



LANDFILL SECTOR PLAN

Contents

Preface	3
1. Introduction	5
2. Our Vision For The Landfill Sector	7
3. The Landfill Sector	9
4. Environmental Impacts And How We Manage Them	15
5. What Do We Need To Fix? Remaining Compliance Issues in the Sector	19
6. Where Do We Want To Go? Beyond Compliance Opportunities	23
7. Outcomes	26
8. Priority Actions 2018/19	27



SEPA has a strong track record of regulating to improve the Scottish environment. We are proud of what we have achieved since we were set up just over two decades ago in 1996. We know we need to do more over the next two decades to build on this success. Much more.

The mounting scientific evidence about climate change, plastics in our oceans, the pressure on our freshwater and more, show us that humanity must rise to tackle major environmental challenges. This scientific knowledge underpins SEPA's strategy for how we will regulate - One Planet Prosperity. If everyone in the world lived as we do in Scotland, we would need three planets. There is only one.

So, we will regulate to help Scotland prosper within the means of our one planet. Successful businesses in future will be those that use low amounts of water, materials and carbon-based energy and create little waste. Prosperous societies will be comprised of these businesses. This can be Scotland.

In every sector we regulate, this means we will have two simple aims. We will:

- 1. ensure that every regulated business fully meets their compliance obligations, and
- 2. as many regulated businesses as possible will go beyond the compliance standards.

This draft Sector Plan outlines how we will do this in regulating the landfill sector. It is a sector that has one of the poorer compliance records of the sectors that SEPA regulates. The impact of this poor performance where it occurs can be significant for the local environment and for the amenity and quality of life for local communities.

The landfill sector is facing significant challenges such as the 2021 biodegradable municipal waste ban. Challenges at the poorer performing landfills reflect factors such as some legacy issues, the difficulties in solving some chronic problems such as odour, some historic poor practices and the level of priority given to environmental compliance by the operators. Solving these compliance issues is the primary focus of this sector plan. At the same time, we will also be working to spark innovation on issues such as the capture of landfill gas.

This draft plan is ambitious. It spells out how we will use traditional EPA regulatory tools, such as permits and enforcement, in clearer and more powerful ways. It sets out some completely new ways such as novel partnerships that we will develop and use to support innovation in this sector.

We would love to hear what you think of our draft plan. Once it's finalised in July, we are going to push on and implement it. So if you think we've got something wrong, missed something out or not been as transparent as possible, please let us know your thoughts. We want to get this right and then get on with it.

Terry A'Hearn
SEPA Chief Executive Officer



1. Introduction

For SEPA to help create a prosperous Scotland that lives within the means of our one planet, we need to radically change the way we work. In the past our approach to regulation has been grounded in the different set of rules we manage to protect the environment. This has helped us to deliver, for example, improvements in water quality. However, it will not enable us to make the transformational changes needed to tackle today's problems.

So, we are moving instead to ground our regulation in working across whole sectors. In this way we can systematically identify the compliance issues that need to be tackled by the sector. We can also identify where the biggest opportunities are for us to help the sector to go beyond compliance and realise its growth ambitions within the means of one planet.

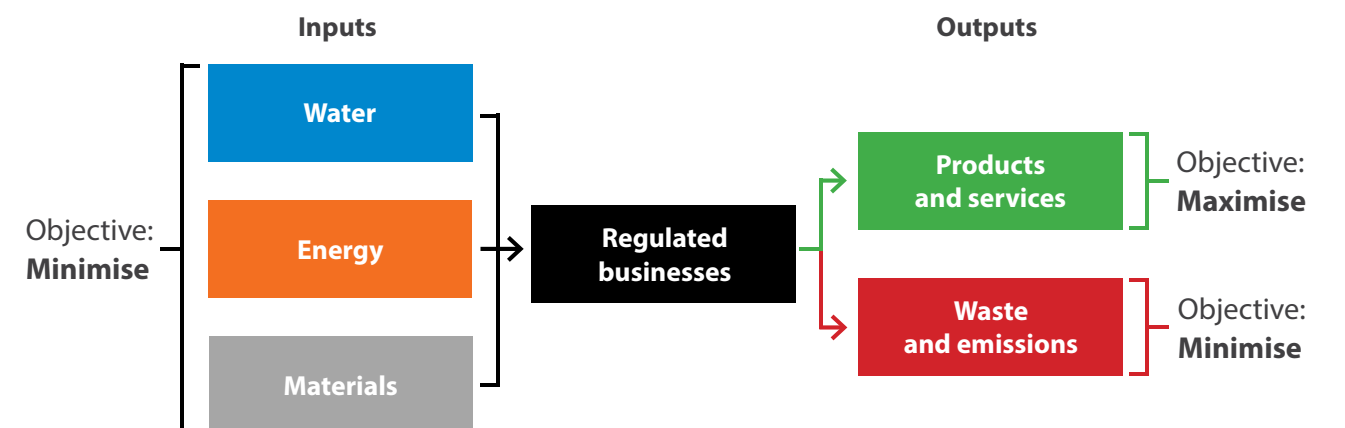
All businesses that we regulate in a sector use water, energy and raw materials to produce the products and services they sell. In doing so, they also create waste and emissions. We can think of these as environmental flows that need to be managed by the business (Figure 1).

We want to help as many businesses as possible to manage these flows effectively and reduce their use of natural resources and creation of waste in ways that enable them to increase the prosperity of the business. To do this, we are preparing Sector Plans for every sector that we regulate.

Sector plans are at the heart of everything we do, shaping our interactions with every sector and the businesses in them. Through them, operators will get the relationship with SEPA that their attitude and performance earns. Those that demonstrate a commitment to good environmental performance will receive powerful support through guidance and advice. Those that demonstrate behaviour which leads to significant or chronic non-compliance can expect SEPA to use the most appropriate enforcement tools to bring them into compliance.

This is SEPA's Landfill Sector Plan. It details how we are going to regulate the landfill sector to ensure continued protection and improvement of the environment. It relates to all operational and non-operational landfill sites currently authorised by SEPA.

Environmental Flows (Figure 1)





2. Our Vision For The Landfill Sector

Scottish landfills provide a valuable service as an environmentally sound disposal route for wastes which can't be recycled or recovered.

Landfill operators are compliant with the law, operate to high standards, are good neighbours in their communities and have adequate financial provision in place.

Landfill operators are responding to increasing waste prevention, reuse and recovery rates by rethinking operations and diversifying their businesses.

The waste supply chain supports a circular economy within the sector by maximising the economic recovery of waste and only landfilling waste that has reached the end of its life.

Landfills are closed and restored in such a way that protects the environment, including gas utilisation or flaring to reduce greenhouse gas emissions.

OUR OBJECTIVES

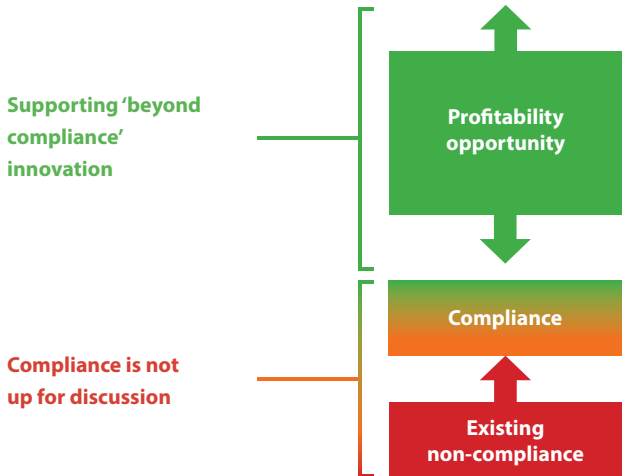
This plan sets out how, in partnership with operators and other stakeholders, SEPA seeks to transform performance of the landfill sector in Scotland to achieve our vision and objectives.

The objectives of the Landfill Sector Plan are to:

- Ensure all operators in the sector reach and maintain full compliance with Scotland's environment protection laws; and
- Help as many operators as possible in the sector to move beyond compliance.

This is illustrated by the Sustainable Economy diagram (Figure 2):

A Sustainable Economy (Figure 2)



We want to bring together skilled, experienced and innovative people from across the sector to understand key challenges and opportunities to create innovative solutions.



3. The Landfill Sector

SCOTLAND'S LANDFILL SECTOR

Scotland's landfill estate, under SEPA authorisation, currently consists of 54 operational sites and 222 non-operational sites.

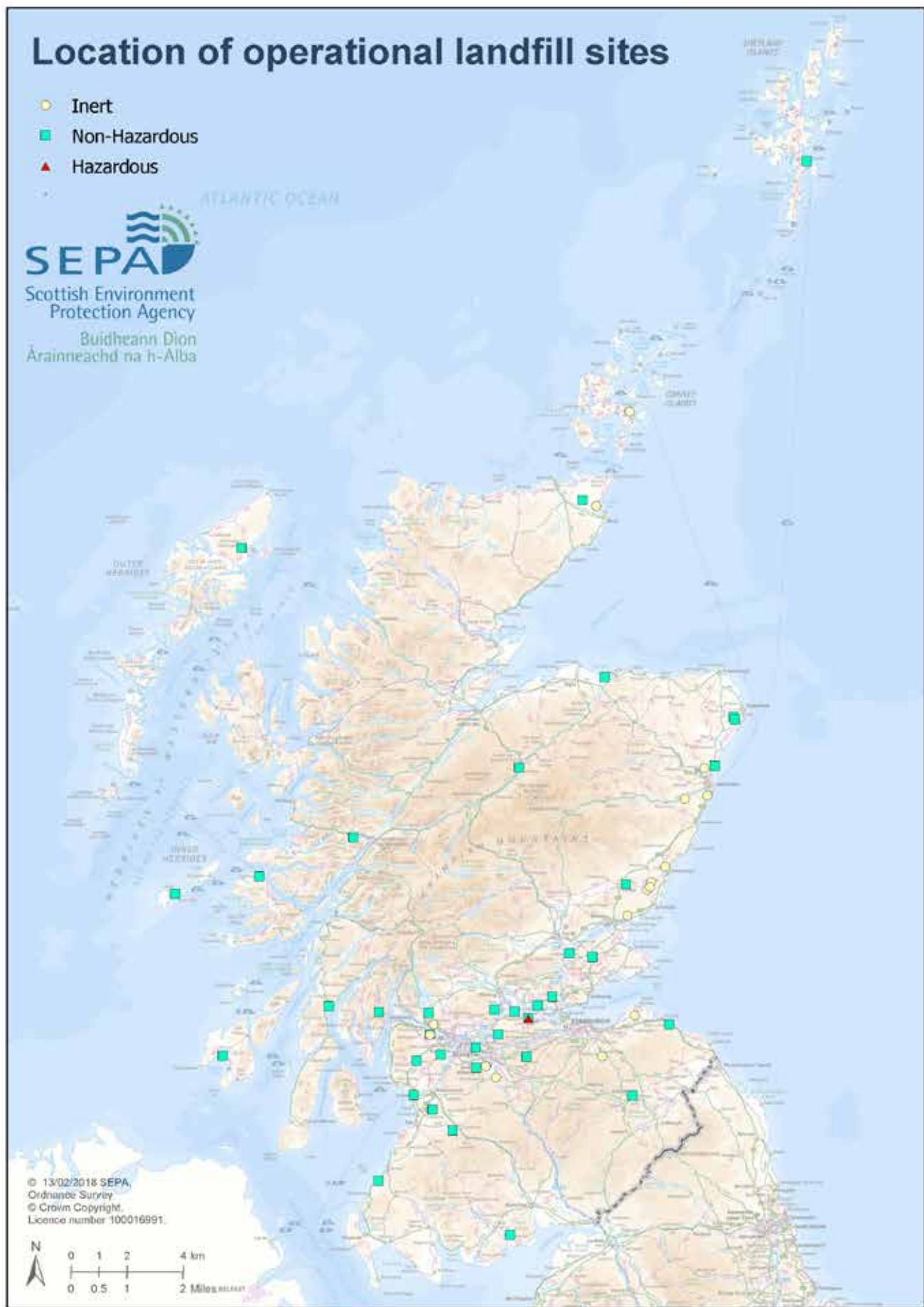
Operational sites are classified according to waste input: hazardous (1), non-hazardous (37) or inert (16). Classification relates to risk of environmental impact, declining towards inert. They provide a waste management solution for the disposal of around 4 million tonnes of waste each year.

- **Hazardous waste** is usually contaminated soils and industrial residues.
- **Non-hazardous waste** is waste which can biodegrade; typically the types of residual waste that households and business would throw away as non-recyclable.
- **Inert waste** is predominantly mineral wastes, some construction and demolition materials and appropriate soils and sub-soils.

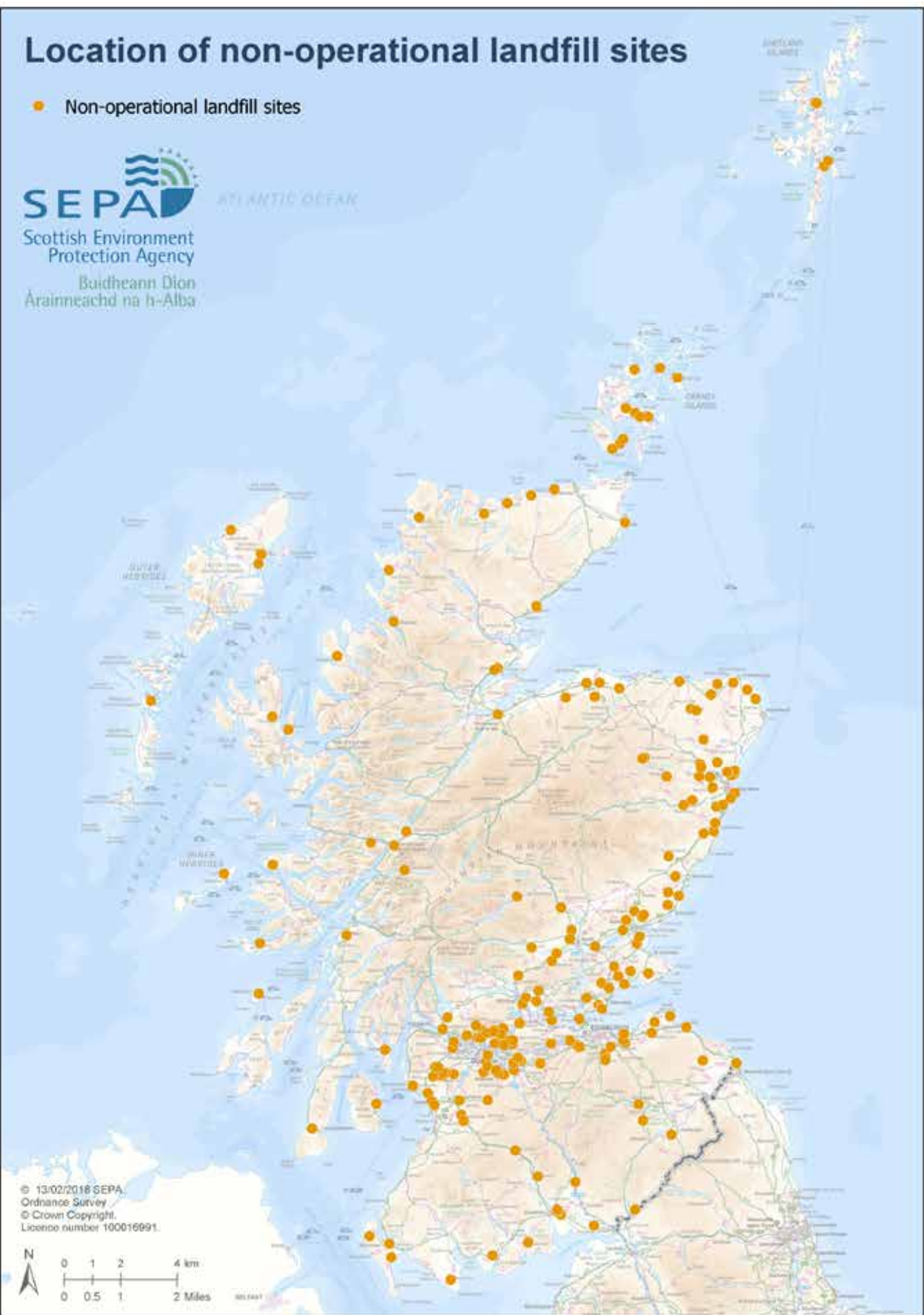
In the main non-operational sites can no longer accept waste and must be closed, restored and managed in a way that ensures continued protection of the environment and an appropriate after use. There are however a small number of sites with permits in place that have not commenced and that have not accepted any waste.



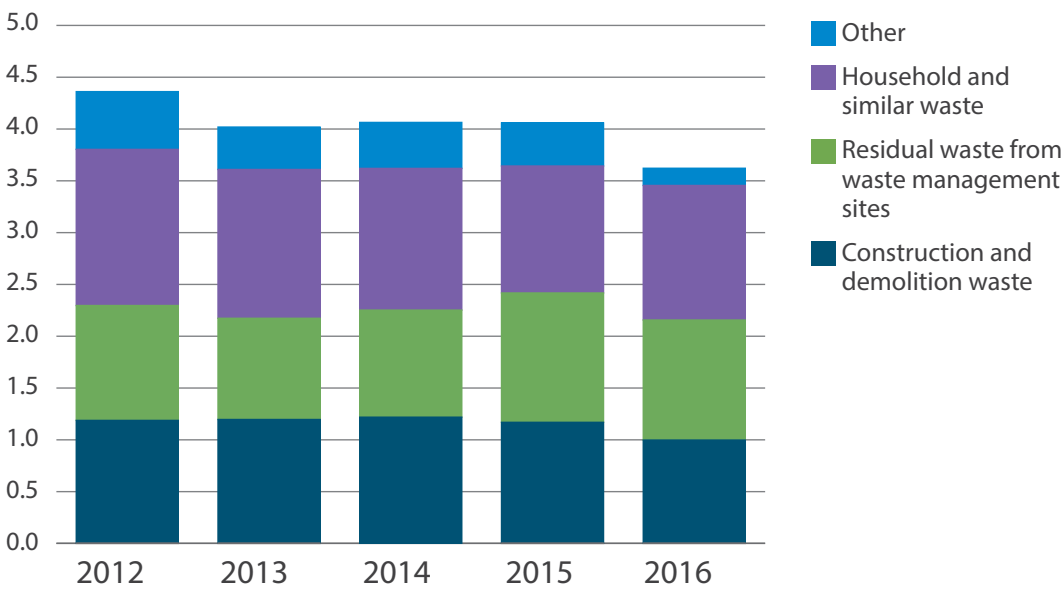
The location of operational landfills in Scotland (Figure 3)



The location of non-operational landfills in Scotland (Figure 4)




Waste disposal at Scotland’s landfills by source between 2012 and 2016 (Figure 5)




The sector is experiencing significant change as landfilling decreases as a result of more waste and materials moving further up the waste hierarchy. This is resulting from reduced waste production (for example, less packaging on products), better re-use and increased recycling. It will ultimately, at some point in a circular economy society, mean that landfilling will cease.

The 2021 ban on biodegradable municipal waste being landfilled is bringing about one of the biggest transformations for waste management in Scotland. This will have long term positive consequences but will place financial pressures on operators and will result in many operators closing sites and leaving the sector. Those that remain will need to be innovative and diversify.

Landfill Gas utilised and flared at landfills between 2014 and 2016 (Figure 6)

Landfill Gas utilised (m³)			
	2014	2015	2016
	273,847,447	244,333,215	244,606,247

Landfill Gas flared (m³)			
	2014	2015	2016
	47,589,439	13,237,001	18,215,794

Total	2014	2015	2016
	321,436,886	257,570,216	262,822,041





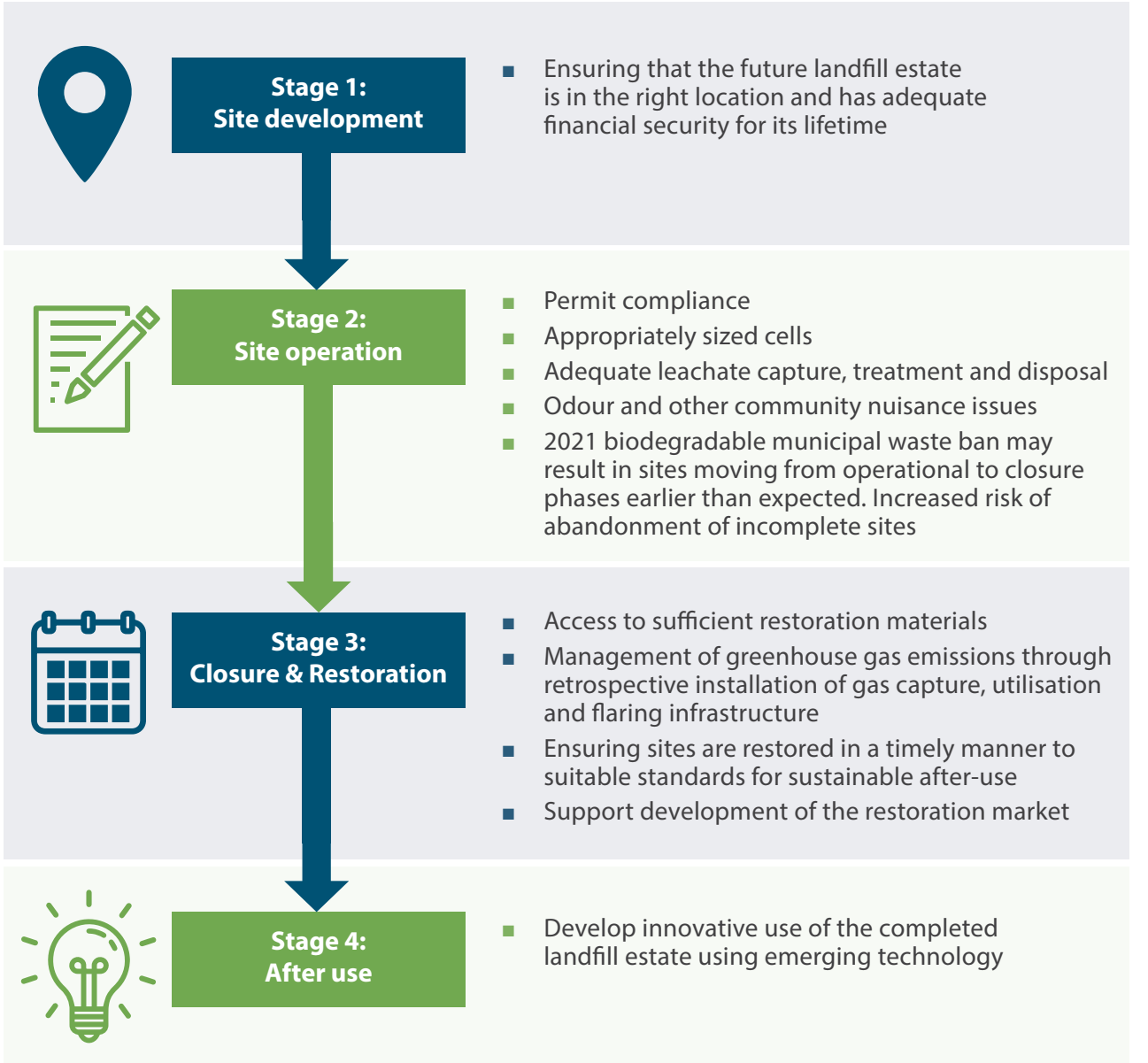
4. Environmental Impacts And How We Manage Them

ENVIRONMENTAL IMPACTS

As Scotland's environmental regulator, we must protect the environment from the impacts of landfilling and ensure that communities are safeguarded. As some wastes break down, they produce powerful emissions such as leachate (a highly polluting liquid) and powerful greenhouse gases such as methane which contribute to climate change. We must therefore also work to minimise these emissions from operational and closed landfills.

The Environmental Impacts diagram illustrates some of the current known challenges through the landfill life cycle.

Environmental Impacts (Figure 7)



ENVIRONMENTAL REGULATION OF THE LANDFILL SECTOR

Legislation requires that landfill waste management activities are conducted in accordance with the EU Waste Framework Directive and the waste hierarchy. Together these prevent, or reduce the potential impact of, pollution of the environment or harm to human health and encourage sustainable use of resources.

Since 2003 operational landfills have been regulated by SEPA through a permit issued under the Pollution Prevention and Control regime (PPC), taking account of the standards expressed in the EC Landfill Directive (LFD) of 1999 and Landfill (Scotland) Regulations 2003 (as amended). Prior to this landfills were regulated by SEPA through a waste management licence (WML) issued under the Environmental Protection Act (EPA) of 1990.

Progressively, PPC sites will also move through closure (once waste deposits are complete), then subsequent restoration and aftercare phases. PPC permit and WML licence holders retain responsibilities for their closed and restored landfill sites until such point as the original permission is able to be surrendered.

Landfill operators are also required to comply with other legal obligations enforced directly by SEPA, such as Duty of Care and Transfrontier Waste Shipment legislation. SEPA staff can also assess compliance with partner agencies' legislation, such as Scottish Landfill Tax and the Landfill Tax Communities Fund. We work jointly with partner law enforcement agencies where there are shared interests. The focus of this plan is improving all SEPA regulated compliance shortcomings in the Landfill Sector.



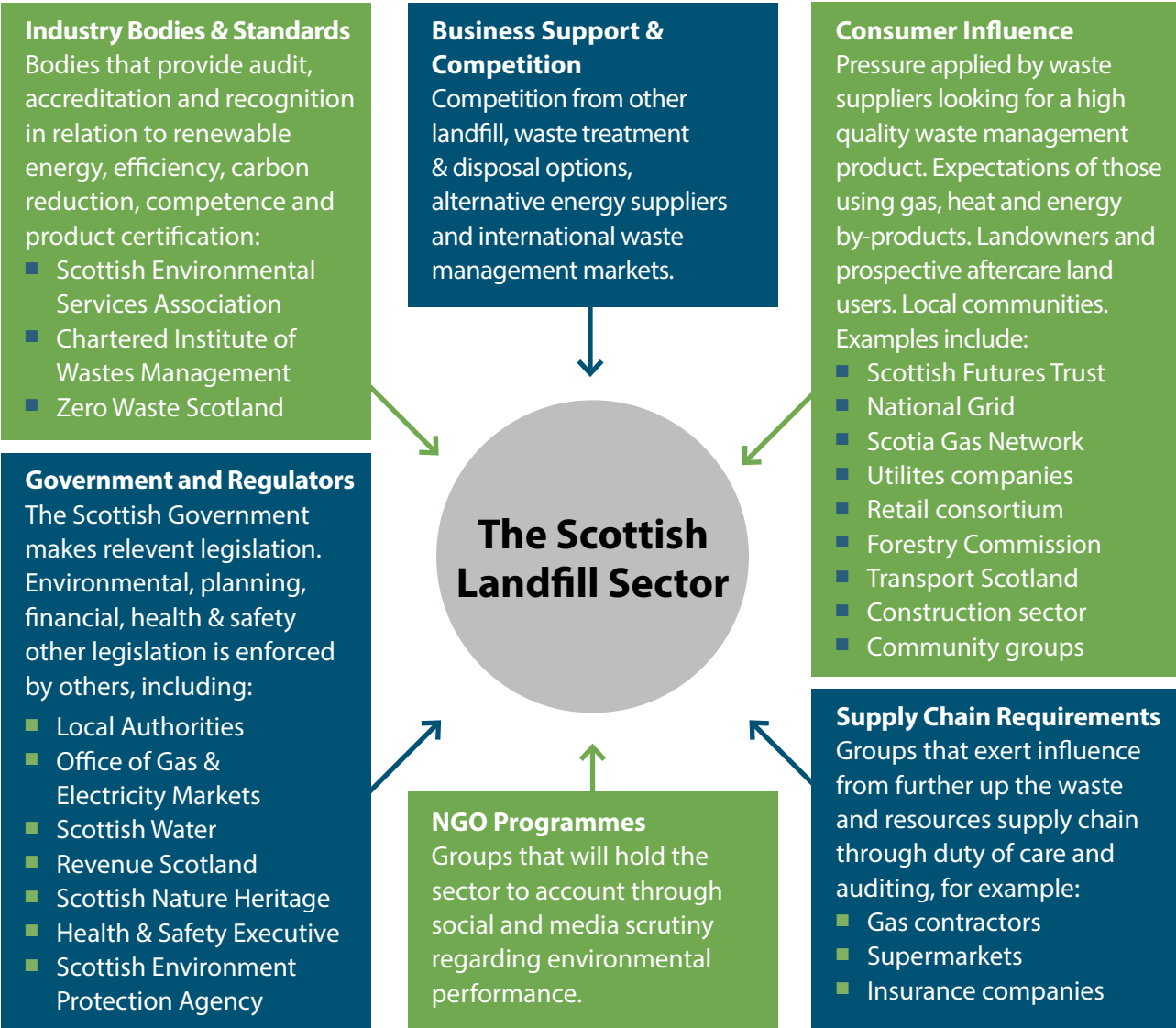
WIDER INFLUENCES ON ENVIRONMENTAL PERFORMANCE OF THE LANDFILL SECTOR

Full compliance with environmental regulations will not, by itself deliver the transformational change required to secure our One Planet Prosperity objectives. The landfill sector plan needs to unlock the potential for businesses to gain strengths in resource efficiency and environmental innovation that will help them to succeed in their markets.

Working with the sector, we will place this more sophisticated way of operating at the heart of our work. We have identified potential influencers with whom we would like to enhance our relationship and explore the opportunity to use their influence to deliver shared goals. Initial opportunities are outlined in figure 8 below but we expect to identify other opportunities throughout the life of this plan.

We need therefore to combine the actions that we can take to influence the behaviour of a business through our regulatory role with all the other influences. Doing this will be the most effective way to secure full compliance and to help as many businesses as possible to move beyond compliance.

Key influences on the landfill sector (Figure 8)





5. What Do We Need To Fix? Remaining Compliance Issues in the Sector

COMPLIANCE IN THE SECTOR

Compliance¹ with environmental law is non-negotiable and all regulated businesses in the sector need to comply.

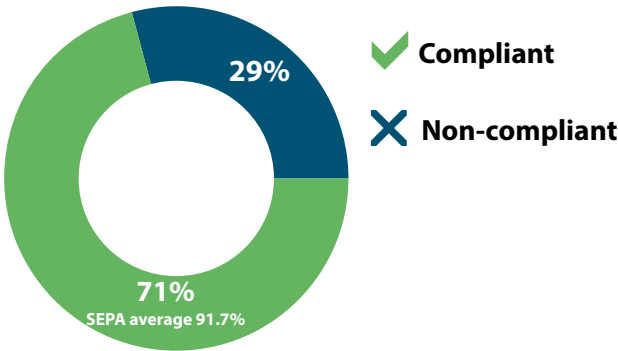
Compliance levels in the operational estate are consistently amongst the lowest of all regulated sectors in Scotland. Just 71% of sites were compliant in 2016. Eleven of the fifteen non-compliant operational sites have been non-compliant for two or more consecutive years. SEPA defines these sites as ‘chronic’ non-compliant. Landfills are responsible for the highest proportion of public complaints about regulated sites. Odour is the most common reason for complaint.

Compliance across the non-operational landfill estate is better with 94% of sites assessed as compliant in 2016. Six of the ten non-compliant sites identified in 2016 were chronic non-compliant sites.

Figures 9 and 10 summarise compliance rates in operational and non-operational landfills and sets out the key reasons for non-compliance.

These statistics show that it is often a complex combination of environmental impact and inadequate management factors which result in non-compliance.

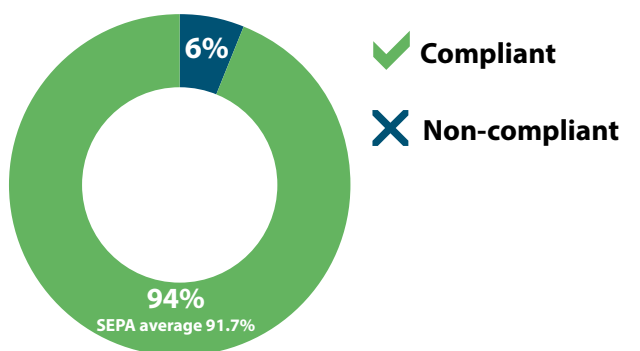
Compliance Assessment Scheme scores for assessed operational landfills in 2016 (Figure 9)



KEY ISSUES CONTRIBUTING TO NON COMPLIANCE

- Breaching emissions limits for surface water
- Plant maintenance and/or condition
- Breaching emissions limits for leachate
- Odour and/or litter
- Daily cover
- Monitoring, reporting and record keeping
- Emergency response
- Waste acceptance
- Management plan
- Asbestos handling
- Gas management systems
- Staff knowledge
- Capping

Compliance Assessment Scheme scores for assessed non-operational landfills in 2016 (Figure 10)



KEY ISSUES CONTRIBUTING TO NON COMPLIANCE

- Monitoring and reporting
- Restoration and aftercare plan
- Maintenance
- Waste acceptance
- Engineering containment
- Capping
- Fly tipping
- Emissions limits for CO

¹ Compliance with environmental authorisations is currently measured by our Compliance Assessment Scheme. This scheme is currently being reviewed.

HOW WILL WE WORK WITH THE SECTOR TO FIX THESE ISSUES?

Compliance is the minimum acceptable performance and it is for the landfill sector to recognise this and lead in delivering improvement where it is required. SEPA will work with the sector and partners to support this effort.

Landfill operators will get the relationship that their attitude and performance earns. The more an operator can demonstrate a positive and open attitude and performance that demonstrates moving towards compliance, maintaining compliance or moving beyond compliance, the more that SEPA's support will be advice and guidance. Where there is significant or chronic non-compliance, the more SEPA will use enforcement action including the use of monetary penalties where appropriate to the nature of the non-compliance.

The landfill sector also presents unique compliance challenges. To improve compliance in the landfill sector and contribute to deliver of our landfill sector vision, SEPA will:

- Work to ensure that all operators maintain and demonstrate adequate financial provision to meet their obligations throughout the life of their authorisation, including closure and aftercare phases.
- Focus regulatory effort on ensuring that only wastes which cannot be recycled or recovered are being disposed of at Scottish landfills.
- Focus regulatory effort, including enforcement interventions, at sites with the worst compliance records and those with greatest community impact.
- Appropriately support operators who pro-actively engage with community groups.
- Support operators to prepare for the ban on landfilling biodegradable municipal waste from 1 January 2021 and the target of no more than 5% residual waste to landfill by 2025.
- Work with Revenue Scotland to ensure any crossover issues between tax and environmental obligations are communicated and worked on in partnership to ensure consistency for operators.
- Produce clear guidance which will allow operators, partners and the general public to understand compliance obligations.
- Work with operators to ensure that all extractable landfill gas is utilised or, where this is not technically feasible converted into less harmful gases.
- Identify opportunities to help the landfill sector to develop and share best practice examples which support compliant operations.
- Ensure compliance with Duty of Care requirements to ensure that only acceptable waste types are disposed of at Scottish landfills and that the correct level of Scottish Landfill Tax is paid.
- Regulate Approved Bodies to ensure correct distribution of funds, raised through the Scottish Landfill Communities Fund, to community and environmental projects.
- Ensure that landfill permits and licences are fit for purpose.
- Invest in and empower our staff so that they are well informed about the sector and can provide knowledgeable, consistent and pragmatic support.
- Only require operators to provide data which we or others use to understand risks and impacts from landfill activity. We will make easy to use technology available to the sector to ensure we get the data we need in simple clear formats.
- Enhance the regulatory and advisory relationship between operators and SEPA by providing each operator with a single point of contact and access to specialists.
- Develop and implement an enhanced compliance assessment scheme which applies most focus to those issues which have the biggest environmental impact.





6. Where Do We Want To Go? Beyond Compliance Opportunities

OPPORTUNITIES

We believe that those societies and economies that are low resource use, low energy use, low water use and low waste will be the most successful in the 21st Century. Businesses that are the most innovative will best rise to the challenges of our time and create sustainable economic growth.

To do this, mere compliance and small scale incremental change will not be enough. At SEPA we want to help businesses and sectors to implement successful innovation and support them in their ambitions to do more than they are required to by regulation.

We call this “moving beyond compliance”: helping aspirational businesses to do more for the environment because it makes sense for them to grow in a sustainable manner.

In any sector, there will be a range of beyond compliance opportunities. To follow are some existing opportunities for which SEPA will prioritise our support. We will also be responsive to other opportunities identified by the sector.

MATERIALS

A number of operators are already investing in recycling technology which is designed to extract usable fractions from inert materials brought to site for disposal. Outputs are dependent on input quality, but some operators consider there is a potential market for production of high quality engineering products, suitable for landfill site construction work from waste soils.

There is also potential for development of products for land restoration, landscaping and the construction sector. SEPA will:

- Work with partners to support development of the inert landfill mining and recycled aggregates market, working with engineers and the construction sector to facilitate the use of recycled aggregates.
- Work with partners to support development of alternative products for landfill engineering, potentially reducing the reliance on virgin quarried clay.

ENERGY

The landfill sector is a net energy generator and most operators use self-generated energy where facilities allow. Common uses include heat output from gas engines warming leachate treatment systems to provide an optimum environment for biological treatment, or direct connection of gas infrastructure or electricity generation engines to national supply networks. Fuel efficiency is important to the sector. Operators use monitoring tools to assess the efficiency of their fleet vehicles and plant and driver performance, and are increasingly investing in emerging technology including hybrid plant.

Further opportunities are emerging in all of these fields and SEPA will:

- Support, with partners, opportunities for efficient and effective use of surplus heat generated at landfill sites including, for example, community heating schemes.
- Work with partners to influence the removal of barriers to maximising generation of electricity from landfill sites.
- Work with operators and partners to maximise use of national grid connections for alternative sustainable power generating sources when falling landfill gas yields means landfill gas engines are no longer viable.

FUTURE LAND USE

Landfill sites must be closed and restored in a manner which facilitates their sustainable after-use. Operators must plan in advance of closure and restoration as the end use may have a significant impact on capping and restoration materials, profiles and techniques.

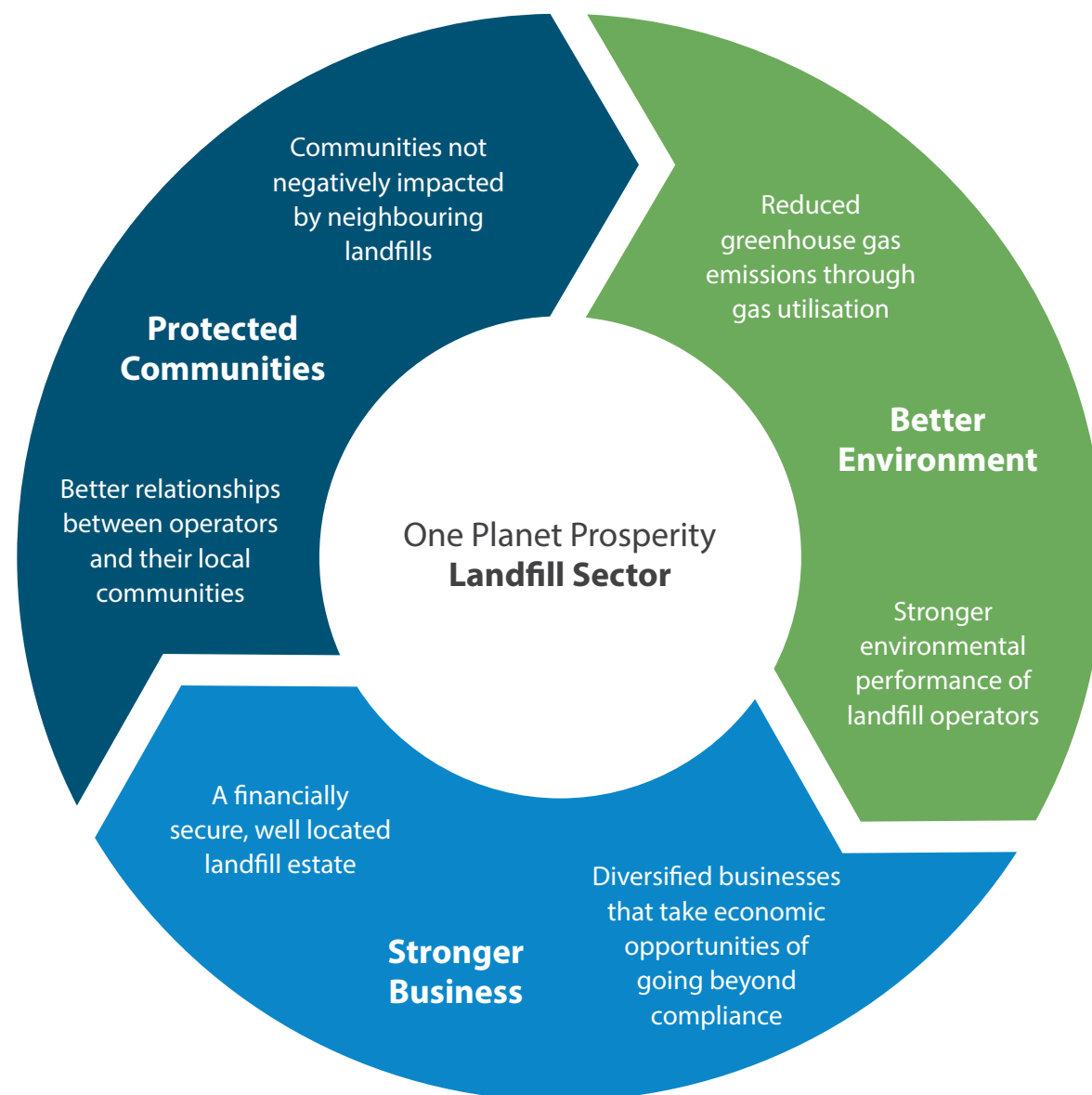
The Scottish landfill estate presents a unique opportunity to develop brownfield sites, for example taking advantage of high capacity National Grid connections for energy based developments. SEPA will:

- With partners, support the landfill sector in business diversification opportunities to ensure appropriate sustainable operation beyond the 2021 ban.
- Work co-operatively with the landfill sector, communities and other partners to promote and develop sustainable land uses for restored landfills. Our approach will include:
 - Using our influence to ensure that the current and future operational landfill estate is sustainably located to service the disposal needs of the waste types and quantities produced in Scotland.
 - Work with operators, developers and partners to ensure that the most appropriate post restoration opportunities are realised.
 - Develop clear guidance so that operators, potential developers and partners understand the legislative surrender requirements. Ensure that our requirements are proportionate to the risk posed by the site and are consistent with those of other regulators.
 - Continue to encourage the sector to address River Basin Management Planning (RBMP) pressures associated with their operations as soon as practical and economically possible.



7. Outcomes

If we achieve the vision we have set out in this plan, we anticipate that we will help to deliver positive outcomes that protect and improve the environment in ways that also protects communities and enable businesses to operate effectively and successfully in their markets.



8. Priority Actions for 2018/19

- Improve compliance at at least two chronic non-compliant non-hazardous landfills which consistently impact communities by 31st March 2019.
- Use Fixed Monetary Penalties to improve compliance with financial provision obligations and waste data returns at all PPC landfills.
- Develop enforcement campaigns to target non-compliance within the sector.
- Engage with operators to ensure they have up to date plans in place for restoration and closure of the landfill, providing clear guidance and support when required.
- 80% of non-hazardous PPC Permits will be reviewed and simplified by 31st March 2019. 50% of closed landfill site waste management licences will be reviewed and simplified by 31st March 2019.
- Develop a method to establish a new compliance baseline for the sector once new permits and licenses are issued.
- Improve the management of landfill gas data to promote innovation in landfill gas capture and utilisation techniques across Scotland's landfill estate.
- Provide support to the sector on the implications of the ban on the landfilling of municipal biodegradable waste.
- Look for opportunities to establish new breakthrough partnerships to create opportunities for innovation in the sector including beyond compliance activities.
- Develop a staff training and development plan to support staff in delivering key roles and actions.

For information on accessing this document in an alternative format or language please either contact SEPA by telephone on 03000 99 66 99 or by email to equalities@sepa.org.uk

If you are a user of British Sign Language (BSL) the Contact Scotland BSL service gives you access to an online interpreter enabling you to communicate with us using sign language.

<http://contactscotland-bsl.org/>