**
Adaption of Technology – Reverse Innovation
- **Breisluch Do Chách (ní amháin an Stát)**
Added Value (For All – not just State)
- **Geilleagar Glas - Geilleagar Uisce**
Green Economy – Water Economy
- **Oideachas & Oiliúint**
Education & Training
- **Athrú Meoin - Singeapór / Philadelphia**
Change of mindset – Singapore / Philadelphia

Ceachtanna



“IS FIÚ TEIPEADH”

“FAILURE IS IMPORTANT ”

BREISLUACH
ADDED VALUE

AISIOMPÚ NUALAÍOCHTA
REVERSE INNOVATION

“Bealach nua le hUisce / A New Way with Water”



Chun Straitéis Chomhtháite a fhorbairt d’Éireann, teastaíonn: To develop an integrated water strategy for Ireland we need:

- Smaoineamh Nuálach / Innovative thinking
- Teicneolaíochtaí Inbhuanaithe agus Athléimneach / Sustainable and Resilient Technologies
- Leasú ar churaclam oideachais / Education curricula reform
- Gníomhaíocht Rialtais agus Phobail Comhordaithe / Co-ordinated Government and Community Action
- Tuiscint do bháisteach agus fuíolluisce mar acmhainní luachmhara / Appreciation of rainwater and wastewater as a valuable resource