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Project:

A study to establish the current situation for rainwater harvesting in households in Valletta and to exploit the potential for rainwater harvesting

Prepared for:

**Valletta 18 Foundation
Exchange Buildings
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Prepared by :

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Background

Valletta was declared European City of Culture 2018 on the 12th October 2012 and the Valletta 2018 Foundation was tasked with implementing the project. The Valletta 2018 Foundation has a mission to implement a Cultural Programme, as well as a programme of consistent, accessible and comparable research and evaluation directly linked to culture. The approach of Valletta 2018 to culture is inclusive and encompasses artistic expression and creativity, and extends to other form of human expression such as food, the built environment, science and sporting activities. It is within this context that the Foundation is seeking to reintroduce the culture of rainwater harvesting in Valletta, and the country in general.

Valletta and the Culture of Rainwater Harvesting

By virtue of a law enacted during the building of Valletta in the latter part of the 16th century, every building in Valletta was to have a cistern for the storage of rainwater falling on rooftops. This so as to ensure that the country had a strategic reserve of water, which is critically important in times of war. This law was rigorously enforced, and Valletta became a centre of excellence in rainwater harvesting. This situation lasted until the Second World War, which demolished many buildings in Valletta. It is understood that a lot of rubble was disposed of in the cisterns, and consequently a large number of cisterns fell into disuse.

With the improvement of the supply of town water supply to Valletta in the latter part of the 20th century, the impetus to collect and store rainwater gradually diminished with the result that it is believed that only a small fraction of houses in Valletta now have a cistern, and indeed one which functions.

It is the intention of the Valletta 2018 Foundation to try and restore the sustainable culture of rainwater harvesting in Valletta. The storage and safe use of rainwater not only results in a reduced demand for town water from external sources (Valletta does not have any freshwater sources), but also reduces flooding.

As a first step, it was decided to carry out a Valletta-wide survey of domestic rainwater cisterns in Valletta so as to take stock of the current situation.

In September 2014, Sustech Consulting, a consultancy specialised in water conservation and water management, was commissioned by the Valletta 2018 Foundation to carry out a survey to:

- Establish the number and type of households in Valletta that have a rainwater cistern
- Determine the current use of the rainwater cistern, if in use
- Establish the reason for disuse, if disused
- Obtain an estimate of the capacity of the cisterns and correlate this with water demand in the same household, so as to be in a position to establish the degree of self-sufficiency that is currently being achieved, and that which may realistically be achieved
- Estimate the financial cost for achieving a set target for cistern restoration

Methodology

The research was carried out by means of a quantitative study strictly targeting Valletta residents only. The main objective of the survey was that of assessing the actual presence of cisterns in Valletta residences and of elaborating further on the way these cisterns are used, if in use.

A questionnaire was drafted by Sustech Consulting in collaboration with Informa Consultants (<http://www.informa.com.mt>) prior to launching the fieldwork. The questionnaire was sent to the Valletta 2018 Foundation and the Sustainable Energy and Conservation of Water Unit within the Ministry for Energy and Health for comments, which feedback was included in a revised questionnaire.

The fieldwork was carried out by Informa Consultants, who are specialists in the carrying out of surveys. A copy of the questionnaire (in English and Maltese) is appended to this report.

A team of trained and experienced interviewers carried out the interviews. These interviewers were briefed accordingly, during which a detailed explanation of the questionnaire was given, together with the details of the process to be undertaken for the interviews. The survey was carried out using the CATI technique (Computer Aided Telephone Interviewing). Fieldwork took place between the 30th October - 19th November 2014. The surveys were carried out in either in Maltese or in English, depending on the respondent's preference.

The first question in the survey sought to establish whether the premises was a residence or a shop or office, and whether there was a rainwater cistern in the premises. In the case of respondents who do not have a cistern, the survey was terminated immediately. However, in those cases where a cistern is present, the interviewee was asked a set of questions to establish the manner of use of the cistern. In such cases the respondent was asked up to 10 questions relating to the use of the cistern.

In order to identify the presence of cisterns, the study targeted all Valletta residents which approximate to around 2,400 in total, by means of a comprehensive database of telephone numbers of Valletta residences available at Informa. This was carried out by means of a telephone survey targeting the respective households. Although the list consisted of telephone numbers listed as Valletta residences based on the telephone directory, a number of disconnected numbers as well as migrated telephone numbers was to be expected.

The following is a summary of the outcome of the telephone contacts:

	Qty	%
Successful (residents)	962	39.9
Successful (shops/offices)	99	4.1
Refusal	50	2.1
No Answer	421	17.5
Disconnected Line	779	32.3
No longer Valletta resident	100	4.1
Total Calls	2411	100

Figure 1: Outcome of telephone contacts

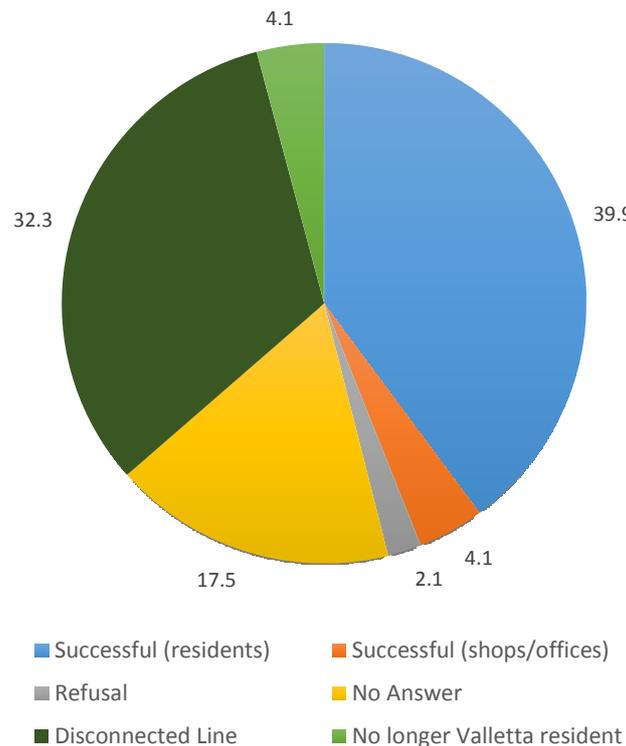


Figure 2: Graphical representation of outcome of telephone contacts

As results show, out of the targeted contacts, **44%** were successful out of which 4.1% were shops or offices and 39.9% were residences. One can also note that 4.1% of the telephone numbers used no longer pertain to a Valletta residence (number was migrated to a different locality), while 2.1% refused to carry out the survey. For 32.3% of the numbers in the database, it resulted that the number was no longer in use. In such cases another call was attempted replacing the initial two digits '21' with '27', or '27' with '21' accordingly, to cater for possible switches between the two main telephone service providers. The figures also indicate that in 17.5% of the contacts attempted, there was no answer. In these cases a minimum of 5 calls were attempted on different days and at different times of the day.

All data was treated with the strictest confidentiality, whereby all interviewees are safeguarded in accordance to the data protection regulations. Once all surveys were completed, the data was forwarded to Sustech Consulting for analysis purposes.

Evaluation of Survey Results

Out of the 1,061 successful surveys, 962 (or 91%) were residences, 99 (or 9%) were offices or shops.

Number of residences having a cistern

Of the 962 residents who responded, 147 declared that the residence has a rainwater cistern, 807 said that the residence does not have a cistern, while 8 respondents stated that they don't know whether the residence they live in has a cistern or not.

	Qty	%
Yes, with cistern	147	15.2
No cistern	807	83.9
Don't know	8	0.8
Total Respondents	962	100

Figure 3: Residences with rainwater cisterns

Number of offices/shops having a cistern

For offices and shops, the situation with regards to rainwater cisterns is as shown below.

	Qty	%
Yes, with cistern	4	4.0
No cistern or don't know	95	96.0
Total Respondents	99	100

Figure 4: Shops/Offices with rainwater cisterns

Number of persons per household

The average number of persons per household in Valletta as represented by the 962 residential respondents was 2.66 persons per residence. That is, the respondents reflected a population of 2,558 persons. From demographic statistics, the population of Valletta was 6,028 (in 2010). This implies that the sample size represents approximately 40% of the resident population of Valletta, making the survey statistically significant, and with an acceptable margin of error.

Type of Residence

The 1,061 respondents in Valletta were asked to describe the type of residence/premises they reside in. The results are shown below (expressed as a %).

	%
Flat/Apartment	59
Maisonette	10
Townhouse/Terraced House	21
Office/Shops	9
Other	1
Total Calls	100

Figure 5 : Type of premises contacted by the survey

It is clear that by far, the majority of inhabited premises in Valletta are flats/apartments, followed by townhouses/terraced houses. Together, these account for 80% of all residential premises in Valletta.

Presence of cisterns by type of premises

The number of cisterns, broken down by type of premises, is shown as a percentage in the table below:

	Without Cistern %	With Cistern %	Don't know %
Apartment /flat	95	4	1
Maisonette	85	14	1
Townhouse	50	50	0
Office / shop*	96*	4	
Other	31	69	0

Figure 6: Presence of cisterns by type of premises

* for Office/shop in Table 5 denotes an answer that is either 'No cistern' or 'don't know'

It is clear that most of the residences built in the last 50 years, such as flats, apartments and maisonettes do not have a cistern. Cisterns are more common in town houses, some of which may have been built before the Second World War.

The number of shops or offices having a rainwater cistern was found to be very low (< 5%). However, it should be noted that only respondents who were certain that the premises had a cistern were recorded. Respondents who said that they don't know whether the shop or office had a cistern were included in the 'no cistern' category.

Reported use of the water in the cistern

147 residents had declared that the premises they live in had a cistern. Out of these, 50 (or 34%) said that they used the rainwater; 97 (or 66%) said that they do not use the water in the cistern, not even for watering some plants.

Out of the 17 shops/offices that said that there was a cistern in the premises, only 3 (or 18%) said that the water is used. The remaining 14 offices/shops do not use the rainwater in the cistern.

When combining these results with those in Figure 3, the proportion of Valletta premises that have functional rainwater cisterns is calculated at 5.2%. Consequently, 94.8% of the premises in Valletta are not making use of rainwater today and the rainwater falling on roofs is either ending in the streets or in the sewage network.

Assessment of responses by respondents who use rainwater

Use of Rainwater

- **Shops:**

The three shops that use rainwater use the water for:

- Washing of floors only (1 shop)
- Washing of floors and watering of some plants (1 shop)
- Everything (1 shop)

- **Residences:**

The 50 residences that use rainwater use the water for:

	Qty	%
Watering of plants	35	70
Washing of floors	33	66
Washing of car	14	28
Flushing of toilet cisterns	14	28
Washing clothes	15	30
Shower / bath	5	10
Cooking / drinking	3	6
Everything	2	4
Don't know	2	4

Figure 7: Reported use of rainwater in domestic premises

It seems that rainwater is mainly used for 2nd class uses such as for the watering of plants, washing of floors, and to a lesser degree for the washing of the car, washing of clothes and the flushing of toilets. The latter two uses necessitate the use of a pump/plumbing system to transfer the water from the cistern to the toilets and/or the washing machine.

A small number of households use rainwater as a substitute to town water for showers/baths, cooking/drinking and/or for both. It should be pointed out that the use of (untreated) rainwater as first class water is to be discouraged as it may be contaminated and therefore unsafe.

Appreciation of monetary value of water among residents living in residences with cisterns

An overwhelming majority of respondents - 46 out of the 50 respondents who use rainwater believe that the practice saves money; 3 said that they do not think that it saves money, and 1 respondent was undecided.

Awareness of Well Restoration Schemes among residents living in residences with cisterns

In 2013, the Malta Resources Authority (MRA) launched a scheme aiming to encourage the harvesting and use of rainwater in the domestic sector across Malta and Gozo. Expenditure eligible for a refund includes repairs of cisterns (wells or *bjar*) and installation of second class water systems (pumps and plumbing). The scheme follows the 2013 Budget and applies to private individuals for use on their residential properties, and for organizations that do not fall within the concept of 'undertaking' for use on communal residences. This scheme is regulated by government notice [GN1020-2013](#). Applications were received as from the 22 October 2013 onwards, and was extended to the 31 December 2014 by government notice [GN 1140](#) of 2013.

The 50 respondents who use rainwater were asked whether they were aware of any schemes that facilitate the restoration of cisterns and the use of rainwater. Only 3 out of 50 respondents i.e. 6% were aware of the existence of a scheme, with one respondent saying that he was aware that there were fiscal incentives to install a pump, another said that the incentives were to restore the cistern, while a third respondent knew that a scheme exists but didn't know the details.

Willingness to use the cistern

In reply to the question "Would you consider the use of rainwater if a water quality test costing €15 would assure you that the water is of good quality?", 7 out of the 50 respondents who have a cistern said that they would use the rainwater. This equates to 14%. The remaining 86% would still not use the water even if the test showed that the water was safe, and the cost of this test were €15.

In reply to the supplementary question "Would you consider the use of rainwater if a FREE water quality test would assure you that the water is of good quality?", 21 out of the 50 respondents said they would, which is 3 times more than those willing to fork out € 15 to pay for the test themselves. 58% of those having

a cistern were still not induced to use the water even if the test were carried out at no cost to them and were to show that the water was safe to use.

Next question was “Would you consider the use of rainwater if you get half the cost of cleaning the cistern refunded?”, to which only 5 out of 50 (10%) gave an affirmative reply. When asked whether they would use the water if the full cost of the cleaning were refunded, the number of respondents who would use the water shot up by four times to 21 (or 42% of all respondents having a cistern).

Only 3 out of 50 respondents would use the water if they had half the cost of the repair of a leaking cistern refunded, which increased to 15 if the full cost were refunded.

6 out of 50 respondents would be willing to use the water if half the cost of a new plumbing system (which includes the pump) installed to enable the use of rainwater for toilets and washing machine were refunded. This increases threefold to 19 if the full cost were refunded.

58% of the 50 respondents were female; 42% male.

45% of female respondents were not induced by any of the incentives being proposed for the reuse of the cistern water, compared to 48% for males (46% for both sexes).

The average age of respondents was more than 50, and there was no apparent relationship between the age of the respondents and their motivation to use rain water.

Assessment of responses by respondents who have a cistern but don't use it

Out of the 111 respondents who have a cistern but don't use it:

- 11 said that the rainwater was used at some stage
- 2 said that they don't know if the rainwater is being used or not

16 out of the 111 respondents (14%) said they suspected that the rain water was contaminated. Another 3 had actually tested the water at some point in time and found it contaminated. The percentage of respondents who do not use the water because of contamination issues is therefore 17%.

5% of respondents do not use the cistern because it leaks (6 respondents out of 111).

A significant 43% of respondents do not use the rainwater because there is no access to the cistern (48 out of 111 respondents).

Only 2% of respondents are not using the rainwater because there is no pump (or because the pump is not working).

23% of respondents blame silt/debris as the main cause for not using the cistern (26 out of 111).

4% of respondents say that the cistern does not hold enough water, while 14% of respondents don't know why they are not using the rainwater.

Appreciation of the monetary value of water among residents living in residences with disused cisterns

86% of respondents who have a cistern but don't use it believe that the use of rainwater actually saves money, which is slightly less than those who actually use the rainwater (92%). 15 out of the 111 respondents (14%) believe that this practice does not save money, while another respondent was undecided.

Awareness of Well Restoration Schemes among residents living in residences with disused cisterns

The level of awareness of incentive schemes devised to encourage the rehabilitation of domestic cisterns was even less among respondents who have cisterns but do not use the rain water collected in their cisterns. Only 3 out of 111 respondents knew that such a scheme exists.

Willingness to use the cistern

In reply to the question “Would you consider the use of rainwater if a water quality test costing €15 would assure you that the water is of good quality?”, only 5 out of the 111 respondents (4.5%) who have a cistern but don’t use said that would use the rainwater. The remaining 95.5% would still not use the water.

In reply to the supplementary question “Would you consider the use of rainwater if a **free** water quality test would assure you that the water is of good quality?”, 34 out of the 111 respondents said they would, which is 6 times more than those willing to fork out €15 to pay for the test themselves. 69% of those having a cistern were still not induced to use the water.

Next question was “Would you consider the use of rainwater if you get **half** the cost of cleaning the cistern refunded?”, to which only 4 (4%) gave an affirmative reply. When asked whether they would use the water if the **full** cost of the cleaning refunded, the number of respondents who would use the water shot up ninefold, to 37 (or 33%).

Only 3 out of 111 respondents would use the water if they had **half** the cost of the repair of a leaking cistern refunded, which increased eight-fold to 24 if the **full** cost were refunded.

6 out of 111 respondents would be willing to use the water if **half** the cost of a new plumbing system (including pump) to enable the use of rainwater for toilets and washing machine were refunded. This increases to 39 (35%) if the **full** cost were refunded.

72% of the 111 respondents were female; 38% male.

53% of female respondents were not induced by any of the incentives being proposed for the reuse of the cistern water, compared to 42% for males. That is, in this case, males were more willing to consider incentives relating to cistern rehabilitation and rainwater use, though this observation may not be

statistically significant. The average willingness for both sexes was 50% (i.e. half the people who have a cistern may be willing to put it back to use through one incentive or the other).

The average age for these 111 respondents was more than 50 (which probably also reflects Valletta's aging population). Again, there was no correlation between the age of the respondent and the willingness of respondents to rehabilitate the cisterns and/or use rainwater.

Degree of water self-sufficiency in domestic residences in Valletta; current and potential

From this study, it transpires that only 15.2% of residences in Valletta today have a rainwater cistern. Moreover, only 34% of these 15.2%, (or 5.2% in total) actually use the rainwater. This means that approximately 95% of the rain falling on rooftops in Valletta ends up as flood water in the streets or in the public sewer.

The degree of use of rainwater by those residents who use the rainwater is also rather low, with the water mainly being used for low water-consuming uses such as the watering of potted plants (there are no large private gardens in Valletta) and the washing of floors. It is therefore unlikely that all the cisterns are emptied at any time during the year, which suggests that some of these under-utilized cisterns may overflow at some stage during the rainy season, and also contribute towards flooding and loss of water.

Indeed only 30% of the 5.2% of premises using rainwater are set up to make good use of the rainwater, these being those that have a water plumbing system that feeds the washing machine and/or toilets with rainwater.

The potential exists to:

1. Motivate those households that already make use of the cisterns to make better use of the rain water. 12% of these would be willing to install a plumbing system to make better use of the rainwater if a refund for 50% of the cost of the installation (including the pump) were provided. This figure goes up to 38% if the costs for the installation were refunded in full. It was observed that a significant stumbling block to the use of domestic cisterns in Valletta is water contamination, and/or suspected contamination. A test costing less than €10 (for the 50 residents that already use rainwater) may encourage 21 out of the 50 respondents to make better use of their rainwater if the

test result showed that the water was safe. However, a 'contaminated' result is also useful to water managers as it gives an indication of the problem of sewage contamination in Valletta, a problem that could then be addressed by the entity responsible for the national sewage system, the Water Services Corporation.

2. Motivate those households that have cisterns in place, but which are not in use. The biggest obstacle to the use of rainwater seems to be a lack of accessibility to the cistern and/or the rainwater contained therein. 48 out of 111 (43%) respondents mentioned this as the main reason for not using rainwater; additionally, 34 respondents said that they would use the water if a free test gave good results. Cleaning cisterns from debris may draw the interest of another 37 respondents, provided that the cost of cleaning is for free to the occupant. The installation of a free plumbing system (with a pump) should not have a significant pull effect, as only 2 respondents cited this as the main reason for not using the cistern. However, when asked whether they would be willing to use the water if the installation were paid by others, 39 respondents were willing to come on board.

Degree of water self-sufficiency in domestic residences in Valletta; current and potential

Assuming that the roof area for the typical terraced house, townhouse or block of apartments in Valletta is 90 m², then the amount of rainwater that falls on roofs and which can be harvested amounts to 42.30 m³ (using a figure for annual precipitation of 553mm and a runoff coefficient of 0.85) per residential roof area per year.

The survey established that the number of residents per household in Valletta was 2.66.

Assuming that 3 families live in each flat/apartment block (which make up for 66% of all household premises by type), then the amount of rainwater available per capita equates to 5.30 m³ per annum, which represents 16% of the total amount of water used by this type of household in a year.

For maisonettes (which make up 11% of occupied residential premises), assuming that 2 families live in a block of maisonettes, the amount of rainwater available per capita goes up to 7.95 m³ per annum, which is equivalent to 24% of the water used by a family living in this type of premises in a year.

For townhouses (which make up 23% of occupied residential premises), which generally houses only one family, the amount of rainwater available per capita reaches 15.90 m³ every year, or 48.4% of the water normally used in the household.

Figure 8 below illustrates the relative quantities of water used for different uses in the Maltese household in 2014 (Source: SECEU). It can be seen that 44% of the water used in Maltese households is consumed for purposes where (uncontaminated) rainwater can be a satisfactory substitute to town water (i.e. toilets, washing machine, floor/car washing, gardening). This figure is higher than the amount of rainwater available on a per capita basis for all household types mentioned above, except townhouses (for which there is a small surplus). This implies that, in theory, there is adequate demand for rainwater in the households (i.e. the demand is greater than the supply, so there can be full utilization of the water).

This of course does not apply in situations where buildings are unoccupied (demand is nil) - which seems to be a common phenomenon in Valletta.

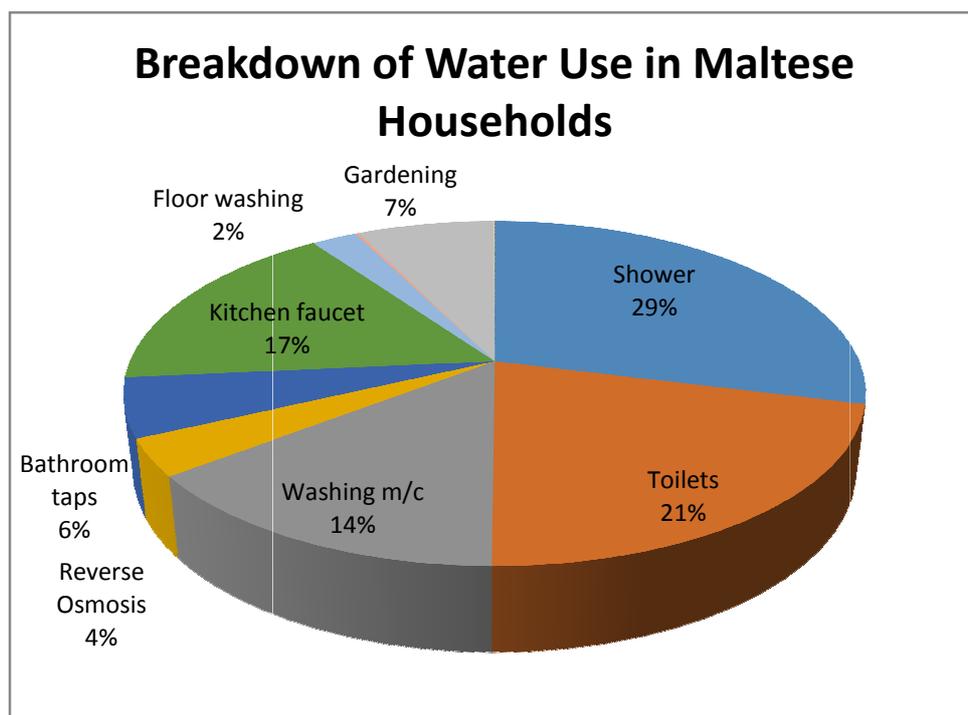


Figure 8: Breakdown of Water Use in Maltese Households. Source SECWU, May 2014

For townhouses with an average household size of 2.66, the demand is slightly lower than the supply, so there will be some surplus of rainwater (which will overflow).

The theoretical potential of domestic rainwater harvesting in Valletta is therefore 44%. However this assumes that all households in Valletta have an adequately sized cistern in a good state, and also assumes that a distribution system which delivers rainwater to toilets, washing machines and taps that provide water for washing of cars, floors and for gardening is in place and in operation. However, this report has established that only 4% of apartments/flats have cisterns and that cisterns are present in 14% of maisonettes and in 50% of townhouses.

When considering this level of cisterns, coupled with the distribution of lived-in properties by type, the maximum realistic degree of water self-sufficiency in Valletta falls to 15.6% of total water consumed.

This degree of self-sufficiency can only be achieved by:

- Ensuring that all those premises having cisterns restore the cisterns to good condition, with the ensuing rainwater being free from contamination
- Having a distribution system that delivers water to toilets, washing machines, and faucets for gardening and floor/car washing.

Estimating the cost of rehabilitating cisterns

From information obtained from the MRA Domestic Cisterns Restoration Scheme 2013 – 2014, a sum of €341,228 was distributed to 441 cistern owners nation-wide as grants for the rehabilitation of cisterns during 2013 and 2014. This implies that €774 was spent by Government (through MRA) for the rehabilitation of a cistern in a household on average. This spend was supplemented by another €774 in private funds, since the scheme refunds 50% of the total cost of rehabilitation - which rehabilitation may also include the installation of a rainwater distribution system throughout the house, including a pump.

It should be noted that the scheme was oversubscribed, and another €150,000 were budgeted for 2015 for this scheme, to be distributed on a first-come first-served basis. It should also be pointed out that there was only one applicant from Valletta (out of the 441) in 2013 and 2014.

A Strategic Approach

While it is desirable to have all residential premises in Valletta using rainwater (for those uses for which rainwater can be used as a substitute to town water), this is impossible because of a number of constraints mentioned in this report, with the biggest limitation being the lack of cisterns per se. It is impossible, or at least very difficult to introduce an appropriately sized cistern in an occupied building that does not have a cistern. Apart from the fact that excavating/building a cistern from scratch would entail a huge expense.

So the primary focus should be on those premises that already have a cistern, which, for one reason or another, is not in use. The consultant is of the opinion that the primary focus should be on town houses, for two reasons:

1. Most cisterns are in any case to be found in town houses, and not in apartments, flats or maisonettes;
2. There are complicated issues relating to ownership of the rainwater and distribution of the rainwater for apartments/flats that are best avoided by the Valletta 18 Foundation (but which should be addressed by the national water authorities).

It was established that the population of Valletta is around 6,000 and the average size of the household in Valletta is 2.66. This implies that there are around 2255 households in Valletta.

This study established that 23% of the population of Valletta (or around 520 households) live in townhouses. From the study it was also determined that 50% of townhouses in Valletta (260) had a cistern. but only 34% of these used the rainwater - leaving around 172 town houses with unutilised cisterns.

It is the clear that, should the Valletta 18 Foundation would want to encourage and reinvigorate rainwater harvesting in Valletta, it should first seek to mobilise the circa 172 households living in town houses which have a disused cistern.

The cost of rehabilitating these cisterns will be approximately €250k – 300k. Given that the MRA 2013 Domestic Cisterns Restoration Scheme has been extended to 2015 (albeit with a limited budget), the Valletta 18 Foundation, acting autonomously or with the Valletta Local Council should, as soon as possible,

seek ways to advertise the MRA scheme among the residents in Valletta, so that there will be a substantial take up of the grants available from Valletta.

Other initiatives, such as offering a rainwater testing service, should also be considered, but sources of funding for this initiative would have to be sought and secured.

VALLETTA 18 Survey

Good morning/afternoon/evening, my name is [name], from Informa Consultants. We are currently carrying out a survey among Valletta residents regarding the use of water cisterns (wells). Can I take just a few minutes of your time to ask you a few questions please?

Q1 Can you tell me whether the place you live in is a:

- Flat / apartment / penthouse.....
- Maisonette or ground floor tenement
- Terraced house or townhouse.....
- Outlet / Shop / Office Go to Q3
- Other.....

Q2 How many people live in the residence, including yourself?

Q3 Does the residence have a cistern/well?

- Yes..... Go to Q4
- No..... Go to Q11
- Don't know Go to Q11

Q4 Is the water in the well being used?

- Yes..... Go to Q5
- No..... Go to Q6
- Used to be..... Go to Q6
- Don't know Go to Q7

Q5 Can you tell me which of the following, the water from the well is used for:
[READ OUT - TICK ACCORDINGLY]

- Watering of plants
- Washing of floors
- Washing of car
- Flushing of toilets.....
- Washing machine
- Shower/bath.....
- Cooking
- Drinking
- Everything.....
- Other
- Don't know

Go to Q7

Q6 Why is the water not being used?
[UNPROMPTED]

- Suspected contamination
- Tested and found contaminated.....
- Leaks.....
- No pump or pump not working
- No access
- Not enough water.....
- Full of silt/debris.....
- No plumbing system to make use of rainwater
- Don't know

Q7 Do you think that using rainwater will save you lots of money - in other words, do you think it is worth it?

- Yes it saves you lots of money
- Yes, it saves you some money
- No, it will only save you a little money.....
- No, it doesn't save you money

Q8 Are you aware of any subsidies that will allow you to use the rainwater in the well?

- Yes..... Go to Q9
- No..... Go to Q10

Q9 Which schemes are you aware of?

Q10 Would you consider the use of rainwater if:
[READ OUT & TICK IF RESPONSE IS YES]

- A water quality test costing EUR 15 would assure you that the water is of good quality
- A free water quality test would assure you that the water is of good quality
- You get half the cost of cleaning the cistern refunded.....
- You get a full refund on the cost of cleaning the cistern.....
- You get half the cost of repairing a leaking cistern refunded.....
- You get a full refund on the cost of repairing a leaking cistern.....
- You get half the cost of running a new plumbing system (incl pump) to use rainwater for toilets and washing machine refunded
- You get a full refund on the cost of running a new plumbing system (incl pump) to use rainwater for toilets and washing machine

DETAILS

Q11 Gender:

- Male.....
- Female

Q13 What is your Nationality:

- Maltese
- Other

Q12 Age

- 16-30
- 31-40
- 41-50
- 51-60
- 61-70
- 71 & over

VALLETTA 18 Survey

L-għodwa t-tajba/Il-lejl it-tajjeb, jiena [name], mill-Infirma Consultants. Qegħdin nagħmlu sħarriġ mar-residenti tal-Belt, dwar l-użu tal-ilma tal-bir. Nista noħodlok ftit minuti biss, biex nsaqsik xi mistoqsijiet?

Q1 **Tista tgħidli jekk il-post fejn toqgħod hu:**

- Flat / apartment / penthouse.....
Maisonette jew appartement
ground floor
Terraced house jew townhouse ...
Outlet / Ħanut / Uffiċju..... Go to Q3
Oħrajn.....

Q2 **Kemm joqgħodu nies fir-residenza, inkluż inti:**

Q3 **Ir-residenza għandha bir?**

- Iva Go to Q4
Le Go to Q11
Ma nafx..... Go to Q11

Q4 **L-ilma fil-bir qed jintuża?**

- Iva Go to Q5
Le Go to Q6
Kien jintuża Go to Q6
Ma nafx..... Go to Q7

Q5 **Tista tgħidli għal-liema minn dawn jintuża l-ilma tal-bir?**

[READ OUT - TICK ACCORDINGLY]

- Biex issaqqi l-pjanti
Biex taħsel l-art
Biex taħsel il-karozza
Għal-flushing tat-toilets.....
Għall-magna tal-ħasil
Għax-shower / banju
Għat-tisjir
Għax-xorb.....
Kollox.....
Oħrajn.....
Ma nafx.....

Go to Q7

Q6 **Għalfejn mhux qed jintuża l-ilma?**
[UNPROMPTED]

- Hemm suspett li huwa kkontaminat
Gie ttestjat u sabu li huwa kkontaminat
Qed trixxi (leaking)
Mhemmx pompa / il-pompa mhux qegħda taħdem.....
Mhemmx access
Mhemmx biżżejjed ilma
Mimli fdalijiet u ħmieg
Mhemmx sistema tal-plumbing biex tagħmel użu mill-ilma tax-xita.....
Ma nafx.....

Q7 **Taħseb li meta tuża l-ilma tax-xita tiffranka ħafna flus, jew fi kliem ieħor taħseb li huwa worth-it?**

- Iva tiffranka ħafna flus.....
Iva, tiffranka xi ftit flus.....
Le, tiffranka ftit wisq
Le, ma tiffrankax flus.....

Q8 **Taf b' xi sussidji li jippermettulek tuża l-ilma tax-xita fil-bir**

- Iva Go to Q9
Le Go to Q10

Q9 **B' liema skema taf?**

Q10 Tikkunsidra l-użu tal-ilma tax-xita jekk:
[READ OUT & TICK IF RESPONSE IS YES]

- Isir test tal-kwalita tal-ilma li jiswa EUR15 li jassigurak li l-ilma ta` kwalita tajba
- Isir test tal-kwalita tal-ilma b'xejn, li jassigurak li l-ilma ta` kwalita tajba.....
- Tingħata lura nofs l-ispejjeż biex tnaddaf il-bir.....
- Tingħata lura l-ispejjeż kollha biex tnaddaf il-bir.....
- Tingħata lura nofs l-ispejjeż biex issewwi bir li qed inixxi l-ilma
- Tingħata lura l-ispejjeż kollha biex issewwi bir li qed inixxi l-ilma.....
- Tingħata lura nofs l-ispejjeż għall-installazzjoni ta` sistema tal-plumbing ġdida (inkluż il-pompa), biex tuża l-ilma tax-xita għat-toilets u għal magna tal-ħasil.....
- Tingħata lura l-ispejjeż kollha għall-installazzjoni ta` sistema tal-plumbing ġdida (inkluż il-pompa), biex tuża l-ilma tax-xita għat-toilets u għal magna tal-ħasil

DETAILS

Q11 Sess:

- Raġel
- Mara

Q13 X'inhi in-nazzjonalità tiegħek?

- Malti.....
- Oħrajn.....

Q12 Eta`:

- 16-30
- 31-40
- 41-50
- 51-60
- 61-70
- 71 & over