Agriculture is a critical and significant cultural, economic and environmental asset for Malta, with great potential to play an enhanced role in Maltese quality of life, for the 21st century. Through appropriate recognition and support of this sector within Government policy, this potential can be realised (Towards a New Agricultural Policy for Malta, Dwyer, J. et al, 2014). A National Agricultural Policy for the Maltese Islands 2016-2025 (NAPM) should strive to overcome those factors that are inhibiting growth in the current farming scenario within the Maltese Islands. The Policy should aim towards achieving the following critical targets:

a) Increasing the competitiveness of active farmers and livestock breeders by focusing on quality and embracing diversification.

b) Facilitating the entry of young farmers by creating a cost-effective agri-business sector.

c) Fostering sustainability of farming activities by adapting to the local geo-climatic conditions.

d) Ensuring that farmland is managed by genuine farmers and resist divergent land uses.

All policy objectives presented in the NAPM will have to put into perspective the stakeholders who will be forming the agricultural sector from now until 2025, thus placing farmers and livestock breeders at the centre. As a starting point for the NAPM, Government aims at taking the necessary measures to back adaptation and innovation mechanisms that will ensure a present and thriving agriculture sector by 2025. The rationale for the development of this Policy is that agriculture in the Maltese Islands within the next ten (10) years should be preserved and enhanced by creating a scenario in which the current rural actors can attain a respectable income from their operations and pave the way to embrace new entrants.

The NAPM is intended to provide guidance to all relevant stakeholders on the direction to embark on for the upcoming ten (10) years. Public entities involved with certification, permitting and decision making relevant to agriculture undertakings will find a set of guiding principles on which to base their evaluation. On the other hand, private entities directly involved in the Maltese agricultural scenario will find direction in the NAPM before they decide to invest any further or to diversify their operations. This Issues Paper will provide an outline of the main issues which have been identified by stakeholders as being decisive to achieve the four (4) critical targets listed above with the aim to receive further feedback from stakeholders in the public and private domain. This approach will then lead towards the drafting of the NAPM for the years 2016 - 2025.
**Purpose of this document**

This Issues Paper will be presenting the main issues identified so far with various stakeholders and in line with published strategies as well as existing legislations. In order to achieve a successful NAPM, a broader participation of other stakeholders and the general public is necessary. For this reason, the Issues Paper will be made available for public consultation and will be officially presented in a National Consultation Event to be held on the 28th and 29th of March, 2016. Once the Issues Paper is consolidated, it will serve as the basis for the drafting of the NAPM for the period 2016 - 2025.

Five (5) categories of issues have been identified to create the basis for discussion and eventually the development of policy objectives. Nevertheless, when one considers the complexity of the subject matter, there could be issues that could fit in more than one category. These five (5) categories include:

1. **Food quality and security**
2. **Consolidation of land holdings**
3. **Sustainability of key ecosystem services**
4. **Competitiveness and diversification**
5. **Adaptation to geo-climatic conditions**

Each category is being presented in this Issues Paper with the respective policy issue (refer to Table 1 below). A set of questions accompanies each section so as to involve stakeholders and the general public in the formulation of the NAPM. Furthermore, a feedback form is also being presented to gather information on the participants in the consultation process.

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**Table 1: Issues identified for discussion and the subsequent development of policy objectives**
Current status – Crop sector: Maltese fruit and vegetable farmers focus mainly on producing fresh products for the internal market rather than specialising on particular crops for further processing. Most active farmers cultivate a wide variety of crops on very small land parcels using intensive farming methods to maximise their output. Out of 11,452.8 hectares of Utilisable Agricultural Area (UAA) in the Maltese Islands, 9,078.8 hectares is arable land, 1,251.2 hectares are committed for permanent crops, and 1,122.9 hectares are kitchen gardens (a term referring to agricultural land devoted to the cultivation of crops mainly intended for the consumption of the holder and his household). Vegetables grown in kitchen gardens cover an area of 566.6 hectares, whilst vegetables grown in arable fields add up to 1,730.8 hectares. These figures exclude potatoes which constitute an area of 256.2 hectares in kitchen gardens and 701 hectares of arable land. Apart from featuring in their respective permanent crop category, fruit trees and olives are also grown in kitchen gardens and cover another 299.8 hectares (Agricultural Census, NSO, 2010).

Apart from direct sales and sales from two farmers markets, horticultural produce is predominantly marketed at the Pitkaliija market, which is owned and regulated by the Government. Fresh produce arrives at this market on Mondays and Thursdays and is auctioned by middlemen to hawkers. Middlemen receive 8% commission on sale and the farmers are paid monthly. In practice, the middlemen negotiate the prices and farmers claim that such a system works against them since they have no say on the price given and there are no grading standards in place yet. They argue that since weighing as well as data inputting is done manually, there is no mechanism capable of guaranteeing traceability of produce passing through the Pitkaliija market.

Issues concerning correct fertiliser and pesticide applications by fruit and vegetable farmers have been predominant. To date there is still a general concern on the use of fertilisers which by law are to be done against an approved crop and fertiliser plan. Such concern has grown specifically due to media reports in which allegations of liquid manure is being used haphazardly compromising food health issues. An effective regulatory framework has been set up together with extensive information sessions on the obligations of farmers with respect to the Nitrates Directive, yet the farming community requires additional assistance for the execution of the whole process, including soil sample collection and testing for the eventuality of a fertiliser plan. Several farmers are still unsure how the Nitrates legislation is to be employed for specific cropping systems, in particular covered crops. Despite a legal framework having been set up to enhance the knowledge of pesticide residue, more monitoring procedures must be considered ensuring that maximum residue levels (MRL) are kept within the acceptable thresholds.

Horticultural production in the Maltese Islands is not solely related with fresh vegetables and fruits placed on the market. Out of a total area of 1,251 hectares of permanent crops in Malta, 614 hectares are vineyards, of which 434.6 hectares are committed for quality wines and 103 hectares for other
wines (Agricultural Census, NSO, 2010). Since EU accession, the *viticulture* sector in Malta was transformed with the proliferation of vineyards growing international grape varieties together with the established Maltese Gellewża and Girgentina varieties. This investment came about as a response to a generous vine planting scheme and subsequent subsidies handed to the sector under the Special Market Policy Programme for Maltese Agriculture (SMPPMA) regime. Two Legal Notices (LN416 of 2007 and LN167 of 2007) regulate the technical specifications of DOK Wines and IĠT Wines respectively. Through these regulations, wineries are provided with banderols acquired from the Directorate of Agriculture, to label Maltese DOK or IĠT wine bottles and prove their traceability. The remaining grapes which do not meet the quality parameters by DOK or IĠT regulations are classified as table grapes for table wine. Given that the price for grapes diminished over the years, a number of farmers were reluctant to keep working their vineyards, some of which are being grubbed up following the expiry of a ten-year vine contract with ARPA.

A sector that is typically associated with crop farming in Malta is the *tomatoes for processing* that is linked with the production of the *Kunserva* paste which has been recognized as a traditional Maltese product through Legal Notice 250 of 2013. There are two tomato processors in Gozo and one in Malta who produce *kunserva* and other related products such as tomato pulp and ketchup. Tomato growers are represented by a number of producer organisations and one co-operative which together currently produce over 10,000 tonnes of tomatoes through cultivars that are specifically selected for processing purposes. This amount excludes, and differs from, tomatoes which are produced for fresh table consumption, that are generally grown in greenhouses using supporting ropes or on the traditional vine method using reeds as plant support. Following the termination of the SMPPMA funds related with the tomatoes for processing sector in 2014, tomato producers will be supported through a Voluntary Coupled Support mechanism that will total €900,000 per year starting in 2016.

Another renowned crop in Malta is the *potato for export* that for decades has been exported to northern European countries were the winter does not permit potato cultivation. Spring potatoes in Malta are mostly grown for export with the sector being organised through exporting companies who import certified disease-free potato seeds mainly from Holland and Ireland. These potato seeds are sold to farmers based on orders and are sown in November and December. The main recipient country for Maltese export potatoes is the Netherlands and according to the ‘Malta in Figures’ publication issued by NSO in 2014, an average of 5,425 tons of potatoes were being annually exported between the year 2010 and 2013. The winter potato crop, which is less popular among farmers, is grown for the Maltese market.

**Current status – Livestock sector:** Livestock breeders in Malta produce a range of meat and dairy products that are marketed in various forms and means. With the removal of import barriers as part of EU accession, Maltese livestock sector has had to experience substantial changes as it has to compete with products from other EU countries that are produced with lower costs and on larger scales. In the last decade, the livestock sector was partially modernised but certain issues such as low production levels, low skill levels, a low quality domestic fodder production still persist in certain sectors and/or
farms. The latest figures published in the Farm Structure Survey (NSO, 2013) based on September 2013 indicate that the total cattle population amounted to 14,949 heads, of which 6,239, or 41.7 per cent, were dairy cows. The pig population amounted to 51,641 heads, while sheep and goat stocks numbered 9,916 and 4,032 heads respectively. A total 0.9 million poultry heads were registered, of which 67.2 and 32.4 per cent were broilers and laying hens respectively.

The cow dairy sector is organised through a vertical structure where the milk producer cooperative (KPH) managed to shorten the market chain. Apart from the cost cutting for the producer and the consumer, this system caters for the standards required in relation with food presentation, labelling and traceability. The average annual milk production registered in Malta between 2010 and 2013 is that of 40,812 thousand litres (Malta in Figures, NSO, 2014). On the other hand, the beef sector in Malta is considered to be a by-product of the dairy industry. Each animal is identified with two (2) ear tags that are linked with a label produced by the slaughterhouse. The classification of the beef grade is decided by the slaughtering plant and there is no mechanism in place to assign a price to particular grades. Since feed is mostly imported, the beef sector cannot realistically compete with imported beef products. The biggest issue with labelling and traceability of local beef and all meat products is the actual labelling of the product as ensuring traceability of non-packed meat products implies very strict enforcement on butcher shops and other retail outlets in order to serve as a deterrent to abusers.

Pig production in Malta is being severely affected by the price of imported feeds, water and electricity. These factors are limiting the capability of the Maltese pig producer cooperative (KIM) to invest in value added production. Apart from a health mark for each pig and a label for the carcass issued by the slaughtering house, the pig cooperative embarked on the ‘Majjal ta’ Malta’ quality mark. Even if such a label boosts the domestic product on the market, it could easily be abused in butcher shops as it could be placed on any pork cut or positioned anywhere on the display. The lack of enforcement on such a label reduces its impact with consumers as well as the benefits it could return to the pork sector. Other value added products from pork meat are at the mercy of butchers since pig breeders deliver their pigs to the abattoir and their cooperative follows up with the meat processors through mutual agreements. It was only lately that cutting and deboning were introduced on the slaughter line to provide a marketable alternative to whole carcasses.

Restructuring of the poultry sector in Malta following EU accession in 2004 was radical on various fronts. Changes in the legal framework led to an increase in the production standards and changes in animal welfare related with enriched cages. Most of the small producers gave up their laying farms and egg production is currently delivered through a small number of layer farms that have invested in packing houses as well as in self-marketing systems. Thus, food presentation, labelling and traceability within the layer sector are already of a high standard but some producers argue that there should be more market enforcement on traceability. Although huge investments have been made on layer farms, this sector is still vulnerable to foreign competition since producers compete with each other rather than with foreign producers. The estimated annual average egg production in the Maltese Islands between the year 2010 and 2013 was that of 69,541,000 eggs (Malta in Figures, NSO, 2014).
In the last decade **broiler production** in Malta faced dramatic challenges with the increase in importation of chicken meat at more competitive prices for consumers. The Maltese product is perceived as being fresher than imported meat but the product origin remains unclear when it is retailed in the form of fresh cuts. Packed whole chickens are labelled with the Malta Poultry Slaughtering Plant (MPSP) that refers to a Maltese origin, although not exactly identifying that the chicken was bred in Malta. Broiler production is controlled by the slaughterhouse keepers who set the crop timing and supply the chicks through a contract with the producers. Since the slaughterhouse determines the intervals between broiler batches, it may not accept a fully-grown batch, at the expense of the producer who loses profitability through added inputs related to keeping the birds longer on the farm. Moreover, the slaughtering plants in Malta market the product rather than the producers through a cooperative or a producer organisation. It is a known fact that since EU accession and the liberalisation of markets, protectionism is not possible anymore and thus producers need to compete by placing more focus on cooperation, education and efficiency.

Another meat product requested in the Maltese Islands for its traditional culinary link is the rabbit. **Rabbit production** in Malta was characterised by a large number of small scale backyard farms which declined since the EU accession. This decline was due to a combination of factors ranging from economies of scale, environmental obligations, and importation of rabbit meat from other countries at a lower cost for customers. Maltese rabbit breeders have a competitive disadvantage as they have to use imported feeds with very high importation costs. Nevertheless, there are some rabbit breeders who invested in commercial farms with over three hundred (300) breeding does and equipped them with modern rabbit housing to abide by hygiene regulations as well as with animal welfare standards. Moreover, there was also investment in diversification through private slaughterhouses and the creation of value-added products such as kebabs, burgers, sausages and stuffed parts. A positive traceability effort to distinguish Maltese meat from imported rabbit meat was the introduction of tags supplied by the Veterinary Services.

The **sheep and goat sector** in Malta is dispersed in small farms with 88% of the sheep being held in farms with less than one hundred (100) sheep and 86% of goats being reared in herds of less than one hundred (100) goats (Agricultural Census, NSO, 2010). Sheep and goats are generally housed together in mixed flocks within yards or farm buildings. The principle product associated with this sector is the traditional Ġbejna cheeselet that is produced from sheep milk or a mixture of sheep and goat milk. Apart from a small number of large farms exceeding one hundred (100) sheep, the majority of sheep farms are small and produce homemade cheeselets that are sold directly to consumers. Some sheep breeders developed a packaged and labelled product in line with sanitary regulations which is sold in various retail outlets. Currently, there is the Ġbejna regulation in the pipeline which aims at regulating the production method for this traditional product so as to protect its denomination and origin. The latter is stirring discussions between producers since the definition of Ġbejna is being linked with sheep milk only and thus other products, including those made from cow milk, will have to change the product name on the label.
Current status – product presentation and labelling: As summarized above, the investment level of food presentation, labelling and traceability varies throughout different agricultural sectors. Nevertheless, one has to consider that all these sectors together constitute agriculture in Malta and they have a strong link with food security issues of this island state. It is thus essential that Quality marking and labelling are applied throughout the whole agricultural spectrum so that the food production chain is holistically consolidated to the benefit of both the producers and consumers. The level of development on quality marking in Malta so far was negligible and farming sectors are missing out from various opportunities, especially from the marketing of traditional delicacies with the large amount of tourists visiting the Maltese Islands. This lack of value added investment implies that product traceability at the production and retailing stage is not always being provided, with the majority of consumers basing their trust on the person, be it the farmer at the market or the street hawker, rather than on the information printed on the label.

A good initiative to produce an effective quality label is currently being undertaken by the Directorate of Agriculture through the development of a legal framework establishing the quality regime with technical specifications that can be audited by certified third party authorities. In parallel, work is under way on upgrading an IT system that will ensure traceability of products with their producers and origin. Ten (10) sectors were identified in all so that they are geared towards achieving the Quality Label. These sectors include tomatoes for processing, cow milk, honey, olive oil, rabbits, broilers, eggs, fruit and vegetables, pork products and sheep/goat milk products. The Directorate decided to commence the process with two (2) sectors that have an established value chain and a production contract with processors in hand. Thus, the tomatoes for processing and cow dairy milk sectors were chosen to launch the Quality Mark.

With the introduction of the Quality Mark, labelled products will guarantee a level of investment that goes beyond the basic regulations. Some products such as honey can be easier to control as the producers are also the processors. Other sectors, such as fresh fruit and vegetables, are more complex for the time being as the food chain is not properly organised and have still to reach the basic marketing standards before they can qualify for a value added quality label. The Legal Notice for the national quality mark has already been formulated and communicated to the European Commission. Guidelines, control procedures and quality standards are being finalised to complete the documentation needed to launch the quality scheme. The success of such a quality mark depends also on the collaboration from the various sectors and their representative associations. This quality mark will be enforced through three main channels, namely 1) auto control by producers who have to keep up with the protocols and maintain records, 2) third party controls from an accredited entity that will be chosen by the authority, and 3) supervision by the authority itself through audits on the producer and the third party controller.

One of Malta's obligation through EU accession was that Marketing Standards rules as per EC Regulation 1308/2013 became mandatory for all marketed fresh fruit and vegetables. A Legal Notice (L.N. 109 of 2016 Supplies and Services Act) was published in March 2016 and is currently in the initial period of its implementation phase by Directorate of Agriculture officials who are introducing
obligations with producers and processors. These standards oblige producers, processors and retailers to follow established benchmarks on labelling, traceability and food presentation to ensure fair trade across the marketing chain for fresh fruit and vegetables. The responsibility as to who is to label, grade and present such produce falls throughout the marketing chain and thus an inter-ministerial policy, involving the Pitkalija Ltd, is needed so that mutual agreement is established over the roles and responsibilities related with grading, presentation and quality issues. Marketing Standards can thus be considered as a tool for the monitoring of an effective presentation, labelling and traceability system. During the first half of 2016 labelling and traceability revisions are expected to take place within the Pitkalija and the Farmers Markets, for which all the stakeholders within the marketing chain will be provided with all the information pursuant to the Marketing Standards. The Agriculture Directorate will commence its inspection campaign in the form of an educational campaign, with enforcement of the Marketing Standards expected in the second part of 2016.

As part of the Pitkalija reform, a public-private partnership for the administration of the Pitkalija market is currently being formulated and it is being envisaged to encompass a centralised grading station. The implementation phase of Marketing Standards for fresh fruit and vegetables is turning out to be challenging as 1) the farmers’ involvement through recognised producer organisations is weak and 2) there is a huge challenge to secure the product origin. The various stakeholders involved should start to comprehend that Marketing Standards will ensure traceability along the whole chain, starting from the producer and ending on the market, for the benefit of all involved.

Weakness in the set up of producer organisations has hindered the effectiveness for farmers to fulfil and achieve the targets and objectives falling within the Single Common Market Organisation Regulation; the notion of farmers coming together under a framework recognised by the European Commission for them to reach the following objectives: 1) ensuring that production is planned and adjusted to demand, particularly in terms of quality and quantity; 2) promoting concentration of supply and the placing on the market of its members’ produce; 3) reducing production costs and stabilising producer prices; and 4) promoting the use of cultivation practices, production techniques and environmentally sound waste-management practices in particular to protect the quality of water, soil and landscape and to preserve biodiversity. Past failures in producer organisations to successfully reach the required objectives laid down in the Operational Programmes resulted in loss of EU funds being absorbed and resulted in scepticism over the viability and potential opportunities that may be exploited through their formation.

Questions on Issue 1:

1. Can you identify other important issues related with food quality and security?
2. Do you have any comments or suggestions to improve the current situation on this issue?
Reference: 002
Category: Consolidation of land holdings
Issue: Improving farmland competitiveness

Current status: Farmland in the Maltese Islands is predominantly Government-owned and is leased to farmers through agricultural leases (qbiela) renewed every year. Such leases were determined many years ago based on the cultivation of land at a rent of a few cents per tumulo. The legislation governing these leases is based on Chapter 199 (The Agricultural Leases (Reletting) Act) of 1967, with subsequent amendments. As things currently stand, these leases are passed over only from parents to children either through agreement or by succession upon the death of the lease holder. Thus, these leases cannot be transferred between siblings without the consent of their parents and cannot be sub-letted or sold. This system provides a degree of ownership security to the lease holder, even if the lease is renewed every year. An update to Chapter 268 (Article 3, Section 6 (d), Disposal of Government Land Act) was introduced in 2012, where land transfer can take place horizontally only in cases where the recipient is a full-time farmer with a minimum annual turnover of €20,000 supported by proof of sale and from the declarations made in VAT returns.

In real terms agricultural leases do not provide enough peace of mind for genuine farmers who are willing to invest as the land they work is still owned by the Government. As per Article 4 of Chapter 199 (The Agricultural Leases (Reletting) Act) of 1967, agricultural leases are not renewed in cases when the tenant fails to cultivate the land or fails to pay the lease for two consecutive years. In order to enforce this article the Government Property Division has to open court proceedings against the lease holder to recover abandoned farmland. If the Government has unoccupied land, it can be issued through a call for tender on the Government Gazette but in most cases the market price for such land is prohibitive for farming purposes. There were various requests made to the Government by farmers in order to facilitate full-time farmers and young farmers through such tenders. Such a mechanism would help in combating competing demands for the use of rural land and buildings in the countryside for various purposes which tend to be more lucrative or popular than agriculture. However, a major drawback for authorities involved with decision making and permitting related to agriculture is the absence of a benchmarking system for farmers. The current system whereby any person can register as a full-time or part-time farmer with the Employment and Training Corporation is prone to abuse, as non-farmers can benefit from any schemes that are available and compete with active farmers.

In 2001, the Agricultural Land Scheme was launched by the Government Property Division to allow cultivators of Government-owned agricultural land to apply for a new lease with various benefits to the lease holder. These benefits included the right of first refusal if Government decides to sell the land within a period of fifteen (15) years and the inclusion of the tenants name in the Property Title certificate as appearing at the Land Registry. This scheme provided an opportunity for registration of government agricultural land where lease agreements had expired or who had a lease agreement and were tilling arable land on a tolerance basis. This was a one-time scheme and it provided a stronger commercial base in that the annual rent was increased at least tenfold where the lease for each tumulo

9 | Atriga Consulting Services Ltd, Level 3, Suite 5, ‘Rosa Marina’ Building, 216, Marina Street, Pieta’, PTA 9041, Malta
of agricultural land was set at Lm4 (four Maltese Liri). A number of applications under the Agricultural Land Scheme are still being processed due to a large number of applications being submitted and the laborious nature of such work.

The current situation with agricultural leases is restricting the consolidation of farmland by progressive farmers who try to overcome the inherent difficulties related to the economies of scale of Maltese farming. Thus, if legally possible, such farmers would be ready to enter into agreements with other leaseholders to cultivate their farmland. Farmland consolidation is not just an issue of cultivating more land but one linked with crop rotation. Active farmers, mostly full-timers, are in a situation where their farmland has been drastically depleted of nutrients with consequent drop in productivity as a result of monocultivation. This factor, coupled with the accumulation of soil pathogens such as nematodes, fusarium and verticillium, resulted in the necessity to over-cultivate fields so as to compete on a quantity-based market. All these intertwined issues led to the depletion of farmland and groundwater resources, worsened the working conditions for farmers and reduced their revenue from crop production.

It is a known fact that farmland in Malta is characterised by extremes with active farmers utilising intensive methods by repeatedly cultivating mixed crops without allowing enough resting time for nutrient recovery. On the other hand, there is a large amount of farmland that is either idle or being used for fodder crops cultivation through service providers. In the latter case, most of the leaseholders do not set foot on their farmland as they pay third parties for seeding, fertilisation and harvest. For many decades, this system was considered practical since most farmland was being cultivated without the need of the landowner to get directly involved in the farming activities. However, most farmers and landowners making use of such system are claiming that the price of fodder crop fell drastically and in certain instances they had to pay the difference in costs to the service provider rather than get paid for the fodder produced on their land.

Questions on Issue 2:

1. Can you identify other important issues related with consolidation of land holdings?
2. Do you have any comments or suggestions to improve the current situation on this issue?
Reference: 003
Category: Sustainability of key ecosystem services
Issue: Water and related agro-ecosystem services

Current status: Malta with its semi arid climate and its high population density suffers from an inherent chronic water supply shortage. Although there is a high demand for domestic, tourism and industrial uses, agriculture remains the principle consumer of national water resources. The small size of the islands, the short unreliable rainy season and the lack of mountain ranges, all contribute towards a lack of natural surface water in the form of rivers and lakes. In fact, river valleys in the Maltese Islands are seasonal channels which drain run-off water following rainy periods. To make up for such natural constraints, the other two (2) sources being utilised to meet the high water demand are groundwater and desalinated seawater. Agriculture is mostly dependent on groundwater, where the mean sea level aquifer systems are suffering from quality deterioration due to saline water intrusion and pollution. Apart from other sources, groundwater pollution is also linked with operators that abuse from agricultural practices such as the management of livestock waste and the use of chemical fertilisers and pesticides.

Notwithstanding the fact that most indoor livestock units make use of water that is derived from desalination plants, most horticulture units cannot afford to utilise this source. In fact the process of reverse osmosis is expensive with an estimated production cost of €0.75 per cubic metre, rendering it non-viable for irrigation purposes. Most of the water used by farmers for crop irrigation comes from groundwater bodies and from rainwater harvesting. The latter, however, is not always possible since the rainfall intensity and distribution pattern vary widely, hindering rain storage for the long summer months. Thus, most rainwater stored in reservoirs is utilised in spring and the same reservoirs are topped up in summer through replenishment with groundwater. Since EU accession and through the tapping of RDP funds, there were a number of initiatives by farmers to construct underground reservoirs for the collection of rainwater, especially from the roof of greenhouses.

Apart from the traditional hand-dug spejjer reaching low-lying aquifers, most groundwater pumped by farmers and livestock breeders is accessed through boreholes which were dug in the last three (3) decades. Around 3,500 groundwater sources used for agriculture were registered with the Malta Resources Authority in 1997 and 2008 and are currently in the process of being metered. Nevertheless, it is perceived that there are numerous boreholes that were not registered during this process. Borehole metering will provide data on water abstraction from registered sources as well as better planning of water use for farmers. Government policy does not foresee the introduction of volumetric charges for groundwater abstracted from agricultural boreholes but there are already costs that are being incurred by farmers that have to be put into consideration. These include capital costs for borehole drilling and pumping equipment, as well as electricity costs including a €1 daily rent for three-phase electricity supply or else fuel costs for those who are off-grid making use of generators. These costs are estimated to average €0.15 to €0.25 per cubic metre and in certain cases where groundwater extraction is on a low scale the abstraction cost may fetch a price of €5 per cubic metre. Maltese farmers have adapted to
water shortage, when possible by changing their irrigation system to drip irrigation in order to reduce costs and conserve water.

The reasoning behind the idea of not pricing the groundwater extracted for agricultural use is understandable since an added cost on a primary resource such as water will definitely burden the sector. This could encourage undesired consequences such as the illegal drilling of additional boreholes to bypass the metering and pricing system, and thus defeating the purpose of the scheme. Moreover, without the necessary data in hand and no benchmarking in place, water quotas cannot be established and sustained. Data gaps with regards to abstraction amounts, land use maps, water demand and cropping data create an inability to produce abstraction control mechanisms as well as to plan other means to reduce water pollution. With such data in hand, agriculture development in Malta can be enhanced by implementing quantitative control measures such as crop planning with inputs and outputs. Further studies on water use in agriculture will also help decision making and lead to rational estimates on groundwater abstraction by the agricultural sector.

In order to provide another source of water for agriculture, the Water Services Corporation (WSC) is currently undertaking an infrastructural project to deliver new water to main agricultural areas in the north of Malta, south of Malta and in Gozo. WSC is promoting this project by delivering an information campaign with farmers and livestock breeders on the use of this new water resource intended mainly for irrigation so as to respond to any queries that might arise from these potential consumers. This information campaign, together with pilot projects, is essential to encourage the use of new water in farming and get acceptance from consumers. The latter is pivotal since there is a negative perception of crops irrigated with treated sewage effluent linked with the outdated and inappropriately used technology at Sant Antnin Sewage Treatment Plan. The introduction of polished new water as an alternative source to groundwater, together with other water saving measures and technologies, is aimed at creating a more resource efficient and sustainable farming community.

Apart from water quantity issues related to water availability and access to water resources by the agricultural community, the Maltese Islands face various water quality issues. The most significant water quality issue faced by Malta is pollution of groundwater with nitrates, as a result of which, the whole area of Malta was designated as a Nitrates Vulnerable Zone under the EU Nitrates Directive. In response to this, the Nitrates Action Programme (NAP) for Malta was published in 2011 to mitigate nitrate pollution from agricultural sources. Through the NAP, various measures are being enforced both at the level of livestock farms as well as on farmland. Livestock breeders are obliged to comply with a number of measures regulating the storage, handling and transport of animal manure, whilst keeping the necessary records and carrying out the required infrastructural changes on their farm. Farmers are obliged to apply fertilisers according to fertilisation plans, follow an open period for manure application, as well as keeping records, amongst other requirements.

The NAP’s use of a restricted period for application of fertilisers has been perceived as not being ideally suited for the Maltese agronomic situation in which the main growing season is in winter. This measure
was designed as a preventive measure approved by the European Commission and officially considered as key to ensure Malta’s current status of compliance with the Nitrates Directive. In addition, there are legal provisions in the NAP for the application of fertilisers in the closed season based on the fertiliser requirements identified through a crop plan and a valid fertiliser plan. The latter is usually facilitated through RDP funded farm advisory services that are geared to provide, amongst other services, assistance to farmers in the production of fertiliser plans through a subsidized service utilizing the Rural Development Funds.

Sustainability in water quantity and quality is also directly related with farming practices. Crop farming in Malta generally involves the production of a mixed range of fruit and vegetables from small land holdings. This form of intensive farming system is linked with aiming to get profit from one or two particular crops, whilst one can barely break even from the other varieties. Due to lack of organisational structures, there is no crop planning involved and farmers do not know beforehand which crops will be successful the following season so as to try avoiding over production of certain crops. This farming practise is highly inefficient and totally unsustainable in terms of the key ecosystem services of water and soil as Maltese farmers are missing out on nutrient planning, reducing crop wastage, working decent hours, improving soil quality as well as the surrounding environment. In fact, all these aspects are interlinked and can all lead to improved agro-ecosystem services for the benefit of the farmers, the consumer and the environment.

Questions on Issue 3:

1. Can you identify other important issues related with sustainability of key ecosystem services?
2. Do you have any comments or suggestions to improve the current situation on this issue?
Current status: The latest Census of Agriculture issued by the National Statistics Office in 2010 gives a clear indication that the ageing farming population is indeed a worrying trend for the continuation of arable farming activities in Malta. Out of a total of 1,301 registered full-time arable farmers, merely 255 or 19.6% were aged below 35, 608 or 46.7% were aged between 35 and 54, whilst 438 full-time farmers or 33.7% exceeded 55 years of age. In the case of part-time farmers, the trend is even more worrying with 10.5% under the age of 35 years, 38.4% were aged between 35 and 54 and 51.1% over the 55 year mark. These statistics confirm the dilemma being faced by ageing farmers who claim that most of their children are not even working their lands on a part-time basis. This implies that most farmers are registered as such but are not genuine active producers placing their products on the market.

Faced with a situation of an ageing farming population without the ability to foster new farmers, Malta’s farming system risks collapse bringing down with it the socio-environmental fabric of rural areas. Only through an improvement in the working conditions and economic feasibility of the farming package could young farmers be incentivised to remain active in the sector. Farming is an industry that has traditionally been inherited since most skills are acquired through practice and can be improved through education and capacity building. Moreover, certain basic resources such as farmland or animal farms are not easily obtainable by persons coming from outside the sector. Capital investment is also very high and when one compares the profit margins, a farmer must have a considerable amount of productivity to make a living from the sector. In fact most active farmers argue that it is no longer possible to make a living with small land holdings or small animal farms.

The report ‘Towards a New Agricultural Policy for Malta’ (Dwyer, J. et al, 2014) analysed the 2010 and 2011 Farm Accountancy Data Network (FADN) data on the profitability of Maltese farming sectors, by comparing the inputs and outputs. This analysis revealed that in both years, costs in the fruit and vegetable sector averaged around 60% of the outputs value, whereas ratios in the livestock sectors ranged from around 60% to over 100%. These findings indicate that even if there were farms in all sectors which operated at a profit, a number of farms in the sample were still operating at a loss in at least one of the two years. The FADN figures for 2010 and 2011 indicate that profitability has been lowest among the pig and beef cattle producers, with a better situation in the dairy and poultry sectors. The value of gross output, excluding subsidies, in Maltese horticulture is €9,464,235 for indoor horticulture and €15,619,950 for outdoor horticulture, and covering an area of 2,718 hectares. These figures sum up to an average of €9,228.9 per hectare and if one includes subsidies, the figure reaches €10,664.7 per hectare. The production costs per hectare, fixed and variable combined are €7,200 per hectare, resulting in net income of €2,028.9 excluding subsidies. Notwithstanding that there might have been improvements since 2011, FADN data indicates that there is an urgent need to improve farm efficiency and productivity in the various Maltese agricultural sectors.
Farming activity, like any other commercial activity, is dynamic and should always be geared at being profitable. Unfortunately, farming in Malta suffers from a poor image among young people as they do not consider that it offers them space for manoeuvring and profitability, especially when one considers the working conditions. It is a common trend for adult farmers to discourage their children from carrying on their trade so as to give them a chance to improve their standard of living. The most evident symptom of a declining farming community for the layman is the increase in abandoned agricultural land and the transformation of farmland into other recreational activities that provide greater opportunity costs such as for weekend retreats and for hunting purposes. A more worrying indicator of this decline is reflected through numerous young skilled farmers abandoning their trade to be absorbed by other sectors such as construction, manufacturing, gardening, plastering and transport. The unfortunate reality is that once that these young farmers leave the sector, they hardly ever return. On a positive note, a segment of the young generation seems to be keen to learn and embark on new farming niches but they require guidance, assistance and incentives to do so.

With the correct efforts in place to reverse the rural skill drain and the integration of education and research, young farmers can be encouraged to sustain their agricultural activities. Such a trend may be facilitated through investment in innovative technology and the creation of niches. Amongst the strengths identified in the SWOT analysis carried out in the document Towards a New Agricultural Policy for Malta, 2012 (Dwyer, J. et al), one can mention brand image, customer loyalty, product freshness and island tourism that all lead towards the development of niches to sustain the Maltese farming competitiveness. Through the same SWOT analysis, opportunities such as branding, consolidation, agri-tourism, training, knowledge, innovation and renewable energy, were identified. All these aspects could be considered to improve competitiveness and diversification through the creation of benchmarks for the period 2016 - 2025.

Young farmers as well as agri-business managers can be motivated to safeguard the agricultural sector for future generations through the proliferation of good practise and the promotion of niches that are suitable for the Maltese scenario. An agricultural product for which the demand increased in the last decade is Maltese olive oil. According to the Census of Agriculture issued by the National Statistics Office in 2010, there are 140.3 hectares cultivated with olive groves, out of which 72.6 hectares are cultivated for olive oil production. This sector was recently regulated through LN 66 of 2014 directed mainly at olive oil processors, aimed at controlling the modus operandi for commercial olive oil production in Malta and its placement on the market. It involves licensing for the production of olive oil, a link with the register for olive growers, submission of olive oil production declarations, keeping of an olive oil record book, as well as the participation in olive certification schemes. With these requirements in place, olive oil processors can now operate within a structured legal framework related to oil pressing, bottling, labelling and retailing. Nevertheless, implementation of this Legal Notice is challenging as most olive production is undertaken by recreational farmers on very small parts of their land parcels and record keeping is challenging at this very small scale.
Another niche product that is well established in Malta and for which the demands exceeds the supply, is **honey** production. Beekeeping in the Maltese Islands is characterised by a small number of honey producers who manage over twenty (20) bee colonies and the majority of the bee keepers having one or two colonies as a hobby. Apart from the production of honey, bees produce wax and propolis, whose potential as niche products are not yet being sufficiently exploited. Beekeeping is also important for pollination, since bees collect nectar from blossoms and agricultural produce making them essential pollinators, especially for fruiting trees. Due to the small and fragmented nature of land parcels in the Maltese Islands, beekeepers face difficulties with regards to space for bee keeping as well as risks posed by pesticide application by third parties.

With a total of 17.5 hectares of land and 11 farmers registered for the production of **organic** products, the Maltese Islands have the lowest level of organic farms at EU level (PQ 14303, Legislature XII, Parliament of Malta). Amongst the main inhibiting factors for this sector to gain ground in Malta, one can mention small parcel size, land fragmentation, proximity to conventional farmers, windy conditions leading to pesticide drift and poor soil conditions. One can argue that these factors could be mitigated by earmarking ideal locations for such farming practises and planting vegetation barriers, although this would inevitably involve difficulties vis-a-vis other established agricultural leases as mentioned previously in Issue 2. However, the perception of organic farming production as being lower than conventional farming, coupled with restrictions on pest control and the application of synthetic fertilisers, is restricting conventional farmers to converting to organic practices. The issue of overcoming expenses related to conversion and higher production costs is already being addressed through RDP funds. Moreover, due to an increasing awareness on chemical use on food products, certain customers would be ready to pay premium prices for certified organic or residue-free products. The control authority for the registration of organic farms, on-farm controls, soil testing and the placing of organic products on the market is the MCCAA whilst the market surveillance and supervision of the control authority falls within the remit of the competent authority, which is the Directorate of Agriculture.

The creation of innovative farming niches together with assistance to farmers and breeders to become more competitive through diversification are the central targets under the responsibility of the Directorate for Diversification and Competitiveness at MSDEC. One of the objectives of this Directorate is to set up an **extension service** for farmers to assist them on salient issues such as production, nutrition, fertiliser application and overall efficiency. Such a service is being backed by research at the Għammieri Experimental Farm to set out standards, as well as recover and conserve Maltese genetic plant and animal resources. Through the recuperation of plants and trees that were replaced with more competitive market products, this Directorate will study their valorisation and commercial viability if they are integrated with Maltese farming. This process is aimed at creating diversification niches that are not yet being exploited or properly marketed.

**Questions on Issue 4:**

1. Can you identify other important issues related with competitiveness and diversification?
2. Do you have any comments or suggestions to improve the current situation on this issue?
Current status: With a climate featuring very dry summers, unpredictable rain patterns in winter and very windy conditions throughout much of the year, the Maltese Islands have always been faced with inherent farming problems. These issues are coupled with shallow soils, being low in organic matter and high in pH, as well as small fragmented land parcels that are difficult to access. Examples of adaptation measures taken by farmers to counteract these geo-climatic conditions include storage of rainwater, tapping groundwater for irrigation, use of drip irrigation, building and maintaining rubble walls, augmenting soil quality by adding manure and fertilisers, construction of greenhouses and polystyrene tunnels, and creation of wind barriers. Most livestock breeders invested in farm structures and modern technology to deliver quality products notwithstanding the Maltese climatic conditions.

It has already become evident that climate change is presenting unprecedented conditions for farmers and livestock breeders, whose living is directly dependent on climatic factors. The agriculture community, being one of the sectors of society working closest to nature and the environment, is facing climatic conditions that were previously scarce or unheard of. Wind gusts of Force 8 and 9 on the Beaufort scale have become frequent annual occurrences with severe repercussions on crops facing the wind directions. Hail storms have intensified and are now even occurring in late summer, causing widespread damage on vegetables, permanent crops and greenhouses. Another phenomenon which is causing changes in agricultural patterns and adding climatic vulnerability involves changes in seasons as well as unpredictability of weather conditions.

With the advent of such climate conditions as well as with the anticipation of adverse changes, adaptation and mitigation strategies for agriculture in Malta have to be properly targeted. Such measures were already identified and their monitoring is being supervised by a core technical group forming the Inter Ministerial Committee on Climate Change (IMCCC). This committee is currently working on a vision for the year 2030 to build upon the 2020 strategy for low carbon development. A major stumbling block to plan for adaptation and mitigation strategies in agriculture is the shortage of available data such as agricultural emissions, tree cover and soil stabilisation measures. This could be counteracted by promoting research at the University of Malta and the MCAST Institute that is utilisable for such planning purposes, as well as through a better coordination on data sharing between authorities, research institutions and the farming community.

Agricultural measures that are being linked to climate change adaptation and mitigation all lead towards the sustainability of the sector. These include incentivising the use of machinery and technology on Maltese farms and fields that fit the purpose of the local situation. Such machinery is more efficient, less polluting and more practical for the scale of Maltese agriculture. Identification of water and energy usage patterns in agriculture together with related pilot projects to save such resources all lead to target input efficiency on farm and in the field. Any micro-scale initiative that increases the soil quality,
improves its moisture and nutrient content, and combats soil erosion should be motivated. Practices such as wind breakers, tillage reduction, mulching, improved feed digestibility and intercropping are all examples that lead towards climate change adaptation goals.

Other measures that the IMCCC is linking with climate change adaptation include farm building structures that are more suitable for the Maltese climatic conditions and aim towards meeting future challenges. Renewable energy initiatives such as solar photovoltaic panels on farm structures like barns already took off the ground. For the latter, one has to mitigate the visual impact by integrating such development in a way that they do not become an eyesore in sensitive areas. Other initiatives such as the generation of energy and heat from manure or crop residues still have to be launched in Malta. MSDEC has launched an update of the Agricultural Waste Management Plan which is expected to address issues such as making the best use of animal waste as a resource as well as the institutional conditions which producers and operators will require to know in order to plan and optimise their investments and activities.

Crop farmers can be educated further to adapt to climate change by investing in crop varieties that are drought resistant and find ways to use less water and chemicals, through the integration of environmentally sound practices. Currently, there are research gaps on species which are adapted to the Maltese situation, both from the propagation aspect as well as from a marketing perspective. Finding niches for such species would not only be creating a climate resilient farming system, but also providing the consumers with Maltese varieties that are easily marketable and could be sold as a premium for their link with the territory. The latter would constitute a major plus for all the stakeholders involved with tourists visiting the Maltese Islands. These aspects are currently being addressed by the Directorate for Diversification and Competitiveness at MSDEC.

Another aspect that could be tackled in tandem with agriculture is afforestation and tree planting. Trees are known to act as sinks for Carbon dioxide (CO₂) and can counterbalance emissions from agriculture in rural areas. Malta, when compared to other Mediterranean islands, lacks permanent tree crops and woodland cover. Thus further tree planting, even in concurrence with farming systems, should be incentivised. Apart from acting as CO₂ sinks, trees reduce soil erosion, increase air moisture and improve the landscape. Trees that are considered permanent crops for their ability to provide a commercial viability to farmers should be promoted amongst the agricultural community. The olive tree is one example of a permanent crop that could be augmented since it has been successfully expanding in the last decades. Further research on the commercialisation and marketing of tree crops that are adaptable to the Maltese climatic conditions such as pomegranates and almonds can contribute to climate smart farming practices.

Any form of response aimed to reduce the risks related with climate change should ideally be backed by proper research and development that is sector-specific and fit for the local purpose. Following thorough investigation of the most effective agricultural responses in the Maltese Islands can lead to reduce risks related with food security, protect genetic resources, improve the communication systems
between authorities and farmers, as well as improve training and education given to farmers and young agri-entrepreneurs. Having ongoing research and development in the agricultural sector could ease the identification of research priorities that can be addressed so as to improve the actions to be taken by both the authorities as well as at farm level. An example of a concrete action that can address geo-climatic issues and improve on-farm investment is the creation of risk insurance packages for the farming sector. Such measures are usually aimed at off-setting the loss of production from extreme weather conditions or crop disease outbreaks which farmers cannot contrast. With increasing weather extremes being experienced in the last decades and climate change experts warning that this trend may possibly intensify, private and Government insurance schemes should be a central item on the agricultural agenda.

Questions on Issue 5:

1. Can you identify other important issues related with adaptation to geo-climatic conditions?
2. Do you have any comments or suggestions to improve the current situation on this issue?
Feedback on the Issues Paper

1. What best describes your interests in Maltese Agriculture? Select from the list below:

☐ Land Farmer (crop sector)
☐ Livestock breeder (animal sector)
☐ Farmer representative (association, cooperative, producer organisation)
☐ Land owner
☐ Administrator/regulator
☐ Consultant
☐ Researcher
☐ Student
☐ Other (please specify) ___________________

If you are a farmer or livestock breeder, please carry on with the profile information below:

2. What do you produce? Mark all that apply:

☐ Fruit and vegetables
☐ Permanent crops (vines, olives, fruit trees)
☐ Dairy (cows)
☐ Beef
☐ Pigs
☐ Laying hens
☐ Broiler chickens
☐ Rabbits
☐ Sheep and Goats
☐ Honey
☐ Others (please specify) ___________________

3. In which localities do you have your farm or fields?

____________________________________________________________________________________

4. If you are a land farmer, how many tumuli of land do you work?

____________________________________________________________________________________

5. If you are a livestock breeder, how many animals do you breed?

____________________________________________________________________________________

6. Is farming your main source of income?  ☐ YES  ☐ NO
7. How would you rank these five issues in order of importance (1 being most important):

<table>
<thead>
<tr>
<th>Agricultural issue</th>
<th>Ranking (1 to 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving food presentation, labelling and traceability</td>
<td></td>
</tr>
<tr>
<td>Consolidating farmland and its ownership</td>
<td></td>
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<tr>
<td>Improving water supply and quality</td>
<td></td>
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<tr>
<td>Fostering young farmers and creating new farm niches</td>
<td></td>
</tr>
<tr>
<td>Adapting to changing climate patterns</td>
<td></td>
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8. Apart from the five issues identified in this Issues Paper, are there any other topics that the agriculture policy should be addressing?

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Thank you for your participation in this consultation process.