

BEFORE THE HEARING COMMISSIONERS AT CHRISTCHURCH

In the Matter of: hearing of submissions concerning the proposed Land and Water Regional Plan

Between: New Zealand Pork Industry Board

And Canterbury Regional Council

Statement of Evidence of Jaye Hill on behalf of New Zealand Pork industry Board

Dated – 24<sup>th</sup> May 2013

1. New Zealand Pork Industry Board (NZPork) appreciates the opportunity to present our evidence on the proposed Land and Water Regional Plan (LWRP). My name is Jaye Hill and from 2010 until early 2013 I was the Environment Officer for NZPork. Also here with me today is NZPork CEO, Owen Symmans and Ian Barugh technical advisor to NZPork on animal welfare and environmental issues. Ian has over 25 years experience in the industry based at Massey University.
2. I have a Bachelor of Environmental Science from James Cook University, Australia. Since moving to NZ in 2006 I worked for 3 years as an environmental consultant focusing among other areas on nutrient discharge consents. In 2009 I was employed by Massey University to work for New Zealand Pork. I am currently working for the Queensland Department of Agriculture Forestry and Fisheries specialising in nutrient management from intensive farming activities.
3. NZPork is a statutory Board, funded by producer levies. It actively promotes “100% New Zealand Pork” to support growth in the volume and value of New Zealand grown pork. The Board’s statutory function is to act in the interests of pig farmers to help in the attainment of the best possible net on-going returns.
4. Nationally there are less than 200 commercial producers, comprising a relatively small but significantly integrated sector of the New Zealand agricultural economy.
5. In 2007 it was estimated by New Zealand Institute of Economic Research (NZIER) that the total economic activity associated with domestically farmed pigs was in the range of \$750 to \$900 million pa (NZIER, 2007).
6. Large commercial operations, such as pork production units, provide a range of economic and social benefits to the Canterbury region. Their operations have an important flow-on effect to the community, forming an integral part of the rural value chain as they utilise other farming resources such as grains for feed production as well as provide employment.
7. Pig producers within the Canterbury region and throughout the country often operate mixed farm systems (e.g. crops, pigs, sheep, beef or dairy) and therefore are represented by a number of other primary industry organisations that are involved in the hearing process. NZPork is an affiliated member of Federated Farmers as well as a signatory to the Canterbury Primary Sector Policy Group and endorses the submissions of both these Groups on all points that have not been commented on in this evidence.
8. This evidence is presented on behalf of NZPork (C12C/123412 0246) as well a number of submitters most of whom are pig producers. The other submitters are listed below:  
C12C/114805 0095 C W and JM Trengrove  
C12C/115685-02 0143 Helen Andrews  
C12C/114925 0101 Fresh Pork Farms - Hamish Gerard  
C12C/115100 0118 Brian Dimpleby  
C12C/115090 0109 Ben Voice  
C12C/15876 0212 Paul Davey  
C12c/117166 0357 Southern Pork Limited - Jason Palmer  
C12C/115811 0163 Murrellen Pork - Colin and Karen Battersby

9. The purpose of this evidence is to draw the Commissioners' attention to issues related specifically to the pig industry.

### Characteristics of pig farming in Canterbury

10. Within the pig farming industry in the Canterbury region there is a large variety of farming methods in operation. These range from conventional indoor farming systems where animals are housed in shed with the associated manure (solid or liquid) applied to soils in a controlled way; through to outdoor farming operations. (Please Refer to Photos in the presented for further clarification on farming types).
11. Market drivers such as consumer interest in outdoor/free range pork production, driven by the perceived animal welfare and environmental benefits, have led to a greater number of farmers adopting outdoor farming practices. The farming method generally consists of sows and their progeny up to weaning at 4 weeks of age, being run outdoors in paddock systems. Weaned animals are then moved indoors or shelters and finished in conventional indoor farming operations.
12. Canterbury is New Zealand's largest pig production region; however, the industry is small when compared to other primary industries.
13. Approximately 40% of the national pig herd of approximately 33,000 sows resides within Environment Canterbury's regional jurisdiction. Of this, approximately 13,000 sows with their unweaned litters are farmed outdoors on pastures (NZPork pers comm) compared with 1,424,837 total cattle (dairy and beef), 5,652,101 total sheep and 319,907 deer (NZ Statistics for the 2010 calendar year). Due to the pig industry's small animal population its impact to the total nutrient leaching rates in the region is low.
14. Of these animals NZPork estimates that; 5000-6000 are located in the Hurunui Zone catchments which is covered under the proposed Hurunui and Waiou River Regional Plan. Approx. 2000-3000 are located in the Selwyn Waioua Zone whose zone committee is well advanced in the development of their zone plan. This leaves approx. 4000-6000 sows with their progeny until weaning that will be covered under the proposed LWRP.

*Apprentice*

### Nutrient Management

15. NZPork has repeatedly voiced its concerns to ECan that the proposed LWRP is 'jumping the gun' on the ability for both industries and Council to provide robust scientific data on key areas within the plan. Within our submission we requested that ECan reconsiders the ability and appropriateness of the use of the nutrient management tool OVERSEER as the sole tool to report on nutrient management across all industries. However this has not been taken on board.
16. Currently nutrient leaching from outdoor pig production cannot be modelled using OVERSEER.
17. Additionally we do not believe that adequate consideration has been given to how the plan will affect smaller industries that have neither the resources (including staff and guidelines) in place nor currently the level of science data required to immediately produce the information required for Farm Environmental Plans or industry good practice guidelines



which are required to meet some of the objectives and rules proposed in the nutrient management sections of the notified plan and the Section 42A Report - Volume 2 For Farming Hearing Group 2(S.42A Report).

18. NZPork acknowledges that all farming production systems need to be managed to meet environmental objectives and that Regional Councils are under pressure to meet the requirements of the National Policy Statement for Freshwater Management (NPS) (2011). NZPork accepts that as a result of the NPS, setting and reporting nutrient limits in some form is necessary. However, we have substantial concerns about the speed with which these limits are being introduced within the Canterbury region, particularly when the NPS allows until 2030 for these limits to be set. We believe that the long lead-in period was set so that Regional Councils and industries had a sufficient transition period to allow Councils to undertake the necessary due diligence as to the appropriate level of limits which should be set and so that farmers and their industry bodies had sufficient time to develop resources and adapt to the change.
19. It is our firm belief that this process is being rushed in ECan initially to gain the benefits of the reduced appeals process under the current ECan Act. We appeal to the Commissioners that a balanced approach is required that firstly provides the science base, and secondly reviews the science, considering the environmental, economic and social impacts particularly on smaller industries such as the pig industry.

#### **OVERSEER pig production**

20. The proposed use of OVERSEER to report nutrient leaching rates is a principle concern for our industry.
21. Outdoor pig production does not solely rely on pastures for feed, as pigs are monogastric animals and require a more specialised balanced diet and therefore have their feed imported onto site. As a result, there has previously been no practical benefit for the industry to integrate outdoor production techniques into the programme. Unlike other industries such as dairy, sheep and beef that are provided with commercial benefits through the use of the programme the sole use of the programme for the pork industry will be to meet regulatory requirements.
22. Notwithstanding that, NZPork maintains a strong focus on supporting research to optimise the efficiency and sustainability of farming systems. We acknowledge that modelling tools such as OVERSEER will increasingly become standard compliance requirements in some form. In 2009 NZPork co-funded the integration of indoor pig effluent into the programme in response to Regional Councils' regulations, and work has now begun to integrate outdoor systems into the model.
23. On the 12<sup>th</sup> of April 2012, representatives from NZPork met with ECan (Mr. Constantine and Ms Robson) to discuss our concerns in regard to the potential impacts on the industry as a result of the use of OVERSEER within the LWRP. At this meeting the concept of delaying the industry's reporting using OVERSEER until 2017 was discussed; and in our view was agreed to by ECan. On the 23<sup>rd</sup> May 2012 at the request of ECan, NZPork provided ECan with a proposed work programme to integrate outdoor farming into OVERSEER in the years leading up to 2017.

24. In October 2012 NZPork submitted an application to the Ministry of Primary Industry's Sustainable Farming Fund (SFF) for its 2013 funding round. The application sought funding to help integrate outdoor pig production techniques into OVERSEER and had the support of OVERSEER owners as well as ECan.
25. Funding has recently been granted and work on modelling the systems will be on-going over the next 3 years.
26. The estimated cost of the project is \$360,000. This is a very significant outlay for the NZPork which has committed to contribute approximately 40% of the project's costs. As mentioned NZPork represents less than 200 commercial pig producers nationally. There are around 73 commercial producers (with over 100 pigs) who are registered with NZPork and located in the Canterbury region. Not all these farms are practicing outdoor production techniques. Overall the cost and the industry resources dedicated to this project on a per farm basis is very high.
27. NZPork, within its submission as well as in frequent conversations with ECan representatives on the plan, requested flexibility within rules on nutrient management pre 2017. We proposed alternative methods of reporting for nutrient management in the interim being nutrient loading rates (e.g. kgN/Ha) deposited to soils as a result of farming practices in lieu of nutrient leaching rates below the soil profile. However this request has not been acted on by ECan.
28. It is NZPork's view that this proposed delay seems to be supported by the Ministry of the Environment which notes in its 'Freshwater Reform - 2013 and Beyond' document that:
- 'Models such as OVERSEER®, SPASMO and APSIM are increasingly important for estimating diffuse nutrient discharges from agricultural land. However, it may be some years before systems like OVERSEER® are precise enough to be used as the basis for enforcing quantitative conditions on land use'* (Ministry for the Environment. 2013)
29. Running alongside the OVERSEER project NZPork has been an active participant in ECan's meetings to develop industry values for the proposed Schedule 8 of the plan. As a result NZPork has committed to the development of good practice guidelines and has facilitated and supported the formation of an Outdoor Pig Farmers Group to establish current industry agreed baseline conditions and work towards the development of guidelines for outdoor piggeries. But again this work requires time for completion, and is reliant on the integration of outdoor pigs into OVERSEER so leaching rates from different management and mitigation options can be investigated.
30. We believe that the activities outlined above as well as the proposal to report on nutrient loading rates to soil should meet the requirements of objective 4.28 of the plan pre 2017 as notified which states:
- The loss of nitrogen to water is minimised through first, raising awareness of the nitrogen losses from farming by requiring record-keeping on existing farms, secondly, supporting the use of industry articulated good practice....*
31. As outlined above the industry is making every effort to accommodate the use of OVERSEER in some form for its industry. However it is unlikely to be available for pig farmer use pre 2017.

32. Given the NPS timeline and the Ministry for the Environment's direction on the use of OVERSEER we respectfully ask the Commissioners to reconsider the impacts of this plan on small industries such as pig farming, and allow for flexibility within the rules during the pre-2017 period. Alternatively one solution might be to allow for a staged introduction of industries as adequate information as judged by industries and ECan becomes available.

33. Requested outcome

- Delay the reporting of leaching rates from OVERSEER for outdoor pig farms until 2017 for all rules within the plan that references the program, with nutrient loading rates (kg/N ha) to soils reported in its place.

### Farm Environment Plans

34. NZPork supports the uptake of Farm Environment Plans as a tool to improve environmental management. However, the reality is that there are currently insufficient capable nutrient management advisors in New Zealand to work with land users in the region to develop, implement and audit farm environment plans as required within the plan. Similarly we doubt that there are any advisers within Canterbury that have the necessary experience to develop plans for outdoor pig producers prior to good management practices and OVERSEER being developed. This lack of capable advisors is widely recognised within the primary sector and it was our understanding that this was also well understood by ECan.

35. However, the S.42A report has increased the recommendations for their use across the board and provided no lead-in time for farms or industries to adapt to these substantial requirements e.g. Rules 5.36 (2) Effluent Storage, 5.38(3) Silage Pits and Composts, and 5.41 Nutrient rules as 'farmed pig' have been listed as a potential '*nutrient risk farming activity*'.

36. As mentioned NZPork has committed to a substantial workload leading up to 2017 and it will take several years before there are sufficient resources available for capable trained auditors in outdoor pork production to implement and audit farm environment plans. In this respect we believe that the S.42A report creates an expectation that cannot immediately be delivered.

37. It is NZPork's view that the information proposed to be provided within Part D – Farming information as outlines in the S42a report which includes under section 7 reporting on nutrient loading rates should be sufficient to meet the objectives of the plan pre 2017.

38. Additionally NZPork sees no reason for annual auditing of the Farm Environment Plans as plan already controls landuse change and intensification use on a property. This frequency places undue financial strain on producers. We submit that audits should only occur once every 3 years post 2017.

39. As a result while NZPork supports a majority of the direction outlined within the S42.a report under nutrient management section however we cannot support the references to requirement a Farm Environment Plan and we recommend the delay of the introduction of these requirements until post 2017 for the pig industry for the following rules.

- 5.36 (2)

- 5.38 (3)
- 5.41 (2)
- 5.45(1)
- 5.51
- Schedule 7

#### Action requested

40. Delay the introduction of Farm Environment Plans and audits until post 2017 in all rules within the plan with allowances for reporting Farm Information as outlines in Schedule 7 part D in its place.

#### Farming definition

##### Changed (in terms of Rules 5.42 to 5.45)

41. NZPork's submission opposed the definition for 'changed' within The Plan, principally on the grounds of the use of OVERSEER (due to limitations of the model for outdoor pigs as well as, in our view, the inappropriate use of the model). However the industry also had concerns about the limitations of the definition when applied practically to 'on the ground' farms.
42. Outdoor pig farmers traditionally revolve around arable properties through rotations such as pig/crop/pasture rotation systems. Rotations traditionally can occur within a defined property or over a number of properties or with new land being leased for the pig phase and then returned to the land owner for the cropping phase. Rotations can last anywhere from 1-10 years. It is anticipated that the frequency of this rotation will become a vital component of good nutrient practice.
43. These activities will be restricted or prevented under the current plan as the cost of compliance will affect the ability of a farmer to change sites. This has the potential to increase nutrient leeching because farmers will be more likely to stay on one site for longer.
44. We submitted that the scope of the rule being tied to a property is too limited to allow for good practice rotational systems and leasehold farming. It seems more appropriate for some activities to be allowed to tie the consent to the activity rather than the site itself (similar to that of a global consent to discharge), to allow for movements of activities within a catchment scale without triggering the definition of 'changed'.
45. We are also concerned that the time frame proposed within the definition (the period between 1 July 2011 and 30 June 2013) does not allow for consideration of rotations which can be anywhere from between 1-10 years depending on the length of time of pig phase and cropping.
46. We are aware that the Commissioners have requested the technical experts in OVERSEER to develop a definition of landuse change which applies to the model in a manner appropriate to the model's capabilities.
47. While we support the Commissioners' actions this potentially only addresses one of our concerns, and the industry still requires an interim method of accounting for landuse change

pre 2017 due to the proposed reference to OVERSEER. As a result we request that any definition includes the following intent:

48. *Change in farming activity means any one or more of:*

....

*Pre 2017 for farming systems where OVERSEER is deemed inappropriate e.g. outdoor pigs a 10% increase in the nutrient loading rates (kg/ha) carried on the property, compared with the annual average nutrient loading averaged over 1 July 2010 to 30 June 2013; or where it can be demonstrated that the land is used as part of a crop/grazing cycle the average length of that cycle will be applied.;*

49. And that:

*A change in land use is not triggered by an activity moving within a catchment provided there is no increase in nutrient loading (pre 2017) and leaching (post 2017).*

### Definition

#### Nutrient discharge

50. NZPork's submission requested an amendment to the definition of 'nutrient discharge' as written in the LWRP. The primary concern, as outlined above, is the use of OVERSEER within the definition. The Section 42.A Report recognised our concerns and recommended the following amendment to the definition (Recommendation R2.10.122):

**'nutrient discharge** means nutrient loss from the property by surface runoff or by leaching below the root zone ~~the modelled discharge of nutrients using OVERSEER~~'.

51. While this addresses our concern regarding removing the use of OVERSEER from predicting nutrient losses on pig farms, the Officer's Report still relies on reporting nutrient leaching below the root zone for which there is still no reliable measurement method on outdoor pig farms.

52. NZPork requests the following amendment to the definition:

**nutrient discharge** means nutrient loss from the property by surface runoff or by leaching below the root zone (nutrient loading rate e.g. Kg N/ha applied to soils will be reported pre 2017 for outdoor pig production)

### New definitions

#### Advanced mitigation measures

NZPork opposes the list of advanced mitigation measure as potentially restricts management options. It is our view that advanced mitigation measures such be developed outside the plan with specific measures for individual industries and sites.

Action requested delete definitions;

*Advanced mitigation measures means the adoption of multiple techniques from the following list to minimise nutrient losses from a property:*

*1. Winter shelter*



- ~~2. Restricted grazing~~
- ~~3. No winter grazed fodder crops~~
- ~~4. Reduced stocking rates~~
- ~~5. Low N feed~~
- ~~6. Reduced/Nil fertiliser~~
- ~~7. Improved animal efficiency~~
- ~~8. Improved irrigation efficiency (better than 80%)~~
- ~~9. Nitrification inhibitors~~
- ~~10. Optimum Olsen P~~
- ~~11. Low solubility P fertiliser~~
- ~~12. Effluent management~~
- ~~13. Reduced water use~~
- ~~14. Catch cropping~~
- ~~15. Improved soil physical condition to reduce erosion~~
- ~~16. Natural wetlands~~
- ~~17. Floodplain wetlands~~
- ~~18. Constructed wetlands~~
- ~~19. Riparian margins~~
- ~~20. Grass buffers~~
- ~~21. Swales~~
- ~~22. Sediment traps/ponds<sup>100</sup>~~

### High Nutrient Risk Farming

53. NZPork opposes the introduction of the definition for “high nutrient risk farming” as there is no definition for what ‘farmed pigs’ means. The intent of the definition is to cover outdoor farming activities however as currently stands it can be interpreted to include all pig farming operation.
54. NZPork would strenuously oppose any move to include indoor farming activities within this definition. The discharge of effluent in indoor operations is already well managed and controlled through other rules within The Plan e.g. rule 5.35a-c and 5.56.
55. Action requested - delete definition or amend as follows:

High nutrient risk farming activity means any one or more of:

1. feeding cattle on a fodder crop that has been established on irrigated land;
2. arable farming or horticulture (excluding grapes);
3. Outdoor farmed pigs; or
4. irrigated dairy.

### Schedule 8 – Industry Derived Nitrogen Discharges.

56. NZPork’s submission opposed Schedule 8 as notified on the grounds that given the significance of the proposed rules within The Plan further certainty as to the process of establishing the Industry Derived Nitrogen Discharges values was required i.e. role of primary industries, ECan etc.

57. Since the initial submission NZPork has been a participant in the regular meetings with ECan, Crown Research Institutes and other primary sectors on the development of Schedule 8. NZPork has committed to the development good management practice under different farming conditions, including developing a set of numbers on nutrient losses.
58. What has become clearly apparent from these meetings is that not all industries have access to same level of industry resources or scientific data. NZPork is actively working to develop OVERSEER and is committed to working towards the 2017 timeline to develop Schedule 8. However within that time frame there is a large amount of work required to achieve the requested outcome.
59. NZPork opposes the proposed changes to Schedule 8 within the plan and request that it is retained as notified.

### Rule 5.33 Animal and Vegetative Wastes

60. This rule is intended to allow for the discharge of 'solid animal waste, or vegetative material containing animal excrement or vegetative material' from primary industries including intensive farming process such as litter from piggeries. However, all manures under the current definition could be regarded as 'hazardous waste' as they contain pathogens.
61. We note that the Officer's report has proposed amendments to this rule (Recommendation R5.33) and while we are not opposed to proposed changes, we note that as the rule currently stands, it does not address our concerns.
62. The term 'Hazardous Waste' needs to be removed from this rule in order for this rule to be workable within a rural environment. We accept, however, that the inclusion of the term may be appropriate for waste from industrial or trade processes, therefore we propose the separation of intensive farming processes from industrial and trade processes through the creation of a new rule.
63. Action Requested – Amend as follows:

*5.33 The discharge of solid animal waste, or vegetative material containing animal excrement or vegetative material, including from an ~~intensive farming process or~~ industrial or trade process, into or onto land, or into or onto land in circumstances where a contaminant may enter water is a permitted activity provided the following conditions are met:*

- 1. The material does not contain any hazardous substance or hazardous waste;*
- 2. The material does not include any waste from a human effluent treatment process; and*
- 3. The material is not discharged:*
  - (a) onto the same area of land more frequently than once every two months;*
  - (b) onto land where solid animal waste, or vegetative material containing animal excrement or vegetative material from a previous application is still visible on the land surface;*
  - (c) onto land when the soil moisture exceeds field capacity;*
  - (d) within 20 m of a bore used for water abstraction, a surface water body not listed in Schedule 1734 or the Coastal Marine Area;*
  - (e) within 50 metres of a surface water body listed in Schedule 17; 35 or*

*Splits present rule into 2 rural/industrial*

*(f) within a group or community drinking water supply protection area as set out in Schedule 1.*

*5.33a) The discharge of solid animal waste, or vegetative material containing animal excrement or vegetative material, ~~including~~ removed from an intensive farming process ~~or industrial or trade process~~, into or onto land, or into or onto land in circumstances where a contaminant may enter water is a permitted activity provided the following conditions are met:*

- 1. The material does not contain any hazardous substance ~~or hazardous waste~~;*
- 2. The material does not include any waste from a human effluent treatment process; and*
- 3. The material is not discharged:*
  - (a) onto the same area of land more frequently than once every two months;*
  - 0(b) onto land where solid animal waste, or vegetative material containing animal excrement or vegetative material from a previous application is still visible on the land surface; 33*
  - (c) onto land when the soil moisture exceeds field capacity;*
  - (d) within 20 m of a bore used for water abstraction, a surface water body not listed in Schedule 1734 or the Coastal Marine Area;*
  - (e) within 50 metres of a surface water body listed in Schedule 17; 35 or*
  - (f) within a group or community drinking water supply protection area as set out in Schedule 1.*

## **Stock Holding Areas and Animal Effluent**

### **Definition for Stockholding Area**

64. NZPork's submission opposed the definition of stockholding area in its current form. We are particularly concerned about the reference to maintenance of ground cover as a trigger to define stockholding areas.
65. NZPork is supportive of the requirement to maintain ground cover within the provisions, as the industry believes that the ability to do so is an element of industry good practice within outdoor farming. However the industry is concerned about what can be interpreted as 'maintaining ground cover' at a compliance level given seasonal variations.
66. Over this summer I am aware of outdoor pig farms being approached and issued abatement notices under ECan's previous NNRP because they have been deemed as 'intensive farms' at the time of inspection as they have been unable to maintain ground cover. As you are no doubt aware this has been an extremely dry summer with the ability to maintain ground cover a challenge under non irrigated pastures for any stock at any stocking rate.
67. We seek greater assurances outlined within the Plan as to what maintaining ground cover implies. We believe that for compliance a definition may be required within the Plan.

### **Proposed definition**

68. Maintaining ground cover means, ground cover is maintained at greater than 50% across a paddock averaged over a period of 1 year.

## Stock Holding Areas and Animal Effluent Rule 5.35 and B

69. NZPork's submission opposed Rule 5.35 with the proposed plan which relates both to stockholding areas as well as the storage of animal effluent. We note that the S.42A report makes sweeping changes to this rule under rules 5.35A-C under Recommendation 53.5. While we support some of the change made within the rule we do oppose the introduction of 5.35B 3 outlined below as being counterproductive to installing good effluent management practice. The rule states that:

*5.35B The use of land for the collection, storage and treatment of animal effluent is a permitted activity, provided the following conditions are met: ...*

*3. The total volume of animal effluent stored on a property is no greater than 1,500 m3.*

70. Increasing Regional Councils are requesting that farmers practice deferred irrigation techniques where effluent is stored on site over periods when soil conditions are not suitable for application. This practice is wide spread, has been encouraged by Councils and is known to reduce nutrient leaching and run off. In fact it is listed within the S42a Report in rule under rule 5.36 (bullet point 4) matters in which ECan restricts discretion.

71. Imposing a limit on effluent storage volume in order to meet the permitted activity status and making the alternative discretionary will not encourage storage. Additionally if ponds are sealed as required under rule 5.35B part 2 we question the leaching capacity of larger systems and if these restriction on storage has the potential to have a greater negative impact on the environment.

Action requested

Delete 5.35B section 3

*5.35B*

*~~3. The total volume of animal effluent stored on a property is no greater than 1,500 m3.~~*

NZPork appreciates the opportunity to be heard, and would be pleased to provide any clarification required on any of the points outlined above.

Jaye Hill  
24<sup>th</sup> May 2013

## References

Ministry for the Environment. 2013. *Freshwater reform 2013 and beyond*. Wellington: Ministry for the Environment.

Statistic NZ 2013 Infoshare website [www.stats.govt.nz/infoshare/default.aspx](http://www.stats.govt.nz/infoshare/default.aspx) accessed the 12th May 2013