

Adaptation Scotland

supporting climate change resilience

Exchange Event

Adaptation Learning Exchange for Organisations

ECCI | 23 March 2017

The Adaptation Scotland programme is funded by the Scottish Government and delivered by sustainability charity Sniffer.





**Enabling organisations,
businesses and communities
to adapt**

Adaptation Scotland is a programme funded by the Scottish Government and delivered by sustainability charity Sniffer

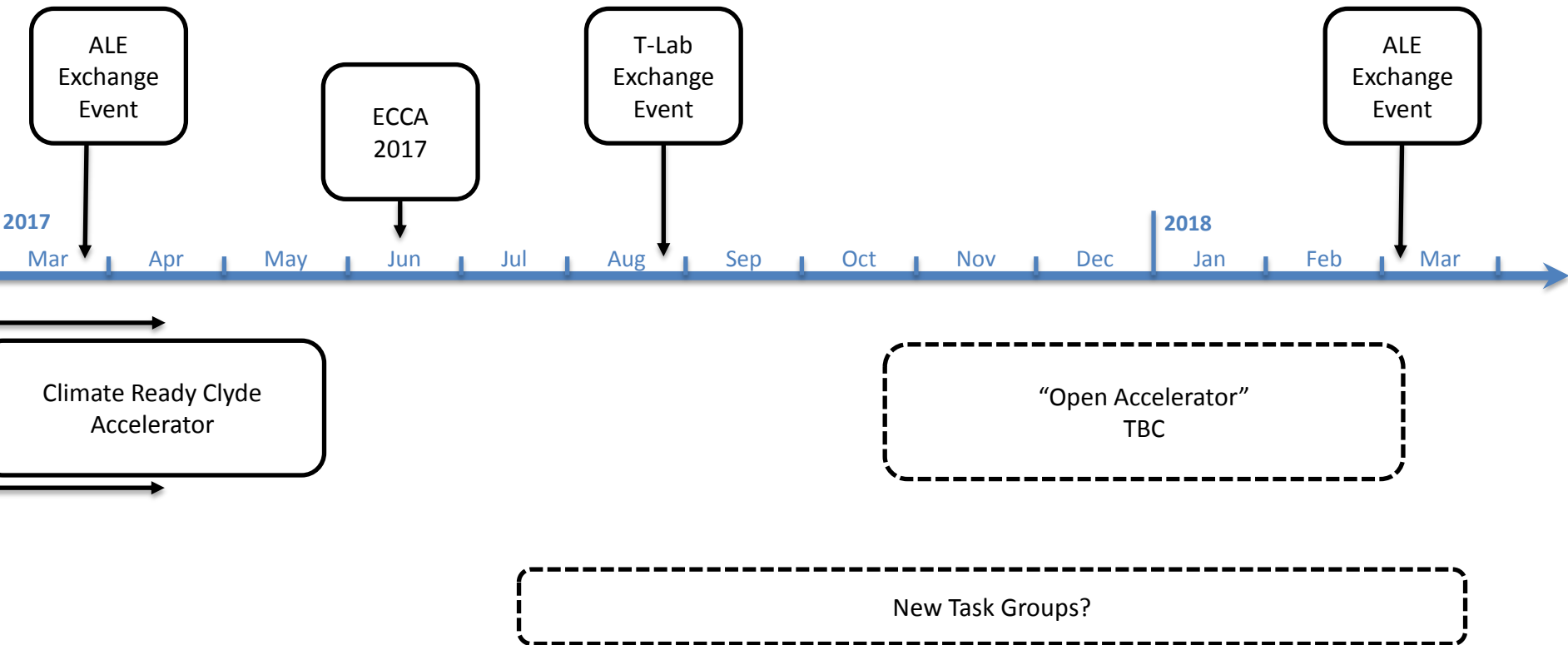


- Share practical examples of adaptation planning and action
- Space to discuss adaptation work and get input from peers

What stage are you at with your adaptation work and what would you like to get out of today?

10:20 – 10:30	ALE Update	Joseph Hagg
10:30 – 12:30	Adaptation in practice	Pat Graczyk Mari-Claire Riley James Travers
12:30 – 13:15	Lunch	
13:15 – 14:30	Site Visit – Edinburgh World Heritage Site	
14:30 – 15:30	Adaptation challenges and opportunities	Group work
15:30 – 15:45	Feedback and Close	Joseph Hagg
15:45 – 16:30	Optional T Lab session	

Adaptation Learning Exchange Update



Climate Ready Clyde Accelerator

Adaptation
Scotland
supporting climate change resilience

10 Organisations

Climate**Ready**Clyde

Adaptation
Scotland
supporting climate change resilience



East Dunbartonshire Council



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Climate Ready Clyde Accelerator

Workshop 1 Nov 16

- **Guest speakers:** Kirsten Guida (London) & Giovanni Fini (Bologna), Ruth Monfries (RBGE), Alison Leslie (Aberdeen City), Jamie Ledingham (Mott MacDonald)
- **Values-Based Communication:** engaging values in communication using the common cause approach with Osbert Lancaster (Natural Change Ltd.)
- **Impacts for the City Region:** using 15 key consequences to identify climate impacts for the region.

Task Groups

- **Engaging Others on Adaptation:** with peer support, advice and resources.
- **Major Project Risk & Vulnerability Assessment:** developing a toolkit for assessing climate change in major projects and development sites
- **Assessing Climate Impacts:** exploring options for weather and climate impacts assessment

Workshop 2 May 17

T-Lab / ALE Exchange Event

T Lab: Adapting to climate change – transformative solutions

29 August 2017

In partnership with the Adaptation Scotland programme



Intended audience:

- Researchers, policy makers and practitioners interested in exploring transformational adaptation options for real world challenges.

Anticipated outcomes:

- The session will produce transformational responses to address specific real world adaptation challenges.
- It will also provide key messages on the opportunities and constraints for applying transformation thinking in the context of climate change adaptation.

3rd European Climate Change Adaptation Conference

Our Climate Ready Future

Glasgow, 5th-9th June 2017

Early Bird Registration Closes Monday 3rd April

[Register Now](#)

- Up to 1000 delegates expected from around the world
- More than 80 parallel sessions; 3 plenary; 11 excursions
- ECCA Innovation Day (Climate-KIC and InnovateUK) & ECCA Business
- Developing 'Showcasing Scotland' in Exhibition

1. Pat Graczyk, Edinburgh World Heritage - **embedding adaptation and engaging communities**
2. Kit England, **Climate Ready Clyde**
3. James Trowers, WSP Group – **integrating green infrastructure in developments**

Presentations followed by group discussions

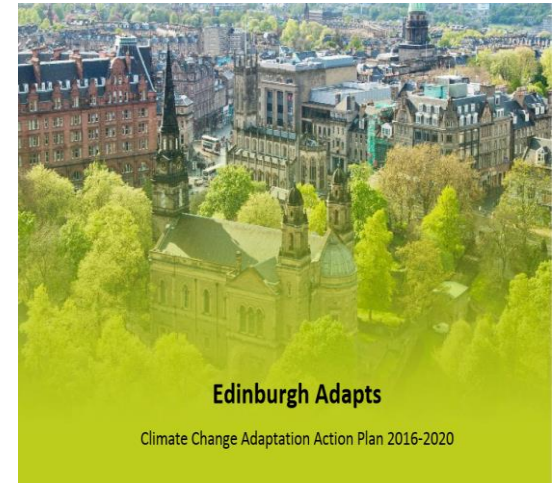
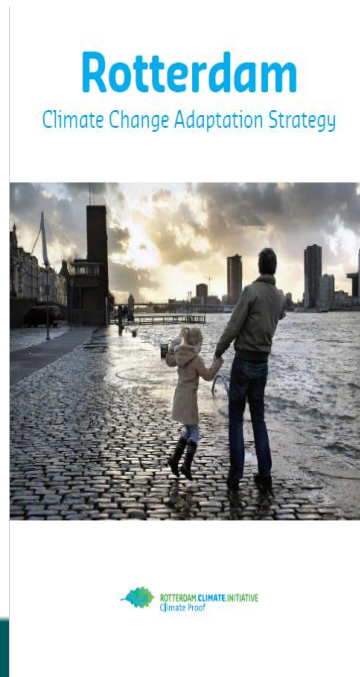
Overview of Climate Ready Clyde

02 March 2017 - Clydeplan
Environment Forum



Climate**Ready**Clyde

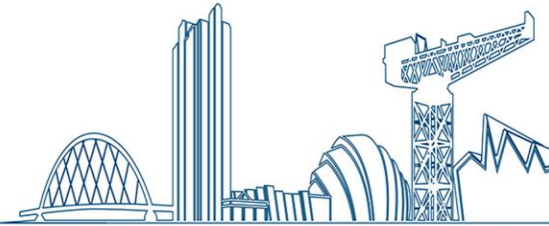
Globally collaborative adaptation is taking off...



To maintain and enhance City region prosperity and competitiveness, a strategic approach to adaptation is essential



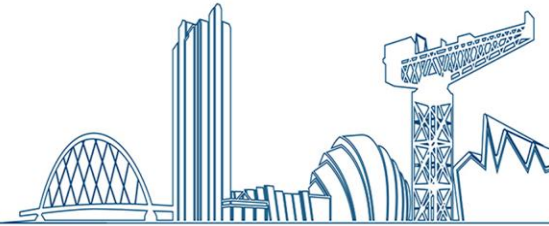
Our response: Climate Ready Clyde



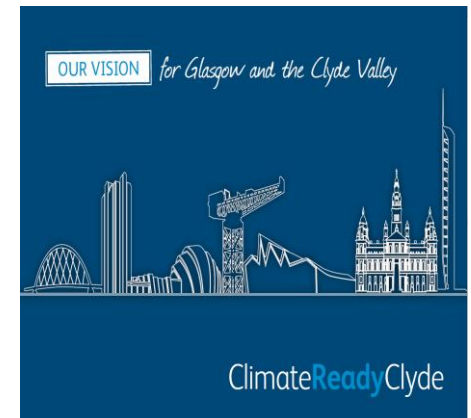
- A 3 year, £350,000 regional initiative to support Glasgow City Region to meet the challenges of changing rainfall, and rising temperatures and seas.
- Funded by pooled resources from Scottish Government and agencies from across the City Region
- Will build a shared understanding of the risk and opportunities we face, and collaborate to implement actions and share responsibility



History



- 2011: Born from Adaptation Scotland – Place Workshops
- 2013: Vision endorsed
- 2014: Business case developed for a collaborative approach to a regional adaptation strategy
- 2016: Scottish Government provided funding to kick start the process



What the next phase will deliver



- Climate Risk and Vulnerability Assessment (synthesis of new and existing evidence)
- Vision, Strategy and Action plan (w. supporting documents)
- Tools, guidance and training to support implementation



Potential board members



Others we're talking with



Potential board members



Stakeholder forum



How it will work



CLIMATE READY CLYDE

GROUP	COMPRISING	REMIT
Board	Representatives of each contributing organisation, with an independent, publicly appointed chair	<ul style="list-style-type: none">• Collectively responsible for the initiative's activities• Set the strategic direction• Make major financial decisions associated with the delivery of the work programme.
Secretariat	Manager and support officer with significant expertise in delivering adaptation.	<ul style="list-style-type: none">• Lead development and delivery of outputs, working with stakeholders from across the City Region• To work alongside other existing partnerships such as MGSDP, the GCV Green Network partnership and Clydeplan
Task and Finish Groups	Representatives from organisations with particular experience,	<ul style="list-style-type: none">• Support the secretariat in delivering specific parts of the work programme
Stakeholder Forum	Wider organisations from the city region and beyond	<ul style="list-style-type: none">• Comment on and inform the regional strategy and action plan• Exchange knowledge, ideas and opinion• Take wider action to adapt

Wider city region activities and partnerships including:

- Glasgow City Region City Deal
- Research projects
- City Region planning
- Individual organisations' adaptation activities

Next steps



- First board member meeting next month
- Formal launch planned at European Conference on Climate Adaptation
- Develop and agree methods for Climate Risk and Vulnerability assessment
- Kick off additional capacity/building and evidence projects



The process for getting agreement



- Lots of meetings!
- 1-1 meetings with potential partners
- Refinement of financial model
- 25 Nov Inception meeting – shaping broad outlines of model
- Securing an interim Chair (James Curran, ex SEPA CX and Chair-elect of James Hutton Institute)
- Developed a prospectus and invited CXs to respond



How we made the case for a Strategic City Region approach



- Articulated how extreme weather already has an effect on City Region (e.g. LCLIP)
- Set out climate change impacts and how they affect City-region priorities:
 - Protecting what we already have: GVA of £40Bn
 - Economic growth: Investors/insurers considering climate adaptation
 - Avoiding costs: Austerity forcing organisations to avoid unforeseen costs
 - Sector growth: Adaptation/resilience to climate change sector projected to grow at over 7% per year in UK
 - Multiple benefits – opportunities for better placemaking, addressing inequality and reducing costs
 - Regulation: Public bodies' duties, Adaptation Reporting Power



How we made the case for collaboration



- Adaptation is more effective collaboratively – more co-ordination than all organisations having to understand individually
- Value of expertise and specialisation for all
- Collectively learn by doing
- Supporting co-ordinated, joined up policy
- Ability to provide capacity building and support



Factors contributing to success



- A long time coming! – Good things don't come easily
- Took time to understand individuals and organisations needs, expectation and pressures
- Showing credibility:
 - Expertise in business development and adaptation
 - Securing an interim Chair (James Curran, ex SEPA CX and Chair-elect of James Hutton Institute)
 - A realistic financial model, clear and quantified outputs and outcomes



Factors contributing to success



- Aligned with wider economic, social and environmental aspirations, and wider global trends
- Finding a way for all to participate and contribute – whether a funder or not
- Demonstrating value early – three funding bids and City Region used for £4.6m of research
- Belief! Thinking beyond where you already are





Kit England

Climate Ready Clyde Project Manager

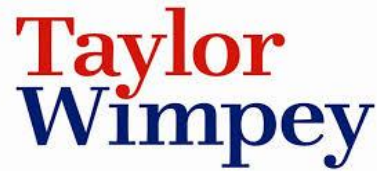
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Climate**Ready**Clyde



Abertay
University



Torrance Park Water Project

23rd March 2017



INTRODUCTION

- James Travers
- Associate within Development Infrastructure
- WSP Glasgow
August 2016 - Present
- Senior Engineer
- Taylor Wimpey West Scotland
February 2008 – Aug' 2016
- Torrance Park Water Project
February 2015 to present

TOPICS

- Project Background
- Aims & Objectives
- Torrance Park Water Project Installation
- Stormwater Management
- SUDS Box Design & Testing
- Ministerial Launch
- Benefits
- Challenges
- Lessons learned
- Future



PROJECT BACKGROUND

- MSc Sept. 2013, Abertay University – Urban Water & Environmental Management 2013-2015
- Thesis on “Modular House plot drainage systems as source control SUDS, Nov. 2014 – Sept. 2015. (SUDS Box)
- Thesis Supervisors

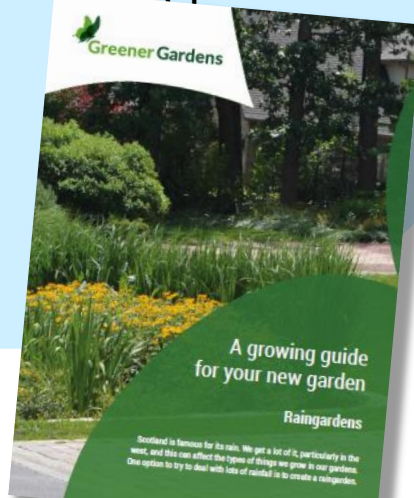
Dr Rebecca Wade	Abertay University
Brian D’Arcy	C&D Associates
- Topic relevant to Taylor Wimpey for the development of source control SUDS
- Scottish Government approach CSGN to involve a major house builder with regards to Green Infrastructure. Feb’15
- Big pot of year end money £1000!
- 10,000 Raingardens for Scotland Initiative may 2014
- Steering Group Emilie Wadsworth of CSGN
- Brian D’Arcy, Feb’ 2015
- Torrance Park installation and Greener gardens Leaflet complete for Judges visit. Sept. 2015.
- Ministerial visit & Launch of Greener Gardens “An Introduction to Raingardens for Developers” November 2016



AIMS & OBJECTIVES

Extract from CSGN email 9/2/14

- Initially to install small scale GI with a volume housebuilder partner
- Agreement reached to publish guide for homeowners with funds for inclusion in sellers packs
- TW senior management give approval to the project and agreement to install May 2015.
- Submit application to VIBES



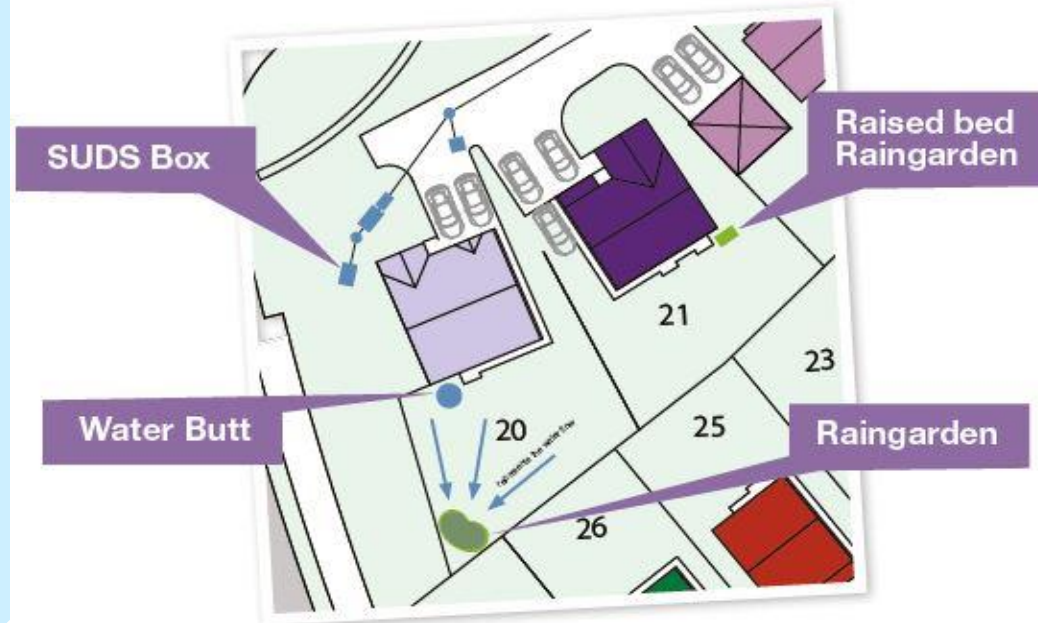
"...can work with at least one volume housebuilder over the next few weeks (before end of March) to try to develop some bespoke house level green infrastructure interventions for them to install in nearly complete developments, and has suggested that we concentrate on back gardens, and in particular deal with drainage/pooling issues that many new home owners complain of."

Agreed Project aims:

- To support the delivery of the green network
- Showcase simple but effective solutions for both individual homeowners, as well as the wider house building industry
- Encouraging biodiversity
- Create sustainable gardens and developments
- Reinforce Taylor Wimpey West Scotland's credentials as a developer leading the way in environmentally friendly design
- Supports the Scottish Government's Green Infrastructure: Design and Placemaking Guide
- Supporting CSGN in securing quality environments for communities

TORRANCE PARK WATER PROJECT INSTALLATION

- TW first major volume housebuilder to research and install novel approach to surface water management at plot level, comprising:-
- SUDS Box – Abertay University research project
- Raised Bed Raingarden – C&D Associates unit
- Natural Raingarden – CSGN & Scottish Government
- 250l water butt – TW. Rainwater Harvesting & Tap Water usage



TORRANCE PARK WATER PROJECT INSTALLATION



STORMWATER MANAGEMENT



→ Climate change will increase the risk and severity of extreme events (The Royal Society, 2014) which will require adaptation by mankind to lessen the overall effects.

Stormwater management at plot level utilised as a SUDS technique can reduce downstream flooding by managing rainfall at source and avoiding the need for larger public infrastructure

Reduce pressure on the water supply network during spells of dry summer weather

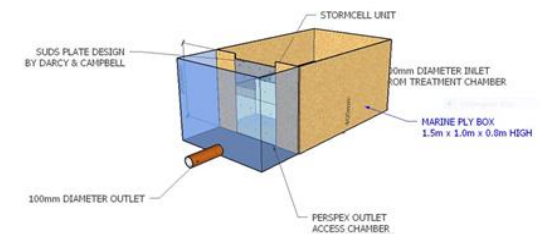
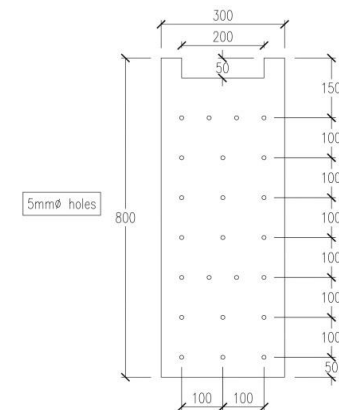


SUDS BOX DESIGN AND TESTING

- ❑ Design & Testing of rainfall simulator & SUDS Box. Within Abertay Campus.
- ❑ Sized for a hardstanding of 100 Sq. m roof area + 30 Sq.m parking
- ❑ average house plus 2 parking spaces
- ❑ Geographic location
- ❑ XP Solutions Micro Drainage software
- ❑ Neil Campbell calculations (C&D Associates)
- ❑ Vertical Perforated Control panel (multi orifice)
- ❑ Simulated rainfall– up to 200yr + 20% climate change
- ❑ Peak flow reduced from 2.5l/s to 0.7l/s
- ❑ Discharge controlled to 180mins for 60min storm



Rainfall Simulator
 2 No. 1250l water tanks
 Manually adjustable valve controls
 To mimic any storm event
 At full plot scale



MINISTERIAL VISIT

- Ministerial visit by Kevin Stewart, minister for local Government & Housing on 16th November 2016.
- Formal Launch of Greener Gardens “Introduction to Raingardens for Developers”
- Backed by Homes for Scotland

Is your garden a raining champion?

By Heather Rose

An innovative project under way at a residential development in North Lanarkshire is shedding light on the role gardens can play in overcoming the problems being created by climate change. Housebuilders Taylor Wimpey West Scotland, in partnership with the Scottish Government, Central Scotland Green Network Trust, and academia, are taking part in the Green Gardens project. This innovative exercise is studying the role the gardens of new homes can play in relation to green infrastructure, biodiversity and storm water management.

The study includes the installation of demonstration raingardens, academic research and providing water butts to new home owners – and making homeowners, as well as the housing industry, aware of the practical benefits of raingardens.

Already housebuilders Taylor Wimpey, in conjunction with project partner C&D Associates, Abertay University and Central Scotland Green Network Trust, have installed two types of raingardens, as well as a Sustainable Urban Drainage System – a SUDS – at the Torrance Park development in Hoxton.

In addition the housebuilders are funding two years of research at Abertay University to study how source control SUDS at new homes can benefit storm management and reduce flooding.

As part of the overall programme, Taylor Wimpey West Scotland along with the Scottish Government and the Central Scotland Green Network Trust are providing a free 200-litre water butt to the first 100 homes at the Torrance Park development.

Styphon Andrew, technical director with Taylor Wimpey West Scotland, said: “Along with our

project partners we are leading the way both in research and analysis of raingardens at pilot level.

“We believe the inclusion of raingardens within house plots can contribute positively to help the industry deal with storm water management in a sustainable way as a source control SUDS technique.

“We are really excited to be at the forefront of this project, which we believe will provide us with valuable insight into how our industry will adapt and plan for the challenges brought about by climate change.”

The chairman of the Central Scotland Green Network Trust, Keith Geddes, explained: “Green Gardens is helping us to work with the developers to educate homeowners about how they can play their part and make a difference to the wider environment by considering how they plan and plant gardens.

“As well as helping to manage rain water, raingardens provide much-needed habitats for nature, which support and improve biodiversity in the local area.

The Torrance Park Water Project gives us an opportunity to evaluate green gardens and show how green infrastructure in gardens can achieve better quality environments for our communities.”

Minister for Local Government and Housing Kevin Stewart said: “The purpose of this initiative is to provide funding support to work with housebuilders and progress work on mainstream raingardens in new developments, recognising how at a larger scale this could contribute to the Central Scotland Green Network national development.”

He added: “We believe Taylor Wimpey West Scotland is the first volume housebuilder in Scotland to pioneer work on raingardens and we commend their commitment to green infrastructure, and hope this project will flourish and inspire other developers to green their gardens.”

● [Information: www.centralscotlandgreennetwork.org](http://www.centralscotlandgreennetwork.org)



BENEFITS

- Reduction in downstream sewer sizes
- Reduction in downstream SUDS
- Contaminant removal at Source from in-curtilage hard standing areas
- Potential to fulfil SW's treatment responsibilities
- Potential use in combined sewer network areas to reduce CSO spills (combined sewer overflows)
- Potential to be used as a method to increase new development in combined sewer network areas

CHALLENGES

- Agreement for use as a SUDS device (proprietary system).
- Legislation & Guidance - SG/SEPA/SW/LA's
- Ownership/Adoption
- Maintenance
- **Public**



Greener Gardens

An Introduction to Raingardens for Developers | green infrastructure, design and placemaking



LESSONS LEARNED

- Need for a driver (momentum) – after VIBES
- Public engagement. Poor uptake.
- Timing is critical. 6 months lost due to Elections.
- Plant selection and availability during different seasons.

FUTURE

Taylor Wimpey

- 2 years of testing on the Torrance Park installation. TW & Abertay.- Ongoing now with WSP included
- Benefits to homeowners on the inclusion of GI within plots to be researched.
- Biodiversity benefits of raingardens within plots to be researched. CSGN
- Share knowledge and educate the public on the importance of managing rainfall and the conservation of water.

WSP VISION

- Engage with academia and our industry partners to install stormwater management features on every new WSP development
- Engage with LA's and local community groups to develop unused land with support from our industry partners to encourage the uptake and installation of raingardens
- Engage with schools via learning packages provided by WSP & Abertay together with the installation of raingardens within school grounds
- Work with our academic partners to influence guidance & research on stormwater management techniques.

Thank you

Our Adaptation Summation

Mari-Claire Riley
Climate Change Officer
Falkirk Council

The Grand Plan...so far

- Develop a robust database of weather impacts
 - Build this into our heat map to form a better analysis for projects
- Developing a comprehensive risk register
 - Create KPI's
 - Attribute them to services
- Inclusion of adaptation question within policy framework
- Review of unlabelled adaptive work e.g. architects, planning, biodiversity, economic development , housing
 - Work with them to implement adaptation into new projects/consultations (housing)
- Engage forth valley contacts, collaborate and share best practice.

Still to do...

- Review the adaptation strategy and update/ strengthen the adaptation action plan with findings
- Run large scale engagement process.
- Develop heat map tool with several adaptive layers to including contingency and flooding.

Building up the data base

Has the severe weather affected you?

We'd like you to tell us how the weather has affected you and your daily routine.

Examples of this could include:

- Heavy rainfall flooding your street
- Heat waves making it impossible for you to sleep
- Snow cutting you off from services that you use

We hope that with enough reports of what types of weather are affecting you, we will be able to plan ahead and focus our services to better meet your needs in response to our changing climate.

Type of weather experienced?

Approximate date

Example: 02 March 2015

Day

Month

Year

How did it affect you?

(max 300 characters)

Contact details

Please leave your contact details if you'd be happy for us to contact you should we need more information about the issues you faced.

Other avenues to consider...

- Run analysis on insurance claims dating back to 2006.
- Investigate Roads department works for climate caused impacts.

Climate Impact Risks attributed to service areas within Falkirk Council

Service Area	Impacts	Key Climate Risks
Development Services	Business premises will be affected through impacts on building fabric, structure and the comfort conditions of the internal environment.	Increased energy consumption in summer months due to increased need for air conditioning/cooling in existing buildings
		Increased bioproductivity promoting growth of problem species, pests infestations and vermin
		'Heat island' effect
		Damage to property from wetter winters and severe weather events
		Increased dampness and mould in buildings
		Disruption to construction work due to severe weather
		Vulnerability of key heritage and cultural assets
		Increased insurance costs
		Increased incidence of inundation and flood damage
		Damage to sea defences and increased vulnerability to storm surges
		Tourism and recreational demand
		Storm water management and flooding infrastructure.

Service Area	Impacts	Key Climate Risks
Development Services: Transport	Logistics (supply chains, utilities and transport arrangements) can be disrupted by extreme weather events.	
		Failure of essential road infrastructure
		Road deterioration
		Failure of drainage infrastructure
		Disruption to work programmes and operational issues
		Significant increases in maintenance costs and requirements for new infrastructure
		Disruption to public transport, cycling and pedestrian networks due to the increased incidence of localised and widespread flooding
		Increased number of emergency call-outs
		Failure of coastal defences
		Storm surge inundation
		The economic and reputational ramifications of major transport disruption to Falkirk/ Grangemouth

Service Area	Impacts	Key Climate Risks
Development Services: Parks, Biodiversity and Green spaces	Land use, reduced turn out, reduced appeal, possible damage with fallen trees/land displacement	Summer drought
		Deterioration in river and wetland environments
		Species and habitat stress
		Introduction of new species
		Tree damage and changes in woodland ecosystems
		Deterioration of public parks
		Increased soil erosion and land instability
		Erosion of coastal habitats
		Canals?
Service Area	Impacts	Key Climate Risks
Community Trust and Adult Services: Health	Business premises will be affected through impacts on building fabric, structure and the comfort conditions of the internal environment.	Disruption to essential community services
		Increased incidence of vector borne diseases
		More heat stroke, dehydration and respiratory problems.
		Increase in pest numbers and distribution, and increased demand for pest control services
		Increased incident of food poisoning
		Reduced water and air quality
		Mould and fungal illnesses and associated respiratory problems
		General increase in public health and safety risks

Service Area	Impacts	Key Climate Risks
Contingency Planning	Logistics, access and evacuation of vulnerable citizens	Changes and increases in demand for emergency and rescue services
		Reputational/liability
		Increase in number of incidents requiring a multi-agency emergency planning approach

Service Area	Impacts	Key Climate Risks	Opportunities
Economic Development	Investment, logistics and building viability.	Changes in demand for goods and services	Life Sciences where developing responses to climate change related threats to human health offers the potential for new business;
		Heat stress impact on service provision	Tourism where hotter drier summers will be more attractive to visitors and more outdoor events are possible;
		Closure of water reliant recreational activities	Partnerships with Universities where adaptation related research work may be a growth area.
		Lost work days	
		Disruption to transport and supplies	
		Disruption to energy supplies/increasing energy costs	
		Increased insurance and repair costs	
		Loss of land and property values	
		Disruption around Grangemouth ultimately discouraging investors	

Actions and KPI's linked to service

- Service Plans will be reviewed to ensure that commitments made in policies and strategies are translated into clear, measurable actions and performance indicators; and to improve the process of reporting and monitoring these actions, for example, using Covalent to provide performance updates on actions to the Corporate Sustainability Working Group.

Actions going forward...

- We have to build adaptation into works going forward with housing stock
- The climate impact assessment must be considered for any future programmes, projects and policies similar to SEA.
- Identifying the distribution of the vulnerable groups likely to be affected and recognising that vulnerability is dynamic and changes over time.
- Assessing the potential adverse implications of climate change for vulnerable groups and identifying targeted adaptation activities to address vulnerability

Lunch

Maximising progress and impact

An opportunity to discuss your adaptation work

- Small group discussions – groups of 3
- Take it in turn to discuss your current adaptation work
- **Describe your current adaptation work** – What are you working on at the moment?
- what are you aiming to achieve?
- **Listen and ask open ended questions** – the aim is to help the person speaking to think through their adaptation work and explore how to make progress and increase impact. Ask questions, try not to offer advice.

Feedback and close

Adaptation Scotland

supporting climate change resilience



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[@adaptationscotland](https://twitter.com/adaptationscotland)



www.adaptationscotland.org.uk



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