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| <b>Title:</b><br><b>Nutrient Action Programme Regulations (Northern Ireland) 2019</b>                | <b>Regulatory Impact Assessment (RIA)</b>  |
|  | <b>Date:</b> 8 April 2019  |
|  | <b>Type of measure:</b> Secondary Legislation                                      |
| <b>Lead department or agency:</b><br><b>Department of Agriculture, Environment and Rural Affairs</b> | <b>Stage:</b> Final  |
|  | <b>Source of intervention:</b> EU  |
| <b>Other departments or agencies:</b><br><b>N/A</b>  | <b>Contact details:</b> Siobhan Bowers   |
|  | <a href="mailto:Siobhan.Bowers@daera-ni.gov.uk">Siobhan.Bowers@daera-ni.gov.uk</a> |
|  | Tel: 02890 520806  |

## Summary Intervention and Options

### What is the problem under consideration? Why is government intervention necessary?

The Nitrates Directive (91/686/EEC) (the Directive) aims to improve water quality by protecting water against pollution caused by nitrates from agricultural sources. The Directive is implemented in Northern Ireland (NI) by the Nitrates Action Programme (NAP) Regulations (NI) 2014 which apply to all farms.

The NAP was first introduced in NI in 2007 and is revised every 4 years. Following the 3<sup>th</sup> review, DAERA proposes to introduce a revised NAP for the period 2019-2022 under new 2019 Nutrient Action Programme Regulations.

### What are the policy objectives and the intended effects?

The introduction of the 2019 NAP Regulations will ensure continued implementation of the Nitrates Directive in NI. The action programme establishes closed periods for all application of organic and non-organic fertilisers, a livestock manure application limit of 170kg nitrogen/hectare/year and the requirement for sufficient slurry storage capacity on farms with the aim of protecting and improving the quality of surface and ground waters in NI.

The measures contained in the 2014 NAP Regulations and the associated Phosphorus (Use in Agriculture) Regulations (NI) 2014 will be carried forward into the 2019 NAP Regulations. In addition, new measures will be introduced in the 2019 NAP Regulations to address pressures on water quality from agricultural sources.

### What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Option 1: Do Nothing / Business as usual scenario; do not amend the 2014 NAP Regulations. This would not meet the requirement of the Directive to review and implement a revised NAP. Additional measures to address recent pressures on water quality from agricultural sources would not be introduced. Also, EU approval of a renewed Nitrates Directive Derogation for NI would not be achieved. This could leave the Department open to EU Infraction procedures. There are also potential implications for future trading agreements post- Brexit. Therefore, Option 1 is not feasible and is ruled out. Cost outlined at Policy Option 1.

Option 2: Implement all proposed revisions to NAP Regulations. Costs outlined at Policy Option 2

Option 3: Adjust the proposed revisions to NAP Regulations, taking account of issues raised through public consultation. Option 3 is preferred as it delivers significant benefits but at lower cost than Option 2 and addresses issues raised by stakeholders.

|   |  |
|---|--|
| <b>Will the policy be reviewed?</b> Yes | <b>If applicable, set review date:</b> June 2022 |
|---|--|

| <b>Cost of Preferred (or more likely) Option</b> |   |   |
|--|---|---|
| <b>Total outlay cost for business</b><br>£m      | <b>Total net cost to business per year</b> £m | <b>Annual cost for implementation by Regulator</b> £m |
| £14.05m  | £0.56m  | £0.2m additional                                      |

|   |   |   |  |
|---|---|---|--|
| <b>Does Implementation go beyond minimum EU requirements?</b> |   | <b>NO</b> <input checked="" type="checkbox"/>                                       | <b>YES</b> <input type="checkbox"/>  |
| Are any of these organisations in scope?                      | <b>Micro</b><br>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | <b>Small</b><br>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | <b>Medium</b><br>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
|   |   | <b>Large</b><br>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |  |

**The final RIA supporting legislation must be attached to the Explanatory Memorandum and published with it.**

Approved by: Dave Foster Date: 8 April 2019

## Summary: Analysis and Evidence

## Policy Option 1

Description: Do nothing, or 'business as usual' scenario.

This option would mean the new NAP 2019-2022 would not be implemented.

### ECONOMIC ASSESSMENT (Option 1)

| Costs (£m)           | Total Transitional (Policy)<br>(constant price) | Years    | Average Annual (recurring)<br>(excl. transitional) (constant price) | Total Cost<br>(Present Value) |
|----------------------|---|----------|---|-------------------------------|
| <b>Low</b>           | <b>£0m</b>                                      | <b>1</b> | <b>0</b>  | <b>£0m</b>                    |
| <b>High</b>          | <b>£6.3m</b>                                    |          | <b>6.3M</b>   | <b>£29.44m</b>                |
| <b>Best Estimate</b> | <b>£4.7m</b>                                    |          | <b>4.7M</b>   | <b>£21.96m</b>                |

#### Description and scale of key monetised costs by 'main affected groups'

Non-implementation of a revised NAP for 2019-2022 could have a direct impact on 478 farms in NI which currently operate under a nitrates derogation granted by the European Commission. The Derogation Decision will only be renewed by the Commission if there is an agreed revised NAP in place for 2019-2022. If the derogation is not available, the financial losses to these 478 farms would be between some £3.1 and £6.2 million per year. Post-Brexit, there may be scope to operate a NI derogation without EU approval, in which case these costs would not be realised. However, this scenario is uncertain and could have implications for future trading arrangements.

#### Other key non-monetised costs by 'main affected groups'

If the Derogation Decision is not renewed, costs to Government associated with its implementation would be reduced. These costs include processing applications, assessing compliance, training, guidance and monitoring. However, these savings would largely be offset by increased costs associated with inspection and enforcement of the 170kgN/ha/yr limit. Non-implementation of the new NAP may also result in a continuation in recent trends of declining water quality, the costs of which are difficult to estimate but likely to be significant. There could also be consequent losses in the milk processing sector due to reduced milk production of up to 90 million litres per year. This is because the vast majority of farms operating under the derogation are many of NI's most productive dairy farms.

| Benefits (£m)        | Total Transitional (Policy)<br>(constant price) | Years | Average Annual (recurring)<br>(excl. transitional) (constant price) | Total Benefit<br>(Present Value) |
|----------------------|---|-------|---|----------------------------------|
| <b>Low</b>           | <b>Optional</b>                                 |       | <b>Optional</b>   | <b>Optional</b>                  |
| <b>High</b>          | <b>Optional</b>                                 |       | <b>Optional</b>   | <b>Optional</b>                  |
| <b>Best Estimate</b> | <b>--</b>                                       |       | <b>--</b>   | <b>--</b>                        |

#### Description and scale of key monetised benefits by 'main affected groups'

Under this option there would be no additional cost to most of the agricultural industry. However, loss of the Derogation would impact significantly on 478 intensive grassland farms in particular. If it was not renewed farms currently operating under the derogation would have to take alternative action such as exporting manure, destocking or renting additional land to comply with the 170kg N/ha/year limit.

#### Other key non-monetised benefits by 'main affected groups'

None identified

### Key Assumptions, Sensitivities, Risks

The EU Commission will not renew the NI Derogation Decision without an approved NAP. This would impact on 478 farm businesses which are currently operating under the derogation. There is a risk of infraction penalties for non-compliance with requirements of the Nitrates Directive. It is assumed in the options that additional land can be sourced or that other farms would be willing to take excess manure if it was exported from the farms currently operating under the derogation. Risks are that neither of these would be possible for some of the farms affected.

### BUSINESS ASSESSMENT (Option 1)

| Direct Impact on business (Equivalent Annual) £m |             |           |
|--|-------------|-----------|
| Costs:£4.7 m                                     | Benefits: 0 | Net:£4.7m |

### Cross Border Issues (Option 1)

**How does this option compare to other UK regions and to other EU Member States (particularly Republic of Ireland)**

The administrations in GB are on different timings in terms of their Nitrates Action Programmes. These other UK Action Programmes are not currently agreed with the EU Commission and consequently there is no associated EU approved derogation.

The Republic of Ireland has an EU Commission approved NAP and associated derogation for the period 2018-2021.

## Summary: Analysis and Evidence

## Policy Option 2

Description: Implement all proposed revisions to NAP Regulations. This should ensure an EU agreed NAP and approved derogation for NI.

### ECONOMIC ASSESSMENT (Option 2)

| Costs (£m)           | Total Transitional (Policy) |          | Average Annual (recurring) | Total Cost     |
|----------------------|-----------------------------|----------|----------------------------|----------------|
|                      | (constant price)            | Years    |                            |                |
| <b>Low</b>           | <b>£37.28m</b>              | <b>5</b> | -                          | <b>£20.82m</b> |
| <b>High</b>          | <b>£43.28m</b>              |          | -                          | <b>£24.2m</b>  |
| <b>Best Estimate</b> | <b>£40.28m</b>              |          | -                          | <b>£22.51m</b> |

#### Description and scale of key monetised costs by 'main affected groups'

The key costs of option 2 are: the requirements for (1) certain farms to use Low Emission Slurry Spreading Equipment (LESSE) and (2) new and existing above ground slurry stores to be fitted with fixed or floating covers.

It is estimated that:

(a) The LESSE requirements will impact on approximately 3,000 farms with transitional costs in the range of £27 – 33 million over the period to 2022.

(b) The requirements to cover new and existing above ground slurry stores will impact on approximately 1950 farms with transitional costs of approximately £10.3 million.

#### Other key non-monetised costs by 'main affected groups'

There will be other costs associated with requirements on fertilisation plans and nutrient management, relocation of some livestock supplementary feeding sites and drinking points, updated nitrogen excretion rates for cattle and new restrictions on slurry spreading during February and October.

Given the many variable factors related to these measures, it is difficult to accurately estimate the associated costs. However, in many cases these costs are likely to be small. For measures related to nutrient management and fertilisation plans, the costs are likely to be largely offset by reduced chemical fertiliser costs from more efficient use of nutrients. Further information is provided in the Evidence Base section below.

| Benefits (£m)        | Total Transitional (Policy) |          | Average Annual (recurring) | Total Benefit  |
|----------------------|-----------------------------|----------|----------------------------|----------------|
|                      | (constant price)            | Years    |                            |                |
| <b>Low</b>           | <b>£1.12m</b>               | <b>1</b> | <b>£1.12m</b>              | <b>£5.23m</b>  |
| <b>High</b>          | <b>£3.2m</b>                |          | <b>£3.2m</b>               | <b>£14.95m</b> |
| <b>Best Estimate</b> | <b>£2.16m</b>               |          | <b>£2.16m</b>              | <b>£10.09m</b> |

#### Description and scale of key monetised benefits by 'main affected groups'

The key benefit for farmers will be reduced chemical fertiliser costs resulting from the use of LESSE. These are estimated to be in the range of £1.12 to £3.2 million per year across the total of 3,000 farms affected.

Fertilisation plans and improved nutrient management should also reduce chemical fertiliser costs. However, due to the many variable factors related to these measures, it is not possible to accurately estimate those benefits.

#### Other key non-monetised benefits by 'main affected groups'

An EU approved derogation would be available to farmers. Use of LESSE also provides a range of productive and environmental benefits. These include lower grass contamination from slurry, a longer period to apply slurry after each silage harvest, reduced phosphorus and ammonia losses and reduced odour. There are also biosecurity advantages as LESSE reduces the risk of bacteria being aerosoled.

### Key Assumptions, Sensitivities, Risks

It is estimated that approximately 3,000 farms will be impacted by the requirement to use LESSE and that 40% of these farms will invest in a low emission slurry spreading system. It is assumed that the remaining 1,800 farms already have access to LESSE or will use a contractor to spread by LESSE.

The increased nitrogen use efficiency of slurry form using LESSE is estimated to be worth £7- £10 per hectare, based on AFBI Research.

Variations in grass growth rates, weather and soil conditions year to year mean that benefits could be lower or higher. Therefore, to account for this, a sensitivity of 50% has been applied to the lower estimate of benefits to give a range of £1.12 million to £3.2 million per year.

NPV calculations over 5 years at discount rate of 3.5%. Capital residual of LESSE at end of year 5 is 50%.

### BUSINESS ASSESSMENT (Option 2)

|                                     |                         |                    |  |  |
|-------------------------------------|-------------------------|--------------------|--|--|
| <b>Direct Impact on business £m</b> |                         |                    |  |  |
| <b>Costs:£22.51m</b>                | <b>Benefits:£10.09m</b> | <b>Net:£12.42m</b> |  |  |

### Cross Border Issues (Option 2)

#### How does this option compare to other UK regions and to other EU Member States (particularly Republic of Ireland)

An EU agreed NAP and approved derogation in NI would ensure a consistent and similar approach to the Republic of Ireland on implementation of the Nitrates Directive and improving water quality. This option would ensure that NI continues to demonstrate full compliance with the Nitrates Directive for 2019-2022. This has been the position since the NI NAP was first introduced in 2007. The other UK regions do not currently have an EU agreed NAP or EU approved derogation.

Six EU Member States are currently subject to infraction proceedings related to the Nitrates Directive.

## Summary: Analysis and Evidence

## Policy Option 3

Description: Adjust the proposed revisions to NAP Regulations, taking account of issues raised through public consultation. This should ensure an EU agreed NAP and approved derogation for NI.

### ECONOMIC ASSESSMENT (Option 3)

| Costs (£m)    | Total Transitional (Policy) |       | Average Annual (recurring)<br>(excl. transitional) (constant price) | Total Cost<br>(Present Value) |
|---------------|-----------------------------|-------|---|-------------------------------|
|               | (constant price)            | Years |   |                               |
| Low           | £13m                        | 5     | £0.6m   | £7.14m                        |
| High          | £15.1m                      |       | £0.6m   | £8.32m                        |
| Best Estimate | £14.05m                     |       | £0.6m   | £7.73m                        |

#### Description and scale of key monetised costs by 'main affected groups'

As with policy option 2, the key costs are associated with LESSE and covering new above ground slurry stores.

However, the number of farms affected by the LESSE requirement is reduced from 3,000 to approximately 1,100. This significantly reduces costs to £9.9 - 12.1 million over the transitional period to 2022.

In relation to covering new above ground slurry stores, the removal of the requirement to cover existing slurry stores reduces the number of farms impacted by approximately 1900. This results in a reduction in costs of some £6.9 million.

The cost of covering new above ground slurry stores is estimated to be approximately £0.6 million per year from 2020.

#### Other key non-monetised costs by 'main affected groups' Maximum 5 lines

An EU approved derogation would be available to farmers. The other non-monetised costs remain similar to option 2, as the main cost reductions associated with option 3 relate to LESSE and covering of new above ground slurry stores. Option 3 includes a range of smaller technical and practical changes to address issues raised by stakeholders during consultation. Changes relating to fertilisation plans and Nitrogen excretion rates for dairy cows will simplify administrative requirements for farmers.

| Benefits (£m) | Total Transitional (Policy) |       | Average Annual (recurring)<br>(excl. transitional) (constant price) | Total Benefit<br>(Present Value) |
|---------------|-----------------------------|-------|---|----------------------------------|
|               | (constant price)            | Years |   |                                  |
| Low           | £0.545m                     | 1     | £0.545m   | £2.55m                           |
| High          | £1.55m                      |       | £1.55m  | £7.24m                           |
| Best Estimate | £1.05m                      |       | £1.05m  | £4.91m                           |

#### Description and scale of key monetised benefits by 'main affected groups'

The key benefit of savings in chemical fertiliser costs is reduced as the number of farms required to use LESSE is some 1,100, compared to 3000 under option 2. However, these benefits still are estimated to range from £0.545 to £1.55 million per year.

The benefits under option 3 are reduced less proportionately than the number of farms impacted compared to option 2. Option 3 benefits of LESSE are 48% of option 2 benefits, while the number of farms impacted under option 3 is 37% of those impacted under option 2. This is because the farms impacted under option 3 are the largest farms.

### Other key non-monetised benefits by 'main affected groups'

The non-monetised benefits resulting from the use of LESSE will also be reduced under option 3 compared to option 2. However, as outlined above, the benefits will be reduced less proportionately than the number of farms impacted.

As outlined above, under option 3 simplification of some requirements relating to fertilisation plans and Nitrogen excretion rates for dairy cows will benefit farmers by reducing administration.

### Key Assumptions, Sensitivities, Risks

Under option 3, it is estimated that approximately 1,100 farms will be impacted by the requirement to use LESSE and that 40% of these farms will invest in a low emission slurry spreading system. It is assumed that the remaining 660 farms already have access to LESSE or will use a contractor to spread by LESSE.

As with option 2, a sensitivity of 50% has been applied to the lower estimate of benefits to give a range of £0.545 million to £1.55 million per year.

NPV calculations over 5 years at 3.5% discount rate. Capital residual value of LESSE at end of year 5 is 50%.

### BUSINESS ASSESSMENT (Option 3)

|                                     |                        |                   |  |  |
|-------------------------------------|------------------------|-------------------|--|--|
| <b>Direct Impact on business £m</b> |                        |                   |  |  |
| <b>Costs: £7.73m</b>                | <b>Benefits:£4.91m</b> | <b>Net:£2.82m</b> |  |  |

### Cross Border Issues (Option 3)

#### How does this option compare to other UK regions and to other EU Member States (particularly Republic of Ireland)

An EU agreed NAP and approved derogation in NI would ensure a consistent and similar approach to the Republic of Ireland on implementation of the Nitrates Directive and improving water quality. This option would ensure that NI continues to demonstrate full compliance with the Nitrates Directive for 2019-2022. This has been the position since the NI NAP was first introduced in 2007. The other UK regions do not currently have an EU agreed NAP or EU approved derogation.

Six EU Member States are currently subject to infraction proceedings related to the Nitrates Directive.



## **Evidence Base**

### **Problem under consideration**

The Nitrates Action Programme (NAP) Regulations (NI) 2014 (the 2014 Regulations), implements EU Directive 91/676/EEC (the Directive) concerning the protection of waters against pollution caused by nitrates from agricultural sources. The NAP Regulations are supported by associated Phosphorus Regulations because phosphorus pollution from agricultural sources is one of the main causes of poor water quality in NI.

NI has a widespread problem of eutrophication of surface waters and a large proportion of this nutrient enrichment is attributable to agriculture. The first NAP which applied to all farms in NI was introduced in 2007. Under the Directive, the action programme is reviewed at least every four years and if necessary, revised. The NAP for the period 2015-2018 is implemented by the 2014 NAP Regulations supported by the Phosphorus (Use in Agriculture) Regulations (NI) 2014, with an associated water quality monitoring programme, plus guidance and training offered to farm businesses.

The NAP contains measures to control the land application of livestock manures and chemical fertilisers and the storage of livestock manures. The NAP Regulations are the responsibility of the Department for Agriculture, Environment and Rural Affairs ('The Department' 'DAERA').

In accordance with the requirements of the Nitrates Directive, a review of the 2015 - 2018 NAP has been carried out. A revised NAP for the period 2019-2022 has been developed in consultation with the EU Commission and through a public consultation. The revised NAP for 2019-2022 will be implemented by the introduction of the Nutrient Action Programme Regulations (NI) 2019 (the 2019 NAP Regulations).

### **Rationale for intervention**

DAERA, must review the NAP as part of its obligations under the Directive, to ensure an effective action programme. The revised NAP for 2019 – 2022 includes additional measures to improve the action programme.

### **Policy objective**

The Directive aims to improve water quality by protecting water against pollution caused by nitrates from agricultural sources. It promotes better management of livestock manures, chemical fertilisers and other nutrient containing materials spread onto land. The introduction the 2019 NAP Regulations will ensure continued implementation of the Directive in NI.

### **Description of options considered (including do nothing), with reference to the evidence base to support the option selection**

Option 1: Do Nothing / Business as usual scenario; do not amend the 2014 NAP Regulations.

It is not feasible for the Department to do nothing. Therefore, this option is ruled out.

Option 2: Implement all proposed revisions to the NAP Regulations.

The proposed revisions to improve the NAP and brief rationale are summarised as follows:

- a) Further Restrictions on slurry applications during October and February. Increased buffer zone from 10m to 15m of any waterways and from 20m to 30m for lakes. Also, to

reduce the amount of slurry applications from 50m<sup>3</sup> to 30m<sup>3</sup> per ha, during these periods.

To minimise the risk at either end of the closed period of slurry application impacting water quality, it is proposed to reduce the maximum rate of slurry applied in both October and February, and also increase the width of the buffer strips around the waterways and lakes during these two months.

- b) Supplementary feeding sites to be minimum of 20m from waterways where there could be significant risk of pollution occurring from their use.

Because of the likely risk of livestock congregation resulting in heightened P loss to water, it is proposed for supplementary feeding sites to be kept a minimum of 20m from water courses. This will prevent animals congregating close to water bodies and, via poaching and excretion, heighten the risk of manure-P and particulate-P transferred to water.

- c) Livestock drinking points to be minimum of 10m from waterways where there could be significant risk of pollution occurring from their use.

As with point b above, for the same reasoning, it is proposed for livestock drinking points to be kept a minimum of 10m from waterways.

- d) Chemical Phosphorus fertiliser requirements to be included in Cross Compliance requirements.

It is proposed that the current Phosphorus Regulations, should be incorporated into the 2019 NAP Regulations. This will encourage farmers to make better use of phosphorus from organic manures generated on farm and only use chemical fertiliser containing phosphorus where there is a demonstrable agronomic need.

- e) A Fertilisation Plan will be required for any farms using Chemical Phosphorus fertiliser, Phosphorus rich manure and Anaerobic Digestate (AD).

This measure will help ensure chemical phosphorus is being used more efficiently and only when it is needed. It will also provide greater controls on other organic manures higher in phosphorus.

- f) Mandatory use of low emission slurry spreading equipment (LESSE) will apply to:
  - a. cattle farms with 100 or more livestock units;
  - b. pig farms with a total annual livestock manure nitrogen production of 10,000 kg or more;
  - c. slurry spreading contractors; and
  - d. digestate from AD plants.

There are significant agronomic and environmental benefits from using LESSE. These include increased grass growth of approximately 15 – 25 %, reduced chemical nitrogen fertiliser requirements for silage crops of up to 38kg per hectare. Phosphorus run off can be reduced by up to 37% and ammonia emissions reduced by approximately 30 – 60%.

- g) Covering of new above ground slurry stores and lagoons.

- h) Covering existing above ground slurry stores.

The addition of a solid cover to a manure store may reduce ammonia emissions by 60%.

- i) New slurry tanks to be sited a minimum of 50m from waterways.

This measure will help reduce the risk of water pollution from leaks, spills, tank failure or operator error/mismanagement of slurry.

- j) Revised Phosphorus (P) fertiliser application rates for grassland farms.

This measure will address the overuse of P fertiliser on cattle and sheep farms.

- k) Ban on use of chemical UREA fertilisers unless they contain ammonia (urease) inhibitors.

Results from a study by the Agri Food and Bio Sciences Institute (AFBI) and Teagasc in the Republic of Ireland, have shown considerable benefit from using urea in combination with the urease inhibitor NBPT, with urea + NBPT offering a reduction in ammonia losses of 78.5% compared with straight urea, whilst maintaining similar agronomic yields to Calcium Ammonium Nitrate.

- l) New Nitrogen (N) and Phosphorus (P) excretion rates for cattle. Set new rates for dairy cow categories for different milk yields.

The value for Nitrogen excretion by dairy cows (91 kg N/head/year), was based on AFBI research carried out on dairy cattle which were representative of NI dairy farms in 2006. Since then, the profile of NI dairy cows has changed. AFBI research has shown that the average milk yield has increased. It is also recognised that the crude protein content in dairy cattle diets has reduced in recent years, which will have a direct effect on N excretion. Therefore, it is appropriate to revise the N and P excretion rates to reflect the current dairy farming in NI based on the results of the AFBI research. N and P excretion rates for other cattle have been updated based on the AFBI research.

- m) Controls on farms applying AD as a fertiliser.

To ensure appropriate use of AD, new controls are included in the NAP.

Option 3: Adjust the proposed revisions to NAP Regulations, taking account of issues raised through public consultation.

The evidence base for this option is the same as outlined at Option 2 above.

However, this option reduces the number of farms impacted and the associated costs. While the benefits will be reduced, they are still significant and should ensure continued progress towards long term environmental improvement. This option should ensure an EU agreed NAP and approved derogation for NI.

The Department considered carefully all the responses to the consultation and made a number of changes to the proposed Action Programme as a result. DAERA decided not to proceed with a ban on the use of straight urea chemical fertilisers and the requirement to cover existing above ground stores and lagoons at this time.

While a requirement for larger farms to spread slurry using Low Emission Spreading Equipment (LESSE) is being introduced, the thresholds have been changed as a result of the consultation. The consultation proposed threshold figure of 100 livestock units has been changed to 200 livestock units for cattle farms. The threshold for pig farms has been changed

from 10,000kg, proposed in the consultation, to 20,000kg of manure nitrogen production per year.

The change in threshold compared with the original proposals will however significantly reduce costs to the industry and the number of farms included from some 3,000 to approximately 1,100 farms. It will have the effect of removing smaller farms from the requirements while still making a very positive contribution to reducing nitrates and phosphorus losses. Many larger farms are likely to be using LESSE already to some extent and may have received earlier support from DAERA to invest in the equipment.

A number of other technical and practical changes have also been made to address issues raised during the consultation process. These include reduced fertilisation plan requirements and simplifications to reduce the administrative requirements on farmers.

The changes made as a result of the consultation process represent a pragmatic and workable approach while seeking to protect the environment and move NI towards longer term environmental improvements.

The removal of the requirement to cover existing above ground slurry stores and lagoons and the changes to the thresholds for LESSE significantly reduce costs for the agricultural industry.

### **Monetised and non-monetised costs and benefits of each option (including administrative burden)**

#### Option 1: Do Nothing / Business as usual scenario; do not amend the 2014 NAP Regulations.

Non-implementation of a revised NAP for 2019 - 2022 would have a direct impact on NI's application to the European Commission's Nitrates Committee for renewal of the nitrates derogation. The derogation is important for grassland cattle farms as it enables them to operate at a higher manure nitrogen loading of up to 250kg N/ha/year, but subject to tighter restrictions.

The current Nitrates Derogation Decision expired at the end of December 2018. A revised NAP which is acceptable to the European Commission is essential to secure its approval of a new derogation for 2019-2022.

The risk of having no derogation in place could have significant impact on the 478 farms in NI who currently operate under derogation. If the derogation is not available, the financial losses to these farms would be between some £3.1 and £6.2 million per year.

There could also be consequent losses in the milk processing sector due to reduced milk production of up to 90 million litres per year. This is because the vast majority of farms operating under the derogation are many of NI's most productive dairy farms.

Post-Brexit, there may be scope to operate a NI derogation without EU approval, in which case these costs would not be realised. However, this scenario is uncertain and could have implications for future trading arrangements.

In addition, NI will need to deliver on its EU regulatory commitments within any future trading arrangements. This could be particularly important for cross border trade in agricultural products. Therefore, consistency with Ireland by having an EU approved NAP and Derogation could be very important for NI farmers and the wider agri-food industry post Brexit.

Non-implementation of a revised NAP 2019-2022 could also result in a further deterioration in water quality. Recent analysis for the 2015-2018 period has identified no overall progress has been made towards the Water Framework Directive target of up to 70% 'good' status of waterbodies by 2021.

The biggest change is due to deterioration in river phosphorus levels with 7.8% of river waterbodies declining from 'good or 'better' to 'moderate or worse' for Soluble Reactive Phosphorus. Sources of phosphorus in waterbodies are mainly attributed to agriculture and waste water treatment works.

#### Option 2:

Implement all proposed revisions to NAP Regulations.

#### The proposed revisions and associated costs to the 2019 regulations are:

- a) Further Restrictions on slurry applications during October and February. Increase buffer zone from 10m to 15m of any waterways and from 20m to 30m for lakes. Also to reduce the amount of slurry applications from 50m<sup>3</sup> to 30m<sup>3</sup> per ha, during these periods.

#### **Costs:**

The costs associated with this measure are likely to be small. Given the many variable factors involved, it is not possible to accurately estimate costs. However, in relation to the maximum slurry application rate of 30m<sup>3</sup> per ha in October and February, it is unlikely that many farms currently exceed this rate.

The increased buffer zone will have a negligible impact on grass dry matter (DM) production and farm finances as evidenced by the following AFBI analysis:

#### **Impact of changes to buffer strips on grass production**

Excluding all fields < 1ha, and rough grazing etc, the average grassland field size in NI is approximately 2 hectares = 20,000 m<sup>2</sup>. A worst case scenario assumes that watercourses occur along the complete 564m perimeter of this average 2 ha field. Deducting off the current 10m lengths of existing buffer strips from each of the 4 sides of a 2 ha rectangular field with a 564 perimeter, the remaining perimeter length affected by the additional 5m width of buffer would be 524m (564m – 4 x 10m).

In a worst case scenario, the additional area of land that would be prevented from receiving slurry in February would be 524m x 5m = 2620m<sup>2</sup> = 0.262 ha. Consequently, 0.262ha of land would not receive 30m<sup>3</sup>/ha of cattle slurry, i.e. 9 kg available N/ha, in February for 1<sup>st</sup> cut silage. Using a relationship between applied N and grass DM yield at 1<sup>st</sup> cut (*based on data from a series of field N trials at AFBI Hillsborough*), the amount of additional DM yield that this application of slurry N would have produced would be 0.388 t DM/ha.

In a worst case scenario therefore, the total loss of DM production resulting from the extension of the current 10m wide buffer strip along watercourses to a 15m wide strip, would be just 0.262ha x 0.388t DM/ha = 0.101 t DM. Under a worst case scenario therefore, the maximum loss in DM yield per hectare (*averaged over the complete field area*) is only 0.101 t DM/2 ha = 0.05 t DM/ha. Assuming that each ton of DM has a feeding value of £180/t, this loss represents a financial loss of just £9/ha (0.05 t DM/ha x £180).

On a 50 ha farm where (*under a worst case scenario*) all field boundaries are assumed to be adjacent to water ways, and where 50% of land is used as the silage platform and receiving slurry, the total loss of yield would be 1.25 t DM (25 ha x 0.05 t DM/ha) representing a financial loss of just £225 (1.25 t DM X £180) to the farm. However, as it is very unlikely that more than ½ of field boundaries would be adjacent to open sheughs or streams/rivers, the loss in yield on a 50 ha farm would probably be only 0.635 t DM, representing a financial loss of only £112 to such a farm.

Assuming an average grass yield of 8t DM/ha, the total yield on a 50ha farm would be 200t DM. Therefore, a yield loss of 0.635 - 1.25t DM would represent a reduction of just 0.3 - 0.6%. This is minimal, particularly when compared to annual variations in yield due to weather and soil conditions.

- b) Supplementary feeding sites to be minimum of 20m from waterways.

**Costs:**

The costs associated with this measure are likely to be minimal. It is already good practice to move the location of supplementary feeding sites from year to year to prevent excessive soil damage/poaching and the accumulation of nutrients from manure deposition. This is relatively straightforward and should not incur capital costs. The requirement to ensure that, in cases where there is significant risk of water pollution, the feeder is sited a minimum of 20m from a waterway should not add significant cost.

- c) Livestock drinking points to be minimum of 10m from waterways.

**Costs:**

Given the many variable factors involved, it is difficult to accurately estimate costs associated with this measure. Any livestock drinking points which are currently situated within 10m of a waterway only need to be moved if there is a significant risk of water pollution arising from their use. Examples of significant risk would include evidence of an accumulation of manure around drinking points which is likely to lead to run off to the waterway.

Therefore, there is not sufficient information available to estimate the number involved, as they depend on specific circumstances. However, the cost of pipework to supply a drinking point is approximately £8 per m. Assuming that a drinking point would need to be moved 10 m, gives an estimated pipework cost of £80. Add labour cost of £10 - £15 per hour for 2-4 hours, gives an approximate overall cost of £100 - £150.

- d) Chemical Phosphorus fertiliser requirements to be included in the in Cross Compliance requirements.

**Costs:**

It is already a legal requirement to comply with the Phosphorus (Use in Agriculture) Regulations (Northern Ireland) 2014. The requirements of these regulations will be incorporated into the 2019 NAP Regulations and non-compliance may result in cross compliance penalties. However, as there is insufficient data to determine the extent and nature of future non-compliance, potential penalties have not been estimated.

- e) Fertilisation Plan will be required for any farms using Chemical Phosphorus fertiliser, Phosphorus rich manure and AD.

**Costs:**

It is already a requirement of the 2014 NAP Regulations to undertake soil analysis if farms are using Chemical Phosphorus fertiliser, Phosphorus rich manure and Phosphorus rich AD. This new requirement to also prepare a fertilisation plan means additional administration and planning time.

The DAERA Farm Structural Survey 2016 indicated that 47% of all farms and 79% of medium/large farms completed soil analysis in the previous 4 years. The survey also indicated that 18% of all farms and 51% of medium/large farms had completed a nutrient management plan in the previous 4 years. Subsequently, DAERA implemented a scheme to support soil analysis on over 1000 farms during 2018 with another slightly smaller phase underway in 2019. In addition DAERA provides ongoing training and an online nutrient management planning tool.

This is evidence of the extent of nutrient management planning. In this context, it is difficult to accurately estimate what additional soil analysis and nutrient management planning will be required to produce fertilisation plans. Such plans will need to be produced in a specific format and if starting from a situation with no existing nutrient management plan, the cost of a fertilisation plan is estimated to be £200 – £300 in a farmer's time or consultants fees. A fertilisation plan should be valid for 4 years and should not require major adjustment or revision during that period.

There is not sufficient information available to determine how many farms may require fertilisation plans and the extent of work required to produce one. Some farms may already have a nutrient management plan which would provide a good basis for producing a fertilisation plan. In many cases, the costs of producing a fertilisation plan may be partially or fully offset by the savings in chemical fertiliser costs resulting from more efficient nutrient management.

- f) Mandatory use of low emission slurry spreading equipment (LESSE) will apply to:
  - a. cattle farms with 100 or more livestock units;
  - b. pig farms with a total annual livestock manure nitrogen production of 10,000 kg or more;
  - c. slurry spreading contractors; and
  - d. digestate from AD plants.

## **Costs and Benefits of Using Low Emission Slurry Spreading Equipment (LESSE)**

### **Background**

It is estimated that approximately 3000 farms will be affected by the requirement to use LESSE. These are comprised of 2916 cattle farms, with the remainder being pig farms and some AD plant operators.

Of these 3000 farms, it is estimated that 40% will invest in a low emission slurry spreading system at a cost of £25,000. This is based on the cost of a slurry tanker size 2000 gallons and over, fitted with a trailing shoe/trailing hose or dribble bar system including macerator. Some farmers may have an existing slurry tanker suitable for adding a LESS system and therefore, the cost would be approximately £10,000 lower. In contrast, some farmers may opt for a more expensive system, such as an umbilical system. However, on balance, an average cost of £25,000 is considered appropriate.

1200 farms investing in LESSE, represents a total cost of £30m. Allowing for sensitivity of  $\pm 10\%$ , gives a range of £27 - £33m.

Of the remaining 1800 farms, it is estimated that around 330 already own or have access to LESSE, while the other 1470 farms will use a contractor to spread by LESSE.

## Benefits of LESSE

The use of LESSE increases the nitrogen use efficiency from slurry. This means that a reduced amount of chemical fertiliser is required to achieve the same grass yield, where both slurry and chemical fertiliser are applied, usually to silage ground.

DAERA analysis indicates that there are 2,916 farms with 100 or more livestock units. These farms have a total grassland area of 267,378 ha excluding rough grazing.

It is assumed these farms are farming grassland intensively, producing an average 3 silage cuts from 40% of their grassland area excluding rough grazing.

The reduction in the need for chemical fertiliser is the primary monetised benefit of using LESSE, and is calculated in the following analysis:

### Use of LESSE on farms > 100 cattle livestock units

|  |                         |
|--|-------------------------|
| <b>Area of grassland excluding rough grazing</b>                         | <b>267,378 ha</b>       |
| 40% of this area used for 3 cut silage and gets 3 slurry applications    | 106,951 ha              |
| Chemical fertiliser savings per slurry application £7.10 / ha* x 106,951 | £748,658 → £1,069,512   |
| Total savings from 3 applications  | £2,245,975 → £3,208,536 |

\* Fertiliser savings from using LESSE are estimated as follows:

AFBI research shows that LESSE (trailing shoe) at application rate of 22m<sup>3</sup> / ha increases available nitrogen by 11.88kg / N / ha. Assuming chemical nitrogen fertiliser price of 85p / kg / nitrogen, based on CAN prices at £285 / tonne (March 2019). This gives a saving in chemical nitrogen fertiliser costs of 11.88 x 85p = £10.10 / ha for trailing shoe.

For LESSE (trailing hose / dribble bar) the nitrogen use efficiency of slurry may be lower compared to trailing shoe application. AFBI research indicates that grass growth benefits from trailing hose / dribble bar are approximately 70% of that achieved by trailing shoe. Therefore, the chemical fertiliser savings from trailing shoe / dribble bar are estimated to be 70% x £10.10 = £7 / ha.

The range of £7 - £10 / ha saving therefore reflects the differing benefits associated with trailing shoe and trailing hose /dribble bar equipment.

The chemical fertiliser savings arising from the requirements for certain pig farms to spread slurry by LESSE have not been included. This is because there is insufficient information to accurately assess the quantity of pig slurry that will be spread by LESSE.

For these same reasons, the chemical fertiliser savings arising from the requirement to spread anaerobic digestate by LESSE have not been estimated or included.

The requirements for slurry contractors to spread slurry by LESSE should deliver chemical fertiliser savings in the range of £7 - £10 / ha as indicated above. However, contractors usually charge more for spreading by LESSE compared to conventional splash plate spreading.

Assuming contractor charges of approximately £17 / ha for splash plate spreading and £28 for LESSE (trailing shoe). At an application rate of 22m<sup>3</sup> / ha, the estimated chemical fertiliser savings of £10 / ha largely offsets the additional contractor charges. If application rates are



greater than 22m<sup>3</sup> / ha, the savings would increase. In addition, AFBI research indicates that LESSE can deliver a £10 per hectare saving over the extra spreading costs.

Therefore, it is assumed that for farmers using contractors to spread slurry by LESSE, the costs are offset by the benefits in terms of reduced chemical fertiliser costs.

These costings have not monetised the additional practical and environmental benefits of using LESSE. These include lower grass contamination from slurry, a longer period to apply slurry after each silage harvest, reduced phosphorus and ammonia losses, and reduced odour. There are also biosecurity advantages as LESSE reduces the risk of bacteria being spread in the air. Therefore, the overall benefits of using LESSE will be greater than the monetised benefits estimated.

g) Covering of new above ground slurry stores and lagoons.

#### **Costs:**

On average, 30 new above ground slurry stores are notified to the Northern Ireland Environment Agency (NIEA) each year. An above ground slurry store is estimated to have an average of 314m<sup>2</sup> and the cost of a fixed cover is estimated to be £61/m<sup>2</sup>. This gives an estimated cost of approximately £20,000 for fitting a fixed cover per store. For 30 stores, the total annual cost is therefore 30 x £20k = £600k per year.

The cost of covering new lagoons is estimated to be approximately £24,000 per lagoon based on an average area of 2000m<sup>2</sup> and a floating cover cost of £12/m<sup>2</sup>. It is estimated that 3 new lagoons are constructed per year, giving a total annual cost of £74,000.

Therefore, the total annual cost of covering new slurry stores and lagoons is estimated to be £674k.

For fixed covers on new stores, some of the costs may be offset to a small extent by reduced slurry spreading costs, as rainwater would be excluded from entering the stores and increasing slurry volume.

Savings in slurry spreading costs are likely to be small and may be in the region of £200 per year for a 60 hectare farm.

h) Covering of existing above ground slurry stores.

#### **Costs:**

The cost of fitting a floating cover to an above ground slurry store is estimated to be approximately £12/m<sup>2</sup>. At an average area of 314m<sup>2</sup> for an above ground store, the cost of fitting a floating cover is estimated to be approximately £4,000.

The DAERA Farm Structure Survey 2016 indicated that 7% of farms had an above ground slurry store (1720 farms). Therefore, the total cost of covering all existing above ground slurry stores is estimated to be £6.88 million in the transitional period to 2022.

i) New slurry tanks to be sited a minimum of 50m from waterways.

#### **Costs:**

Individual farmyard lay out and circumstances vary. Therefore, potential costs for this requirement have not been estimated due to insufficient data.

- j) Revised phosphorus fertiliser application limits for extensively managed grassland.

**Costs:**

The new phosphorus fertiliser application limits for extensively managed grassland take account of grass yield and are to ensure that excess phosphorus is not applied. The limits will not curtail grass production on extensively managed grassland and may result in chemical fertiliser cost savings for some farmers.

- k) Ban on use of chemical UREA fertilisers unless they contain ammonia (urease) inhibitors.

**Costs:**

This measure should not result in extra costs for farmers. Between 7% and 53% of the nitrogen in UREA fertiliser can be lost to the atmosphere as ammonia. This reduces the fertiliser value of UREA. Using UREA which contains an inhibitor which reduces ammonia emissions cost more than straight UREA. However, the extra cost should be offset by the increased fertiliser value resulting from lower losses of nitrogen as ammonia.

- l) New Nitrogen (N) and Phosphorus (P) excretion rates for cattle.

**Costs:**

The revision of nitrogen excretion rates for cattle results in the average rate for a dairy cow increasing from 91kg to 100kg nitrogen per year. Rates for most other categories of cattle decrease. These changes will impact mostly on dairy farms. The net effect on a typical dairy farm is an overall increase in total nitrogen loading of approximately 6%. This will result in some farms moving above the 170kg nitrogen/hectare/year limit. They have several options to reduce their nitrogen loading to meet this limit including exporting slurry, renting additional land or reducing livestock numbers. Alternatively, if they meet the eligibility criteria, they could apply to operate under a derogation at up to 250kg nitrogen/hectare/year, subject to additional management conditions.

Individual farm circumstances will determine which option is most appropriate as the cost and practicalities will vary per farm. For farms within 10% of the 170kg nitrogen/hectare/year limit, exporting slurry may be the most viable option.

A 10% increase in Nitrogen loading is the theoretical maximum increase on a dairy farm that could arise from the revised Nitrogen excretion rates, if it was stocked solely with dairy cows and no other cattle. As the nitrogen excretion rates for other cattle decrease, overall nitrogen loading on beef farms will decrease. This will give them increased scope to import slurry from other farms while remaining within 170kg nitrogen/hectare/year limit. Therefore, it is likely that most dairy farms impacted by the change in nitrogen excretion rates will opt to export slurry.

Farms at nitrogen loadings greater than 10% above the 170kg nitrogen/hectare/year limit may opt to apply for a derogation. The costs of operating under a derogation are estimated to be approximately £200 – £300 per year in farmer's time or consultants fees for fertilisation planning and administration.

- m) Controls on farms applying anaerobic digestate as a fertiliser.

**Costs:**

Costs related to fertilisation plans are discussed at (e) above. In relation to nutrient analysis of anaerobic digestate, this should be provided by the AD plant operator. AD plants are either

regulated under Waste Management Licencing or must comply with a Quality Protocol which requires them to supply a nutrient analysis of the AD.

## **Water Quality Benefits**

The NAP Regulations play a key role in meeting the aims of the Water Framework Directive (WFD) (2000/60/EC). At the highest level, the benefits to be attained under the 2019 Regulations are those associated with the achievement of WFD “good status” in water bodies. The NAP is the main agricultural measure to contribute to the WFD objective of at least 70% of NI water bodies achieving at least “good status” by 2021.

It is difficult to place an exact monetary value on the benefits associated with improving water quality. However, the economic analysis of the WFD River Basin Management Plans for 2015 – 2021 estimate the benefits of achieving the 2021 target above, range from £197.6 to £283.7 million over the six years. It is not possible to accurately attribute costs and benefits to each of the many sectors impacting on water quality. However, pollution from agricultural sources is one of the main reasons for poor water quality in NI. Therefore, the benefits from reducing these agricultural pressures on water quality are likely to be very significant and may amount to many millions of pounds annually, based on the estimated WFD outlined above.

It is clear that taking action to prevent and control eutrophication will generate a wide range of benefits for NI’s natural environment, its economy and the quality of its environmental amenities.

More specifically, action to tackle eutrophication will enhance biodiversity, restore fish habitats and improve the aesthetic standards of water bodies. Many of the important characteristics of aquatic plant and fish species found in NI need low levels of nutrients to flourish. At low and moderate levels of nutrient enrichments, aquatic food webs are complex and diverse. If nutrient levels are too high, this diversity is reduced as the original flora and fauna become displaced by a smaller number of species, both plant and fish that are tolerant of water with a high nutrient content.

Plants and animals also contribute towards clean, healthy and robust aquatic eco-systems which provide many benefits. Good water quality is important because it provides clean drinking water, safe bathing water, healthy fisheries and contributes to an improved living environment. Good water quality is also essential for recreation and for supporting tourism which in turn encourages the use of the countryside and the viability of rural businesses.

Due to the nature of biological and chemical processes, there will be a delay between the period in which measures are taken and the period in which the benefits are realised.

Option 3: Adjust the proposed revisions to NAP Regulations, taking account of issues raised through public consultation.

Under Option 3, the number of farms affected by the LESSE requirement is reduced from 3,000 to approximately 1,100. This significantly reduces costs to £9.9 - £12.1 million over the transitional period to 2022.

In relation to covering new above ground slurry stores, the removal of the requirement to cover existing slurry stores reduces the number of farms impacted by approximately 1900. This results in a reduction in costs of some £6.9 million. The cost of covering new above ground slurry stores is estimated to be approximately £0.6 million per year from 2020.

## Costs of LESSE

Under option 3, it is estimated that approximately 1100 farms will be required to use LESSE. This is based on 1048 cattle farms with the remainder pig farms and AD plant operators.

It is assumed that 40% of these farms (440 farms) will invest in a LESS system, at an average cost of £25,000. This gives a total cost of £11 million. Allowing for a sensitivity  $\pm 10\%$  gives a range of £9.9 - £12.1 million.

Of the other 660 farms, it is estimated that 330 farms already have LESSE or access to LESSE, and 330 farms will use a contractor to spread by LESSE.

Under both options 2 and 3, all slurry spreading contractors will be required to spread by LESSE. While many contractors already have some LESS systems, they and the other contractors will need to invest in more LESSE systems.

Contractors normally charge a higher rate for spreading by LESSE. This reflects the higher capital cost of the equipment, which over time, they recoup through the higher charges to farmers. Therefore, it is assumed that the costs for contractors of investing in LESSE, will be offset by the extra charges to farmers.

For farmers, the increased cost of using LESSE is offset by savings in chemical fertiliser costs arising from the improved nitrogen use efficiency of slurry.

DAERA analysis indicates that there are 1,048 farms with 200 cattle or more livestock units. These farms have a total grassland area, excluding rough grazing of 129,700. It is assumed these farm are farming grassland intensively, producing an average 3 silage cuts from 40% of their grassland area excluding rough grazing.

The reduction in the need for chemical fertiliser is the primary monetised benefit of using LESSE, and is calculated in the following analysis, similar to that used for option 2 above:

## Benefits of LESSE

### Use of LESSE on farms > 200 cattle livestock units

|   |                     |
|---|---------------------|
| <b>Area grassland excluding rough grazing</b>                                 | <b>129,700 ha</b>   |
| 40% of this area, used for 3 cut silage and gets 3 slurry applications        | 51,880 ha           |
| Chemical fertiliser savings per slurry application<br>£7.10 / ha* x 51,800 ha | £362,600 → £518,000 |
| Total savings from 3 applications 3 x 51,800                                  | £1,554,000          |

Regulatory costs for Option 3 are likely to be lower than Option 2 due to fewer farms being impacted and some simplification of administrative requirements for farmers. Existing inspection and enforcement costs will continue with some additional costs associated with the new measures, particularly fertilisation plans. There will also be additional work associated with updating guidance materials, awareness raising and staff training. The total additional costs are estimated to be in the range £150 - £250k.

## **Rationale and evidence that justify the level of analysis used in the RIA (proportionality approach)**

### Option 1: Do Nothing / Business as usual scenario; do not amend the 2014 NAP Regulations

Option 1 is not feasible and is ruled out.

## **Risks and assumptions**

### Option 2: Make all proposed revision to the 2014 NAP Regulations

Making the proposed changes to the 2014 Regulations will strengthen the Nitrates Action Programme, which is currently in place and will continue to transpose and implement the Directive. In doing so, removing the risk of infraction.

However, while it will deliver the most benefits for water quality, this option has the highest costs.

### Option 3: Adjust the proposed revisions to NAP Regulations, taking account of issues raised through public consultation.

Under Option 3, costs to agricultural businesses are significantly lower than under Option 2, yet it should still deliver significant benefits for water quality. Therefore, option 3 is preferred.

## **Direct costs and benefits to business**

It is anticipated that the direct costs to some agricultural business may increase with the introduction of the proposed Nutrient Action Programme Regulations (Northern Ireland) 2019.

The proposed Regulations will have a direct impact on the agricultural industry. However, significant additional costs are only likely to be incurred by farm business which are investing in new Low Emission Slurry Spreading Equipment (LESSE) or new outdoor slurry storage. The vast majority of these are larger farms, which are more likely to have the financial resources to meet these costs, than smaller farms.

A small business is defined as having fewer than 50 employees, a turnover of £10.2 million or less and £5.1 million or less on its balance sheet. Nearly all active farm businesses in Northern Ireland would be considered as small businesses and may be impacted by additional costs if they are affected by the parameters detailed above.

## **Wider impacts (in the context of other Impact Assessments in Policy Toolkit Workbook 4, economic assessment and NIGEAE**

The increased use of LESSE will benefit the wider public by significantly reducing odour and ammonia emissions from slurry spreading operations.