

Financing Water Adaptation in Jamaica's New Urban Housing Sector

Market Demand Study

Final Report

Project Funding: Multilateral Investment Fund
Executing Agency: Jamaica National Bank & Jamaica National Foundation
Date of Report: November 30, 2018
Reporting Period: Final Report
Prepared by: Robert Stephens- Consultant

Acknowledgements

This study would not have been possible without the cooperation and participation of several critical partners and potential clients of JN who agreed to spend time with the consultant and provide valuable information to complete this research.

In particular, from the IDB Jamaica team Terry-Ann Sharlene Segree and Jovan Johnson were very important as sounding boards and guides regarding the IADB requirements and inputs along the way during the assignment.

From the JN group team, Mesdames Cicyln Joseph-Johnson, Jacqueline Cameron, Rose Miller, Kethjoy Watson, Keisha Melhado Forrest, Shauna-Kaye Rowe, Tracey-Ann Heholt and Messrs. Keith Senior and Earl Samuels who provided immeasurable inputs and feedback throughout the exercise.

Housing developers, Architects and Engineers and their willingness to share their information was critical to the success of this exercise and several of them provided hours of valuable insight and information to provide the core of the inputs for the research including the following persons:

- West Indies Home Contractors- Mr. Harshad Anaokar
- New Era Homes 2000 Ltd.- Mrs. Cariol Mendez
- Carib Homes (Managing Green Village Dev.)- Mr. Paul Sogaard
- Gore Developments Ltd.- Ms. Joanne Padgett
- Kemtech Homes Ltd.- Mr. Sylvester Tulloch
- Narcisse Holdings- Mrs. Charlene Narcisse
- Island Homes Ltd.- Ms. Gina Harrison
- Rosemead Ltd- Mr. Anup Chandiram
- Shelter Plus Limited- Mr. David Garel
- Geon Homes Ltd.- Mr. Reynold Scott
- Tara Dev. Limited – Mr. Fredrik Moe
- Barana Limited- Mr. Barrington Chisholm
- Panjam Investments Ltd.- Mr. Stephen Facey
- Matalon Homes- Mr. Peter Matalon
- Garco Construction Ltd.- Mr. Rohan Grant
- Architect- Mr. Marvin Goodman
- Architect- Mr. Robert Woodstock
- Architect- Mr. Omari Wright
- Architect- Mr. Rivi Gardner
- Engineer- Mr. Peter Jervis

A debt of gratitude is owed to all the above persons for their patience and cooperation to provide the inputs for this very valuable research. My thanks go out to each and every one of them.

Robert Stephens- Consultant

Table of Contents

Contents	Page
Acknowledgements.....	2
Table of Contents.....	3
List of Tables & Appendices.....	4
1. Executive Summary.....	5
2. Introduction & Background.....	8
3. Methodology.....	9
3.1 Developers, Builders, Architects & Engineers Associations.....	9
3.2 Private Sector Housing Developers.....	10
3.3 Public Sector Housing Developers.....	10
3.4 Architects & Engineers.....	11
3.5 Individual Homeowners/Consumers.....	11
3.6 Information Matrix.....	11
4. Specific Groups and the Findings from the Research.....	11
4.1 Developers, Builders, Architects & Engineers Associations.....	11
4.2 Private Housing Developers.....	12
4.3 Public Housing Developers.....	18
4.4 Architects & Engineers.....	18
4.5 Individual Homeowners/Consumers	19
4.5.1 Key Consumer Survey Results.....	19
4.5.2 Conclusions from Consumer Surveys	29
5. Risk Assessment.....	29
6. Summary Findings Conclusions & Recommendations.....	30
6.1 Developers & Professionals.....	30
6.2 Consumers	30
6.1 Combined Estimated Loan Demand by Developers & Consumers.....	32

List of Tables & Appendices

List of Tables	Page
Table 1- Likely Average Estimated Loan Demand from Developers	5
Table 2- Developers Interviewed and Likelihood of their borrowing from JN.....	6
Table 3- Estimated Water Saving Device Costs/unit for Low, Medium & High Income Units.....	15
Table 4- Assumptions for Optimistic and Pessimistic Loan Demand from Developers Interviewed.....	16
Table 5- Likely Average Estimated Loan Demand from Developers	17
Table 6- Estimated Loan Demand from Consumers.....	31
Table 7- Combined Estimated Loan Demand by Developers & Consumers.....	32

Appendices

Appendix A1- Financing Water Adaptation in Housing- PowerPoint	33-5
Appendix A2- Financing Water Adaptation in Housing- Articles.....	36-7
Appendix A3- Gleaner article published	38-9
Appendix A4- List of Private Housing Developers/Builders contacted	40
Appendix A5- Estimated Developers Loan Estimates 2019-21.....	41-3

References

Acclimatise, Consultancy to Support the Pilot Programs for Climate Resilience in Jamaica and Saint Lucia – FINANCIAL MARKET ANALYSIS – JAMAICA, December 2014

1. Executive Summary

Financing Water Adaptation in Jamaica’s New Urban Housing Sector is a project being undertaken by the IDB in collaboration with the JN Group to enhance Jamaica’s Climate Resilience through the use of water adaptation technology in the housing sector.

The MIF with counterpart resources provided by the JN Foundation financed this market demand study to quantitatively assess the demand for loans by housing developers and homeowners.

The methodology adopted was mainly to focus on individual interviews of key housing developers, architects and engineers and to conduct a consumer survey to determine the demand for the loans and the parameters for offering such loans.

Based on the meetings with developers and estimates of the costs to install water saving devices obtained from one potential supplier of the devices, the estimated likely loan demand from developers for loans for water adaptation in housing developments planned for 2019-2021 is estimated at Ja\$287.65 million over the next three years broken down as \$64.78M in 2019; \$116.795M in 2020 and \$106.07M in 2021 shown in Table 1 below.

Table 1- Likely Average Estimated Loan Demand from Developers

Developer	Loan Demand 2019 (\$'000)	Loan Demand 2020 (\$'000)	Loan Demand 2021 (\$'000)
Gore Developments	0	36,600	36,600
New Era Homes	6,100	12,200	12,200
WIHC	12,200	12,200	12,200
138 Student Living	10,238	10,238	0
Narcisse Holdings	3,575	3,575	3,575
Panjam	1,541	1,541	1,541
Tara Dev. Ltd.	9,490	9,490	9,490
Matalon Homes	2,110	2,110	2,110
Island Homes	3900	3900	3,900
Barana Ltd.	0	0	1,300
Rosemead	1575	1575	1,575
Garco	1,300	1,300	1,300
Moorland	1,950	2,600	2,600
Total	53,983	97,329	88,392
Add 20% for others	10,797	19,466	17,678
Overall Total	64,780	116,795	106,070

Regarding the likelihood of specific developers borrowing from JN and the interest rates that would attract them, these are outlined in table 2 below.

Table 2- Developers Interviewed and Likelihood of their borrowing from JN

Developer Name	Income Target	Upcoming Development	Acceptable Market Rate	Likelihood to Borrow
Gore Developments	Low Income	600/year	5-6%	50/50
New Era Homes	Low income	200/year	Below 6.75%	50/50
WIHC	Low Income	200/year	5-6%	Positive
138 Student Living	Low Income	650/2 years	Below 9%	Positive
Narcisse	Mid Income	55/year	7.5%	Positive
Panjam	High Income	46/2 years	5-6%	Positive
Tara Dev. Ltd.	Mid-Income	438/3 years	Below 7%	Positive
Matalon Homes	High Income	42/2 years	5-6%	50/50
Island Homes	Mid-Income	40/year	Below 7%	Positive
Garco Construction Ltd.	Mid-Income	50/2 years	Below 8-9%	Positive
Rosemead Ltd.	Mid-Hi-Inc.	30/2 years	Below 7%	Positive
Barana Ltd.	Mid-income	20/year 3	Below 7%	Positive
Moorland	Mid-income	110/3 years	Below 9.5%	Positive

In the cases of Gore, New Era and Matalon Homes, they do not usually borrow to finance their projects but would consider borrowing from JN if the interest rates were attractive and there was limited bureaucracy, hence their likelihood is rated as 50/50.

In the opinion of the consultant, the above therefore represents, a good indication of the potential demand for Water Adaptation Loans from developers over the next three years and the realization of this potential will require active follow up and marketing to the developers and public education and promotion of the importance of the project and installing water saving devices.

Interest rates for loans for developers in most cases were between 6% and 9% and it therefore seems that to make the loans attractive they should be as close to 6% as possible.

Terms for loans are all considered interim or short term loans as most developers are paid out in full by the house buyer either with cash or a mortgage loan. The loans for water adaptation devices were therefore all considered short term loans by developers of between 1 and 3 years.

The cost of the water saving devices should be as close as possible to non water saving devices to ensure that costs are kept as low as possible and not significantly increase the costs of the units and this will need to be stressed to the potential suppliers and JN will need to work closely with suppliers to present to developers the options, their comparative costs and the recovery period for the loans.

Regarding demand from consumers for upgrading existing homes or including water saving devices in new homes a survey instrument was designed which up to November 30th, 2018 received 392 respondents which was significantly higher than the 200 projected.

Probably the most significant finding of the Consumer Survey is that though 89% of respondents wish to find out more about the water saving devices and the project overall, only 30% of them are interested in borrowing to finance the costs.

It seems more likely that consumers would consider borrowing if they planned to do major refurbishing of their homes or if they were building new homes and the water saving devices were a part of the total loan.

With over 85% of respondents being female and likely key decision makers, 74% get their information from Social Media or the Internet and with 45% being from Kingston and St. Andrew and 25% from St. Catherine, any marketing plans need to take this into consideration.

Interestingly, 96% of respondents indicated that Climate Change was a concern and this must be reinforced if attitudes are to be changed to be more acceptable of and increase demand for loans for water saving devices.

Regarding interest rates for consumers, this would need to be more in line with mortgage rates for housing loans which currently are between 7-8% per annum and based on the responses from consumers these could be over a five year period.

Taking into consideration the results of the consumer surveys in order to estimate demand from consumers the following assumptions were made:

- Households targeted would be 2,000 in 2019; 3,000 in 2010 and 4,000 in 2021;
- The average loan amount would be \$100K.

Based on the above assumptions combined with the survey results, the loan demand estimates were \$14.3M in 2019, 21.4M in 2020 and \$28.5M in 2021.

The combined estimated demand for loans for Water Saving devices derived from the research in this study is expected to be an overall total of \$351.85M broken down into \$79.08M in 2019, \$138.2M in 2020 and \$134.57M in 2021.

2. Introduction & Background

The “Financing Water Adaptation in Jamaica’s New Urban Housing Sector” project, (the Water Project) seeks to enhance Jamaica’s Climate Resilience through the use of water adaptation technology in the housing sector.

The Technical Cooperation Agreement Facility of the Multilateral Investment Fund (MIF) with counterpart resources provided by the JN Foundation seeks to enhance Jamaica’s climate resilience through the use of water adaptation technology in the country’s housing sector.

This project is a part of the Pilot Program for Climate Resilience (PPCR) which is a funding mechanism under the Climate Investment Funds (CIF) which is helping developing countries integrate climate resilience into development planning and investment.

The PPCR has a two phase programmatic approach:

1. It assists national governments in integrating climate resilience into development planning across sectors and stakeholder groups.
2. It provides additional funding to put these plans into action and to pilot innovative public and private sector solutions to pressing climate-related risks.

To date, \$777 million (65% of PPCR funding) has been approved and is being utilized to implement 44 projects in a range of countries, including Jamaica which is receiving funding as a part of the PPCR for the Caribbean region.

The PPCR provides support which helps countries move from a piecemeal, project by project method of building climate resilience to a wider, more comprehensive approach of long-term strategic investments and activities which should facilitate transformational change at the national level and across targeted sectors.

To extend the PPCR’s reach beyond national and regional investment plans and to stimulate more private sector participation, concessional financing has been set aside to be awarded on a competitive basis for innovative private sector projects advancing the goals of the PPCR.

This Consultancy seeks to undertake a market demand study for the Water Project to quantitatively assess the feasibility of the proposed water adaptation loan product in Jamaica. This was recognized as necessary from the previous study done by Acclimatise Consultants that completed a Jamaica Financial Market Analysis Study in December 2014¹. The main objective is to determine the demand for such a loan product by housing developers and homeowners to finance water adaptation technology in the housing sector through new construction and retrofitting.

The study will consider several factors, including product pipeline, the borrowers’ landscape, product design and structure and will involve:

- Collecting data on potential loan candidates in Jamaica. As a first step, this will require close coordination with organizations such as (but not limited to) the Jamaica Developers Association, Incorporated Master Builders Association of Jamaica, Real Estate Board and JN Bank.

¹ Acclimatise, Consultancy to Support the Pilot Programs for Climate Resilience in Jamaica and Saint Lucia – FINANCIAL MARKET ANALYSIS – JAMAICA, December 2014

- Gathering market intelligence on demand for the water efficiency loan product based on interviews with homeowners and key stakeholders that are linked to homeowners such as Developers, Contractors, Architects, Engineers and Financiers of home acquisition (e.g., JN Bank mortgage team).
- Defining the eligible universe of the customers for the loan product as well as identifying the demand and the potential pipeline for the loan product. The demand and pipeline breakdown should be determined by:
 - Category of borrower (i.e., developers and homeowners that need funding to improve water efficiency);
 - i. Loan size;
 - ii. Geography;
 - iii. Time horizon of financing needs;
 - iv. Expected interest rates and repayment terms; and
 - v. Key impediments to uptake of loan.
 - Identifying sources of deal origination for the loan product.
 - Make recommendations on how the financing is to be apportioned (with regard to developers, homeowners, new construction and retrofitting); and defining the indicators for the Logical Framework (e.g., the number of developers etc.).

3. Methodology

Based on previous studies and discussions held with the Jamaica National Bank and JN Foundation teams, it was agreed that there are five key groups to be targeted in this demand study to achieve the overall objective of determining the demand for the water adaptation loan product by housing developers and homeowners. These are:

- Associations of Developers, Builders, Architects & Engineers
- Private Sector Housing Developers
- Public Sector Housing Developers
- Architects & Engineers
- Individual Homeowners or Potential Homeowners

The approach to build awareness and extract information from each of the above groups was discussed and it was agreed that each of the groups would need to be approached in a different manner in order to obtain the best results. Each of the groups and the approaches are detailed below.

3.1 Developers, Builders, Architects & Engineers Associations

It was discussed and agreed that presentations to the Developers Association, the Master Builders Association, the Jamaica Institute of Architects and the Jamaica Institution of Engineers at one of their meetings was the best method of identifying developers and professionals interested in accessing funds as well as to obtain feedback regarding the feasibility and demand for the loans.

It was also agreed that it would be necessary to have a breakfast meeting where a select group of key engineers and architects and Housing Development Project Managers are invited to build awareness and get feedback on the project.

A PowerPoint presentation highlighting the key elements of the programme and how to access the funds would be developed by the consultant in collaboration with the JN and IADB team.

It was noted that most of them do not meet in August (too many members take leave in August) or already have packed agenda's so we may not get on their agenda until September.

3.2 Private Sector Housing Developers

The likely main market for loans to finance Water Adaptation in new houses is the major housing developers and it was agreed that individual meetings with the CEO's or Senior Management representatives would be the best method of gathering data and information from this group.

Key information to be gathered from developers will include:

- Developer Company name
- Name/s of key contact persons and their contact information as well as gender
- Numbers of units built in last five years
- Current number of projects/units/sale prices/features
- Do units incorporate water saving devices such as (a) water efficient plumbing fixtures and devices, such as efficient ultra-low flow toilets, low-flow and/or censored sink/taps, showers, baths and water efficient washing machines, dishwashers and related efficient products and processes; (b) water reuse and recycling, including on-site water reuse or recycling, rainwater harvesting systems, local water storage tanks, grey water recovery, outdoor water saving technologies, water catchment systems; and (c) other water efficient technologies or processes in new build residential housing and if so what are these?
- What are current sources of Finance and what are rates and length of loans?
- Would there be interest in accessing loans from JN to fund Water adaptation devices and if so what loan interest and length of repayment would be attractive to interest the developer to access loans?
- Would the developer undertake to repay the loan to JN and bundle into the sale price and mortgage to the home owner
- The timing for their access of loan facility versus timeframe for deployment of funds will also be solicited.

3.3 Public Sector Housing Developers

It was agreed that the Housing Agency of Jamaica would be interviewed to determine their interest in accessing financing for Water adaptation technology to be incorporated in their schemes as well.

Key information to be gathered from HAJ includes:

- Name/s of key contact persons and their contact information as well as gender
- Numbers of units built in last five years
- Current number of projects/units/sale prices/features

- Do units incorporate water saving devices such as toilets/showerheads/faucets/rainwater collection and reuse or other devices and if so what are these?
- What are current sources of Finance and what are rates and length of loans?
- Would there be interest in accessing loans from JN to fund Water adaptation devices and if so what loan interest and length of repayment would be attractive to interest HAJ to access loans?
- Would HAJ undertake to repay the loan to JN and bundle into the sale price and mortgage to the home owner
- The timing for their access of loan facility versus timeframe for deployment of funds will also be solicited.

3.4 Architects & Engineers

In addition to the above it was suggested and agreed that individual interviews of ten key Architects and Engineers be conducted.

3.5 Individual Homeowners/Potential Homeowners

To obtain information from individual homeowners or potential homeowners it was suggested that a survey of individual members of JN be conducted via survey Monkey and the questionnaire and the results are shown at <https://www.surveymonkey.com/results/SM-ZYYFD9GHL/>.

3.6 Information Matrix

A summary of the information to be gathered to determine the demand for the water adaptation loan product in Jamaica is shown in the table below.

Summary Sources of Information

Source	Approach/Instrument	Sample Size	Key Information to be gathered
Housing Developers	Direct Interviews of CEO or Senior Manager	At least 10 active developers	Interest in Water Adaptation loans
Architects & Engineers	Direct Interviews of Owner	At least 10 active Architects/Engs.	Interest in including Water Adaptation implements and encouraging loans
Householders	Sample Survey of JN Members by Survey Monkey	200 household heads	Interest in Water Adaptation loans

4. Specific Groups and the Findings from the Research

4.1 Developers, Builders, Architects & Engineers Associations

The months of August and September were identified early as difficult times for Association meetings however presentations were prepared and an article circulated to all the associations.

A PowerPoint presentation highlighting the key elements of the programme and how to access the funds was developed by the JN team and this was reviewed and updated by the consultant for presentation to the various groups and this was circulated. A copy is shown at Appendix A1.

An article was also prepared by the JN Team and the consultant and circulated to members of the IMAJ as well as members of the other associations outlining the basic information on the water Saving Loans and inviting members to contact the consultant if they wished to have more detailed information and an individual interview and this is shown at Appendix A2.

A meeting was held with the **Incorporated Master Builders Association** on September 12th and the major outcomes of that meeting can be summarized as follows:

- There was consensus that Climate Change is affecting water supplies and severe weather patterns swinging from floods to severe periods of drought are occurring far more often than in previous times.
- They all support the idea of including water saving devices in new houses and the upgrading of existing houses and will encourage their clients to choose them.
- Members wished to know what could be financed as "water saving" and in particular would it include the components of capturing and storing water from catchment areas such as roofs and this was confirmed.

The **Jamaica Institution of Engineers** celebrated Engineering Week in September with a conference and the Senior Project Manager at JN Bank Cicyln Joseph-Johnson made a presentation on the Water Project to the association, which received wide media coverage and the article published in the Gleaner on September 29th 2018. A second article published in the Gleaner on November 25th 2018 titled "JN Bank to Provide Loans for Developers, Householders to Install Water Adaptation Systems". Both articles are shown at Appendix A3.

The **Jamaica Developers Association** invited us to make a presentation at their membership meeting held on November 6th, 2018 and the presentation was well received by the developers present and it was also circulated to all the members.

The **Jamaican Institute of Architects** celebrated Architects Week, between October 21 & 27 and there was a panel discussion on October 24th which was attended by the consultant and the issue of including water saving devices in future designs was discussed with several of the architects present.

In the final analysis, it is recognized that there is a need for a sustained public education and promotional programme to drive the point home to consumers, professionals and developers to conserve water and install water saving devices in existing and new homes.

4.2 Private Sector Housing Developers

The likely main market for loans to finance Water Adaptation in new houses was identified as the major housing developers and it was agreed that individual meetings with the CEO's or Senior Management representatives would be the best method of gathering data and information on this group.

All the developers interviewed, positively supported the idea of building future homes with water saving devices.

The major concern was whether the costs would increase the house prices above the acceptable levels by consumers and it is important that this issue be addressed up front with both developers and consumers.

All the ongoing developments were at stages where it was not likely to be able to include water saving devices unless they were already planned for and were ordered in which case financing had already been secured.

A total of seventeen private housing development companies were interviewed and of this total fifteen were interested in borrowing for including water adaptation technology in their developments and only two (Geon

Homes and Kemtech) indicated that they were unlikely to access loans from JN for water saving devices as they do not borrow funds for their projects and are not interested in borrowing.

Carib Homes indicated that they did not have any immediate plans to develop homes and David Garel of Shelter Homes Ltd. who was very interested in accessing the loans was discussing a project with JN Bank and proposed including the financing of water saving devices as a part of his overall project financing.

The summary of the responses from the other thirteen developers interviewed and their likely interest in loans for water saving devices is presented below.

Gore Developments are now the major private sector housing developers in Jamaica. They mainly build units in the lower income range of \$10-18M/unit and complete an average of 600 units/year, 2-3 bedrooms and 2 bathrooms but do not usually borrow funds for their projects. They reported that, if the interest rate was attractive (i.e. 5-6%/annum) they would consider borrowing for the water saving devices, but not before 2020 as the projects they are now completing to the end of 2019 are already financed and in most cases all the supplies have been acquired. This developer is now planning two new projects in Montego Bay and St. Catherine and due to the volume of units completed annually is the most significant potential borrower and will need to be approached at a very senior level by the executive team at JN.

New Era homes 2000 Ltd. (NEH) also mainly builds units in the lower income range of \$11-15M/unit and they complete an average of 200 units/year with 2-3 bedrooms and 2 bathrooms, but do not usually borrow funds for their projects. NEH would consider borrowing funds from JN but the rate would need to be below their current average borrowing rate of 6.75%. The projects slated to start in mid-2019 could include water saving devices but discussions would need to start before year end 2018. This developer due to the volume of units completed annually is also a very good prospect to be pursued for water saving loans.

West Indies Home Contractors (WIHCON) have over 50 years of experience as a major Housing Developer in Jamaica and recently have also been a contractor mainly working with the Housing Agency of Jamaica and the National Housing Trust. Projects undertaken by WIHCON usually are lower to middle income market targeted (\$12-20M) and range between JA\$1-3 billion and are completed in under 20 months. On average, WIHCON complete approximately 200 units/year and these vary from 1-3 bedrooms and 1-3 bathrooms. Projects when they are developer and contractor are usually funded 30% by equity from the company to acquire the land and complete planning and approvals and 70% by loans to completion. They are currently in the market for lands to develop and would likely need funding in 2020 and are willing to discuss overall project funding to include for water saving devices with JN. Interest rates will need to be below 7%.

138 Student Living Jamaica Ltd. has developed over 600 rooms for students living on the UWI campus and though they are not currently planning any new developments they are likely to be in the market for refurbishing their existing buildings in 2019-20 to install water saving devices in the bathrooms and washing areas. There needs to be a detailed audit and estimate of the costs however based on 650 toilets, and similar numbers of showers and wash basins to be replaced by water saving devices the refurbishing estimates can be spread over 2019 and 2020 and loan interest rates will need to be below 9%. The implications from discussions with this potential client are that the Strata Housing Market could be very attractive to approach to refurbish their units to reduce water consumption.

Narcisse Holdings (NH) have completed several housing developments over the past five years mainly in Kingston and are now averaging 55 completed units per year. Plans are now in place to start two new projects and to

continue building at the rate of 55 units per year in the middle income bracket averaging 2 bedrooms and 2 bathrooms selling at approximately \$25M/unit. NH are currently obtaining financing from JMMB at attractive rates so JN would need to be below 7.5% to be considered.

Panjam Investment Ltd. (PANJAM) is more a developer of commercial space but is planning two developments for 2019-20 with 40 high end apartments downtown on the top floors of Caribbean Place (former Oceana Hotel) and 6 apartments in Manor Park. Both these projects will have an average of three bedrooms and three bathrooms in each unit and are in the final planning stages and PANJAM is willing to consider funding the projects through JN and including water saving devices throughout. They indicated that the interest rate will need to be 6% or less.

Tara Development Ltd. led by Fredrik Moe, has completed several projects over the past few years mainly in Montego Bay and is currently starting a 438 unit housing development in Hanover. This project will be targeted at the low to middle income market and will be mainly 2-3 bedrooms and 2 bathrooms and is being financed by JN and Tara wish to include water saving devices throughout. Interest rates will need to be below 7% to be attractive.

Matalon Homes led by Peter Matalon, has completed several high end developments mainly in the Kingston 6 and 8 areas and they are now completing a project in Cherry Gardens. They are currently planning to start a 42 unit development in Tavistock in Kingston 6 and another project in Cherry Gardens shortly thereafter. Both projects are to have between 3 & 4 bedrooms and 3 bathrooms and the selling prices are expected to be over \$100M. Though they have never done a project financed by JN and have aggressive payment schedules for their clients and therefore do not usually borrow for their developments, they are willing to consider borrowing for water saving devices. The timing for securing the financing is within the next six months and the interest rate will need to be close to 6%.

Island Homes has developed over 375 housing units over the past five years, are now averaging 40 units/year and are already borrowing from JN for a current project. Most developments are in the lower to middle income brackets, consisting of apartments and townhouses with prices ranging between \$8M-\$22M for apartments and \$13M to \$32M for townhouses. Two new projects, each with between 75 and 100 units with 2 bedrooms and 2 bathrooms are being planned with one in Kingston and one in Montego Bay and these are expected to start in 2019 and they would like to incorporate water saving devices, however, the costs should not impact negatively on the selling price and marketability of the units and the interest rate offered would need to be between 7.5-8% to be attractive.

Barana Ltd. led by Barrington Chisholm has focused mainly on lower income range of \$11-15M/units with 2 bedrooms and 2 bathrooms. They have completed 75 housing units over the past 5 years and are currently completing 54 apartments in Kingston. They are already a borrower from JN and are very likely to borrow again. Currently they are considering two new projects for 2020 but details are not finalized but they are willing to include Water saving devices in their future projects provided the interest rate is below 8%. It is recommended that this developer be encouraged to move forward with other projects after completing their existing project.

Rosemead Ltd. has developed middle to upper income housing projects over the past several years and is already borrowing from JN and are willing to consider funding of water saving devices in future projects. They are now preparing to build out 30 units with 3 bedrooms and at least 2 bathrooms in Widcombe Estate and have approached JN for funding to start in 2019. The interest rate offered would need to be between 7.5-8% to be attractive.

Garco Construction Ltd. has done housing developments which are aimed at the middle income market and are now preparing to start a 50 unit development in Vineyard Town with 2 bedrooms and 2 bathrooms. Currently Garco is borrowing funds at 8-9% and has not borrowed from JN before but is interested in accessing loans for water saving devices and possibly overall project funding from JN.

Moorland Development Company (MDC) - (Mr. Carlton Maxwell) was incorporated on August 29, 2001 to oversee the development of Moorlands Estate. Focus is on middle-upper income housing units and they have completed over 1300 housing solutions (lots and completed housing units) in the Manchester/St. Elizabeth area over the past 17 years. MDC is currently planning to start a 110 unit housing development Moorland Manor which will have 1/4 acre lots with 2600 s.f. units with water tanks, water saving toilets, faucets and water collecting and recycling systems with sewage treated to tertiary level and the effluent used to irrigate common areas, fruit trees and green areas surrounding. The units will also have solar panels and solar water heaters. Funding is currently provided by Sagicor to acquire the real estate, however, MDC is willing to discuss with JN providing funding for entire project including the water saving component and providing mortgages to buyers. Their borrowing rate is currently 9.5% so JN would need to be more attractive. The units in Moorland Manor are priced at US\$400K and there is a waiting list of potential buyers and in the past 90% of all units built to date have been sold. MDC plans to complete a model unit by March 2019 which will then be used to launch the marketing programme for the Moorland Manor Development.

Estimated Loan Demand from Developers

It should be noted that none of the developers could give an accurate budget estimate of the Water Adaptation component of the projects so an estimate was developed based on the number of units expected to be completed each year for the next three years and the likely cost per unit for the water saving components.

In order to estimate the cost of water saving devices for low, middle and high income housing units a quotation was obtained from Instant-Save Conservation Solutions Ja. Ltd., which is shown in summary in Table 3 below.

Table 3- Estimated Water Saving Device Costs/unit for Low, Medium & High Income Units

Income Category	Fixture Details	Cost inc. GCT & Installation
LOW INCOME 1 Bathroom	1 - Round Toilet, 1 - 1.5 GPM fixed showerhead, 1 adapter for wash basin tap & 3 - 1.0 GPM Aerators for bathroom, kitchen and wash basin.	\$63,000
LOW INCOME 2 Bathroom	2 - Round Toilets, 2 - 1.5 GPM fixed showerheads, 1 adapter for wash basin tap & 4 - 1.0 GPM Aerators for 2 bathrooms, kitchen and wash basin	\$122,000
MIDDLE INCOME 2 Bathroom	2 - Toilets (1 Elongated & 1 Round), 2 - 1.5 GPM showerheads (1 hand held & 1 Fixed), 1 adapter for wash basin tap & 4 - 1.0 GPM Aerators for 2 b/r, kitchen and wash basin	\$130,000
MIDDLE INCOME 3 Bathroom	3 - Toilets, (1 Elongated & 2 Round), 3 - 1.5 GPM Hand held showerheads, 1 adapter for wash basin tap & 5 - 1.0 GPM Aerators for 3 bathrooms, kitchen and wash basin.	\$192,000
UPPER INCOME 2 Bathroom	2 - Elongated Toilets, 2 - 1.5 GPM Handheld showerheads, 1 adapter for wash basin tap & 4 - 1.0 GPM Aerators for 2 bathrooms, kitchen and wash basin	\$136,000
UPPER INCOME 3 Bathroom	3 - Elongated Toilets, 3 - 1.5 GPM Handheld showerheads, 1 adapter for wash basin tap & 5 - 1.0 GPM Aerators for 3 bathrooms, kitchen and wash basin	\$201,000

Three scenarios were developed for the estimated demand for Water Adaptation loan funds from housing developers based on the information gathered from the above interviews and the cost estimates for acquiring the devices and installing them in the units in the various income brackets.

The assumptions for each developer to arrive at the three scenarios being optimistic, likely average and pessimistic were as shown in table 4 below.

Table 4- Assumptions for Optimistic and Pessimistic Loan Demand from Developers Interviewed

Developer	Loan Demand 2019 (\$'000)	Loan Demand 2020 (\$'000)	Loan Demand 2021 (\$'000)
Gore- Optimistic	Already financed	Borrow for all units	Borrow for all units
Gore- Pessimistic	Already financed	Do not Borrow	Do not Borrow
New Era- Optimistic	Borrow for all units	Borrow for all units	Borrow for all units
New Era- Pessimistic	Do not borrow	Do not borrow	Do not borrow
WIHC- Optimistic	Borrow for all units	Borrow for all units	Borrow for all units
WIHC- Pessimistic	Do not borrow	Do not borrow	Do not borrow
138 SL- Optimistic	Borrow for all units	Borrow for all units	Borrow for all units
138 SL- Pessimistic	Do not borrow	Do not borrow	Do not borrow
Narcisse- Optimistic	Borrow for all units	Borrow for all units	Borrow for all units
Narcisse- Pessimistic	Do not borrow	Do not borrow	Do not borrow
Panjam- Optimistic	Borrow for all units	Borrow for all units	Borrow for all units
Panjam- Pessimistic	Do not borrow	Do not borrow	Do not borrow
Tara- Optimistic	Borrow for all units	Borrow for all units	Borrow for all units
Tara- Pessimistic	Do not borrow	Do not borrow	Do not borrow
Matalon- Optimistic	Borrow for all units	Borrow for all units	Borrow for all units
Matalon- pessimistic	Do not borrow	Do not borrow	Do not borrow
Island- Optimistic	Borrow for all units	Borrow for all units	Borrow for all units
Island- Pessimistic	Borrow for 20 units	Do not borrow	Do not borrow
Barana- Optimistic	No Units planned	No units planned	Borrow for
Barana- Pessimistic	No units planned	No units planned	No units built
Rosemead- Optimistic	Borrow for 10 units	Borrow for 10 units	Borrow for 10 units
Rosemead- Pessimistic	Borrow for 5 units	Borrow for 5 units	Borrow for 5 units
Garco- Optimistic	Borrow for all units	Borrow for all units	Borrow for all units
Garco- Pessimistic	Do not borrow	Do not borrow	Do not borrow
Moorland- optimistic	Borrow for all units	Borrow for all units	Borrow for all units
Moorland- Pessimistic	Do not borrow	Do not borrow	Do not borrow

The demand for loans for water adaptation devices for each developer were then calculated based on the interviews with them, the costs for the devices and the optimistic and pessimistic scenarios and the likely average Loan Demand from developers interviewed is as shown in Appendix A4.

The likely loan demand from the developers interviewed is summarized in Table 5 below which also appears as Table 1 in the Executive Summary.

Table 5- Likely Average Estimated Loan Demand from Developers

Developer	Loan Demand 2019 (\$'000)	Loan Demand 2020 (\$'000)	Loan Demand 2021 (\$'000)
Gore Developments	0	36,600	36,600
New Era Homes	6,100	12,200	12,200
WIHC	12,200	12,200	12,200
138 Student Living	10,238	10,238	0
Narcisse Holdings	3,575	3,575	3,575
Panjam	1,541	1,541	1,541
Tara Dev. Ltd.	9,490	9,490	9,490
Matalon Homes	2,110	2,110	2,110
Island Homes	3900	3900	3,900
Barana Ltd.	0	0	1,300
Rosemead	1575	1575	1,575
Garco	1,300	1,300	1,300
Moorland	1,950	2,600	2,600
Total	53,983	97,329	88,392
Add 20% for others	10,797	19,466	17,678
Overall Total	64,780	116,795	106,070

Since most of the major private housing developers were interviewed it is estimated that once the availability of the loans is formally announced and advertising and promotion begins, another 20% demand can be added to cover the developers not interviewed and those who will come forward to access the loans.

The above therefore represents in the opinion of the consultant, a good indication of the potential demand for Water Adaptation Loans from developers over the next three years and the realization of this potential will require active follow up and marketing to the developers.

Some of the critical factors to realize the potential loan demand include the following:

- Public education and promotion of the importance of the project and installing water saving devices.
- Interest rates for loans for developers in most cases were between 6% and 9% and it therefore seems that to make the loans attractive they should be as close to 6% as possible.
- Terms for loans are all considered interim or short term loans as most developers are paid out in full by the house buyer either with cash or a mortgage loan. The loans for water adaptation devices were therefore all considered short term loans by developers of between 1 and 3 years.
- A critical factor mentioned by all the developers was that the cost of the water saving devices should be as close as possible to non water saving devices to ensure that costs are kept as low as possible and not significantly increase the costs of the units and this will need to be stressed to the potential suppliers.

It is recommended that JN work closely with suppliers to present to developers the options, their comparative costs and the recovery period for the homeowners for investing in the water saving devices.

4.3 Public Sector Housing Developers

It was agreed that the Housing Agency of Jamaica would be interviewed to determine their interest in accessing financing for Water adaptation technology to be incorporated in their schemes as well.

Mr. Gary Howell, the Managing Director of the Housing Agency of Jamaica Ltd. (HAJL) was interviewed and he pointed out that HAJL has now moved to a model where housing development projects are undertaken via joint ventures with private sector developers/contractors who do the detailed designs and financing of the projects on lands owned by HAJL or other GOJ agencies.

Currently HAJL is pursuing JV projects in the following areas:

- Portmore where 600 housing units are to be built;
- St. Catherine where 1500 units are to be built;
- Montego Bay Rhyne Park where 1600 units are to be built.

HAJL encourages environmentally friendly designs in all their developments and would support having water saving devices and rainwater collection and reuse in all the projects being undertaken.

In all the above cases JN would need to contact the private sector partners to determine if they would wish to access loans from JN as HAJL does not borrow the funds for the developments.

Regarding the last point above, it was agreed that HAJL would clear with their legal department whether they can reveal the partners in the projects they are currently planning so JN can approach them to offer financing for the projects in cases where this has not yet been finalized.

The National Housing Trust (NHT) was also approached and Mr. Donald Moore was interviewed. He indicated that the NHT does not enter into borrowing arrangements with other financial institutions however developers may co-finance their developments by borrowing from the NHT and other financial institutions.

4.4 Architects & Engineers

Five architects including Marvin Goodman, Robert Woodstock, Douglas Stiebel, Rivi Gardner, Omari Wright and an Engineer Peter Jervis were interviewed and they have completed several projects over the past few years for public and private sector developers or individual home owners.

All of them are very committed to more environmentally conscious designs and support or actively promote the inclusion of energy and water saving devices in the homes they design and believe that selling this to developers and individual homeowners should not be difficult and in many cases they demand them.

They all regarded themselves as leaders in the area of sustainable design and development and will continue to push for more environmentally conscious designs and practical approaches to green building by developers and individual home owners.

They indicated that the costs and the savings need to be presented very simply and options which can be presented to developers and homeowners need to be developed.

Adding the cost to the home and providing the Mortgage JN is in an excellent position to lead in water savings for homeowners.

For apartments and townhouse complexes the most important features are water saving toilets, shower heads, faucets and leak detection devices which can alert the home owner or complex manager of major water leaks is most important and most householders and developers would welcome the loans.

Rainwater collection and recycling including the necessary filters, is usually very expensive and is seldom very effective as the storage necessary is thousands of gallons per unit and even 12,000 gallons only lasts a few days when a drought situation can be for months so the house holder becomes very frustrated having spent significant amounts on the rainwater harvesting system.

In some areas like Mandeville the Parish Council requires new houses to have individual water storage tanks and recommends that each householder collect, store and reuse rainwater but this is not mandatory.

In the final analysis, selling the developers and individual home owners on including water saving devices in their homes will not be difficult if there is sufficient public education and promotion as well as making the case simply that is economically feasible and worth the investment.

4.5 Consumer Demand

4.5.1 Key Consumer Survey Results

To obtain information from individual homeowners or potential homeowners a survey instrument was jointly designed by Consultant & a team from JN Group and implemented via Survey Monkey. The main purpose of the survey was to determine the appetite from consumers for Water Saving Device loans. A total of 392 respondents were registered at November 17th 2018 and a summary of the key information gathered from the survey and the implications for JN are presented below.

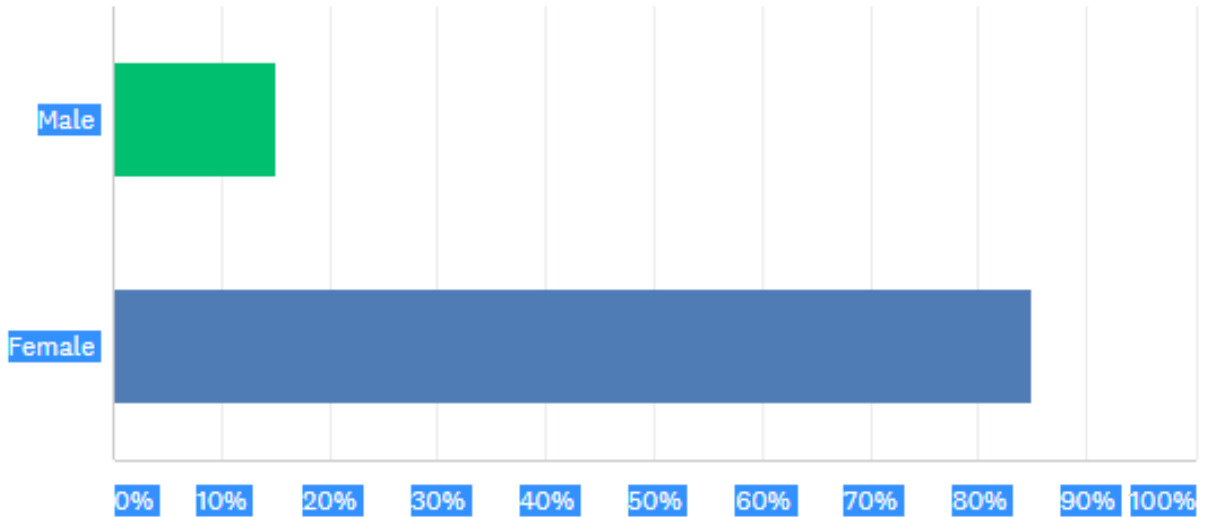
Gender- most of the respondents (85%) were females which is not surprising and points to the fact that promoting the use of water saving devices needs to bear this in mind as females are likely the most important decision makers.

Gender

Answered: 387

Skipped: 5

Rectangular Snip

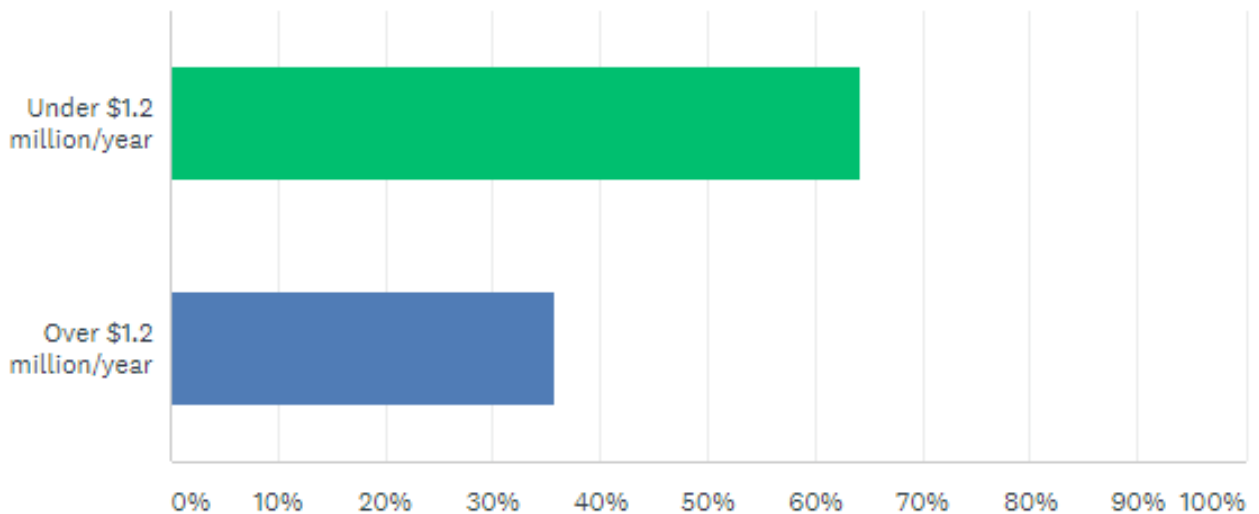


Incomes of respondents- the majority or 64% of respondents earned less than \$1.2 million per year which would affect their ability to afford loans for Water Adaptation devices.

What is your income bracket?

Answered: 386

Skipped: 6

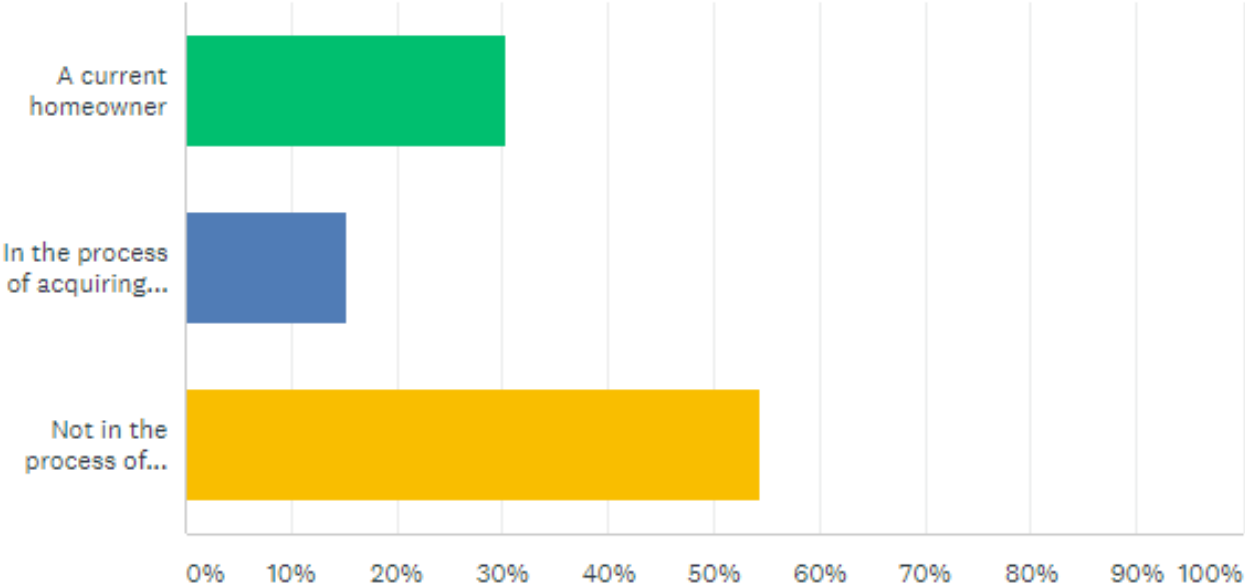


Age of respondents- the majority or 52% of respondents were between the ages of 31 and 50; 19% between 18 and 30; 18% between 51 and 65 and 11% over 65.

Location- The majority of the respondents were from Kingston & St. Andrew with 45% and St Catherine with 25%.

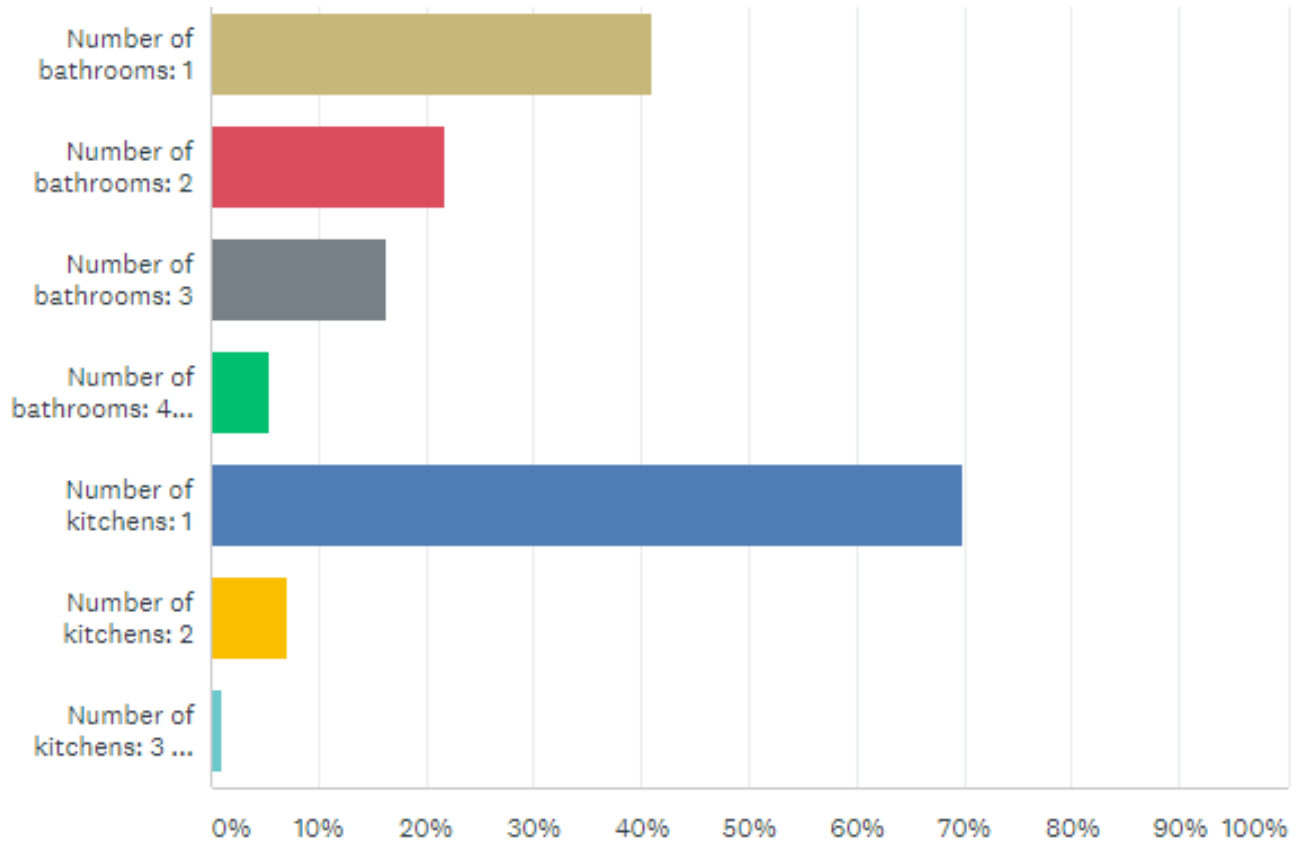
Home Ownership- 46% of the respondents either owned a home or were in the process of acquiring a home.

Answered: 391 Skipped: 1

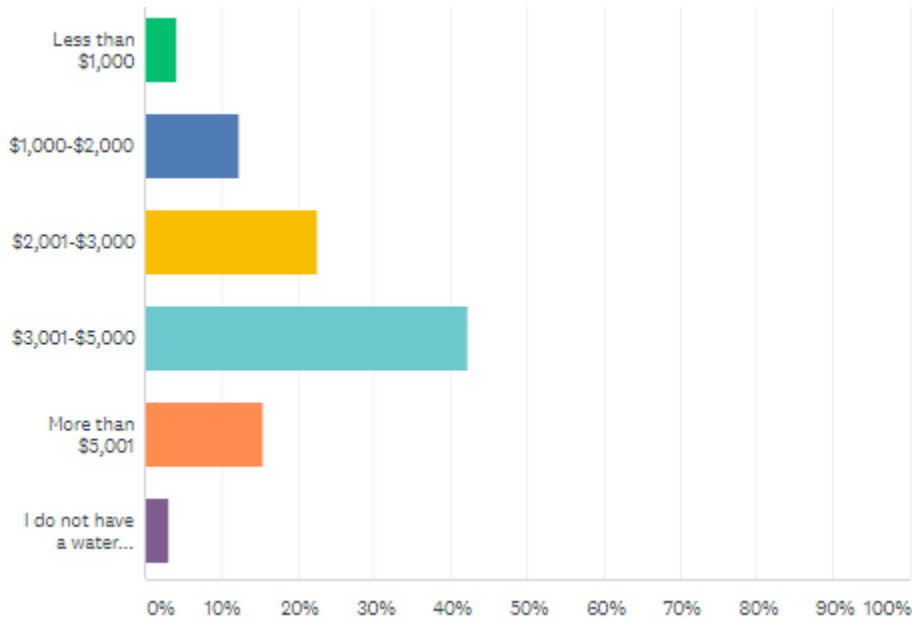


Size of House- 21% of respondents owned homes of less than 1,000 square feet; 38% owned homes of between 1000 & 2000 square feet & 41% owned homes of more than 2000 square feet which suggests that the interest is significantly skewed towards those with larger houses.

Number of Bathrooms & Kitchens- 44% have 2 bathrooms or more and all have at least 1 Kitchen

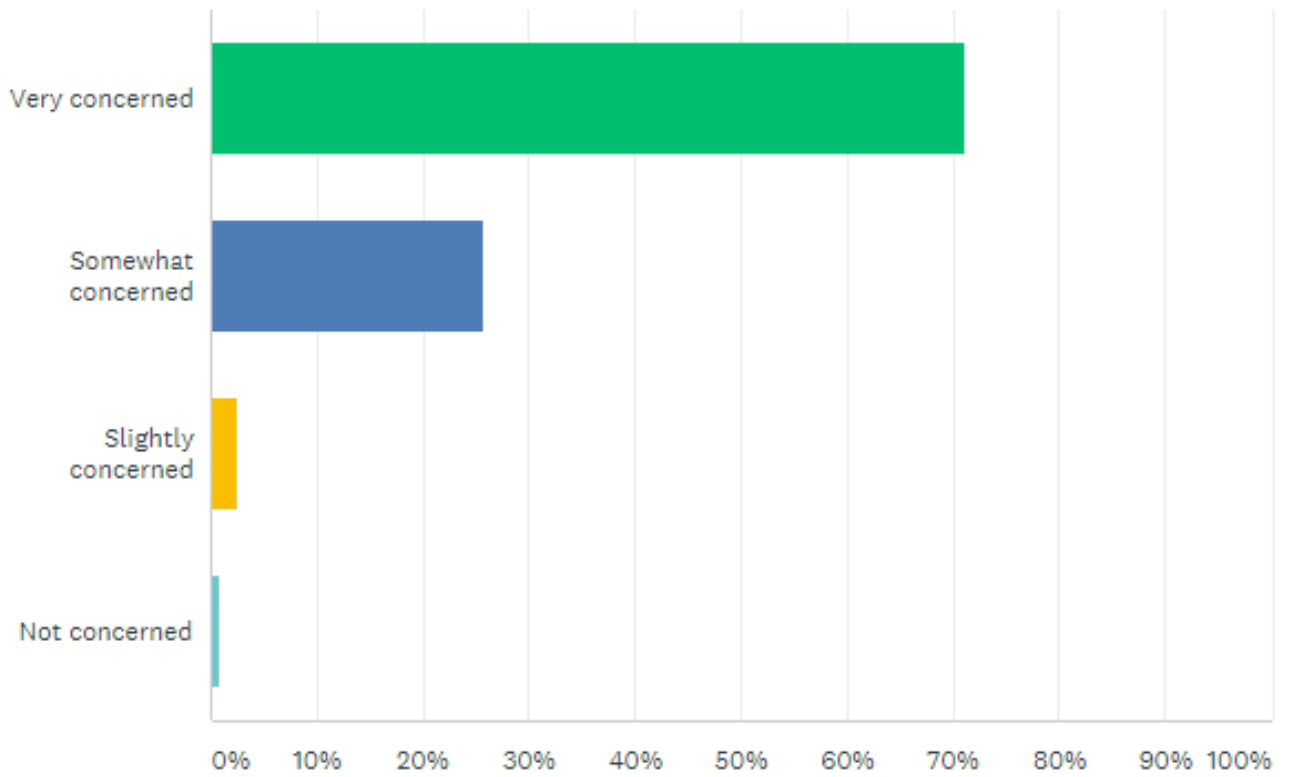


Average Water Bill/month- 17% of respondents had bills less than \$2,000; 23% between \$2,001 & \$3,000; 57% higher than 3,000/month and 3% did not have a water supplier.



Climate Change concern- 71% very & 25% somewhat concerned with Climate Change

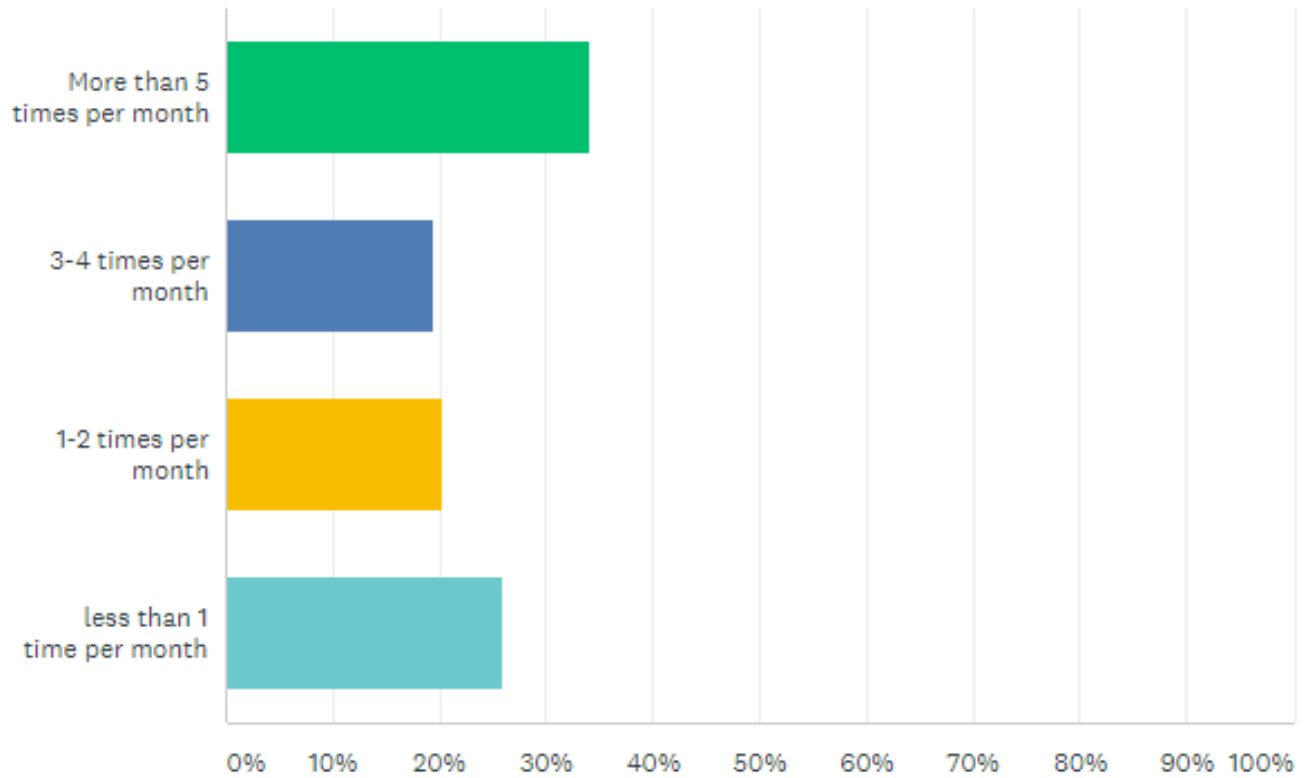
Answered: 390 Skipped: 2



Lock off Experience- 73% have water lock-offs at least once per month

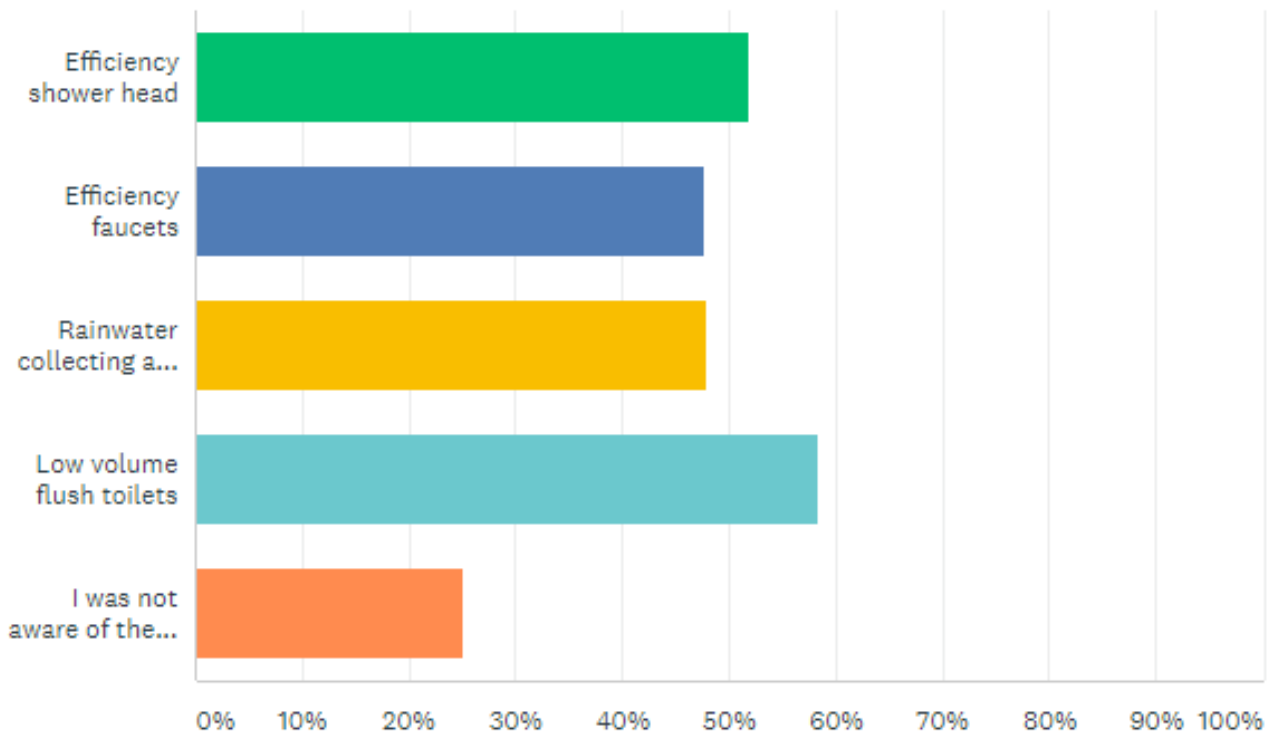
How often do you experience water lock offs?

Answered: 389 Skipped: 3



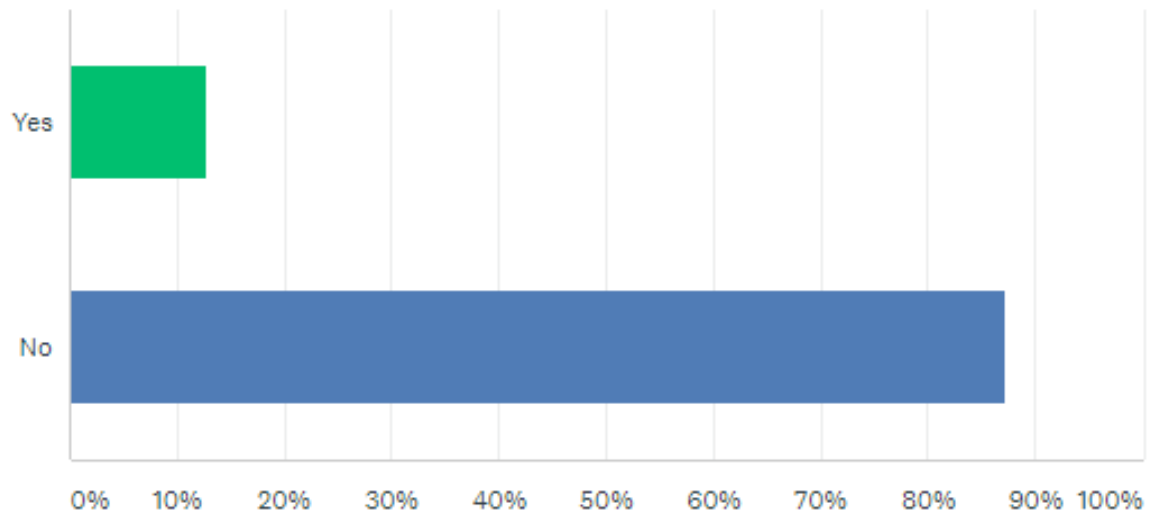
Devices respondents would Install- Low volume Flush Toilets- 68%; Efficiency Shower head 60%; Efficiency Faucets- 56% and Rainwater Collecting Systems- 54%. This clearly indicates that there is significant interest by consumers in installing water saving devices.

Answered: 386 Skipped: 6



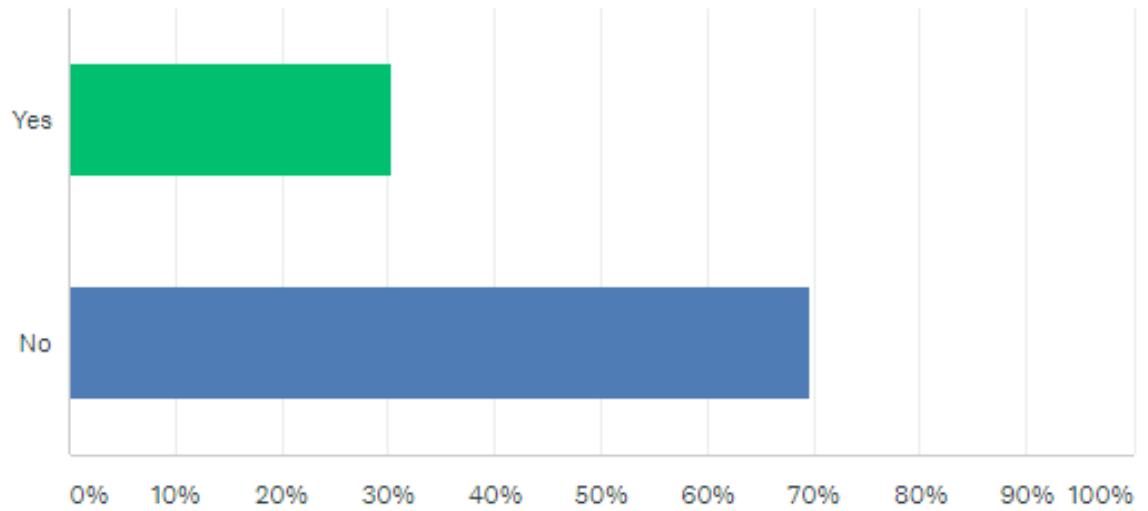
Current Water Saving Devices- 88% of respondents indicated that they currently have no water saving devices.

Answered: 392 Skipped: 0



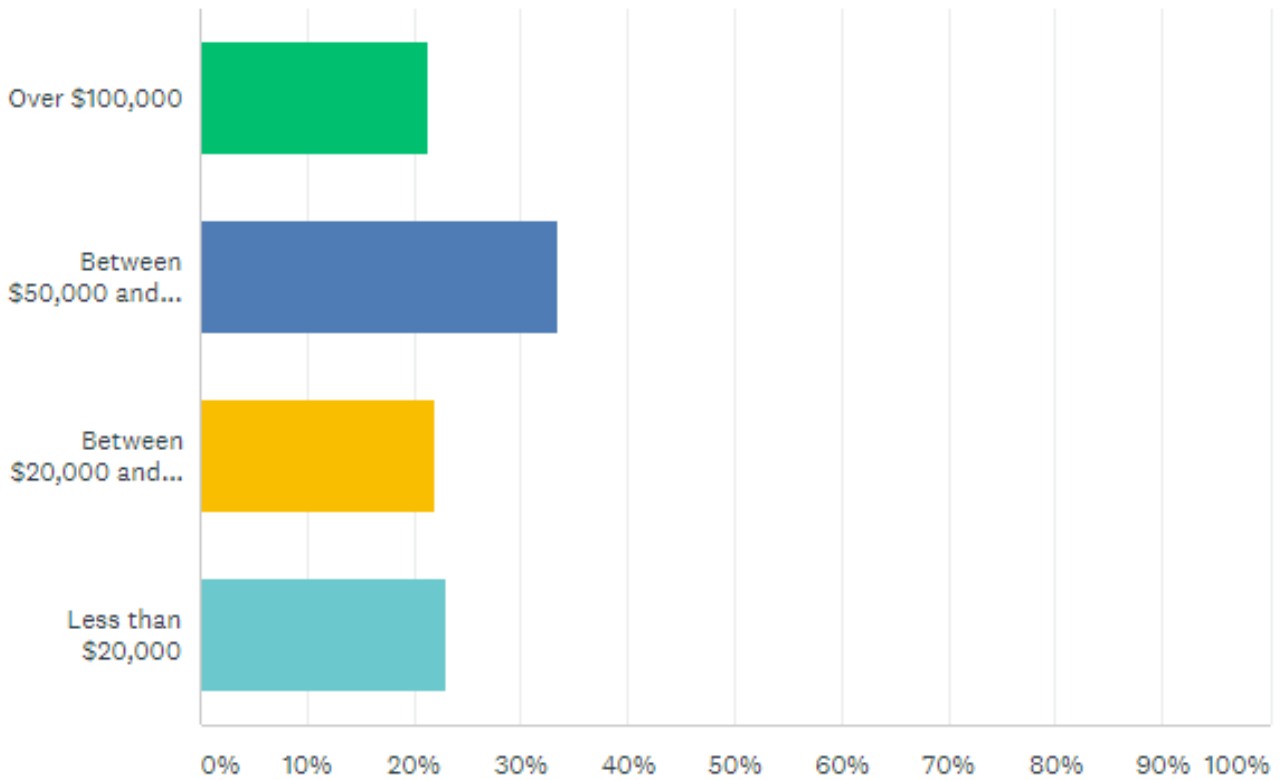
Willingness to borrow from JN to finance Water Saving Devices- Only 30% of respondents were willing to borrow to finance the devices.

Answered: 390 Skipped: 2



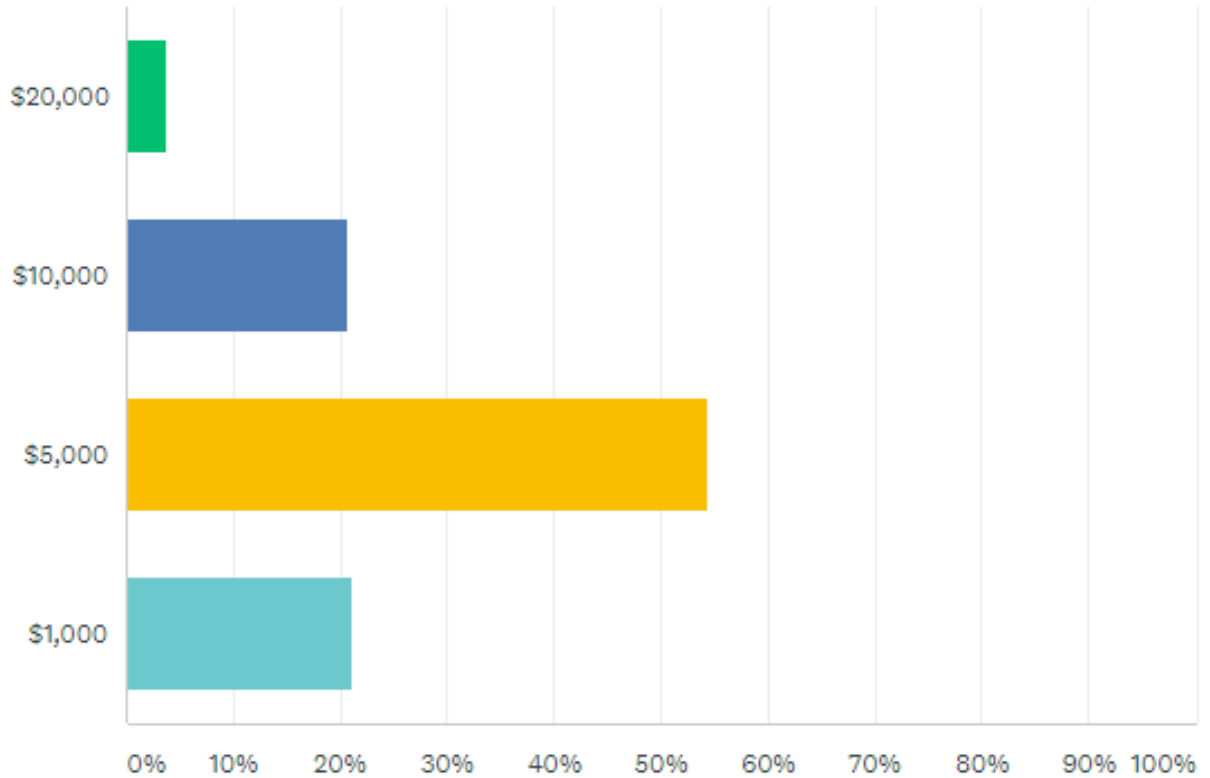
How much would they borrow?- Over \$100K- 21%; \$50-100K- 34%; \$20-50K- 22%; Less than \$20K- 23%.
Therefore 55% would be willing to borrow more than \$50K.

Answered: 304 Skipped: 88



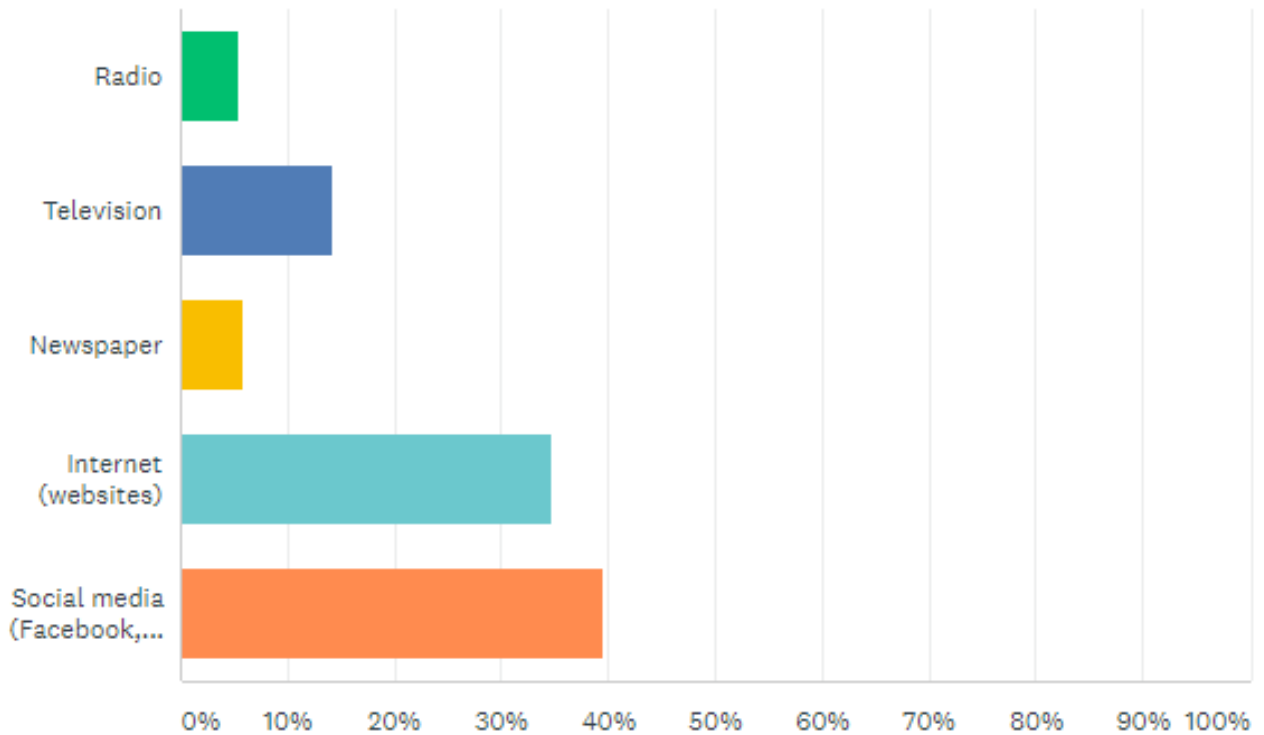
What would be an affordable repayment/month? - 76% indicated they would be willing to pay \$5,000 or less per month.

Answered: 322 Skipped: 70



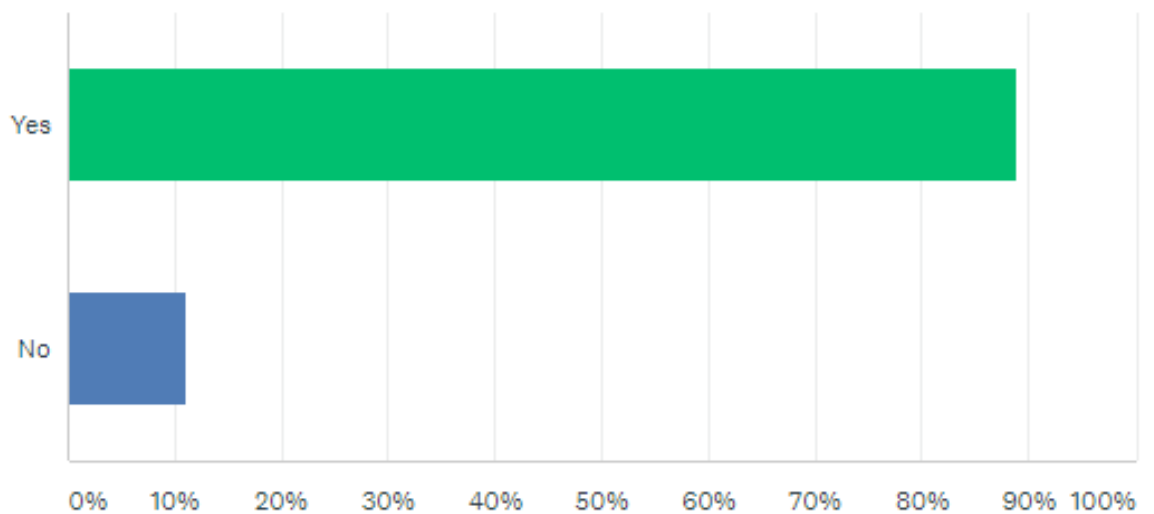
Main Sources of Information- 39% indicated Social Media (Facebook, Twitter, Instagram etc.); 35% Internet /websites; 20% TV; 14%; 6% Newspapers & 5% Radio. Clearly the internet and Social Media with 74% are the most important sources for information which has implications for advertising and public education efforts.

Answered: 391 Skipped: 1



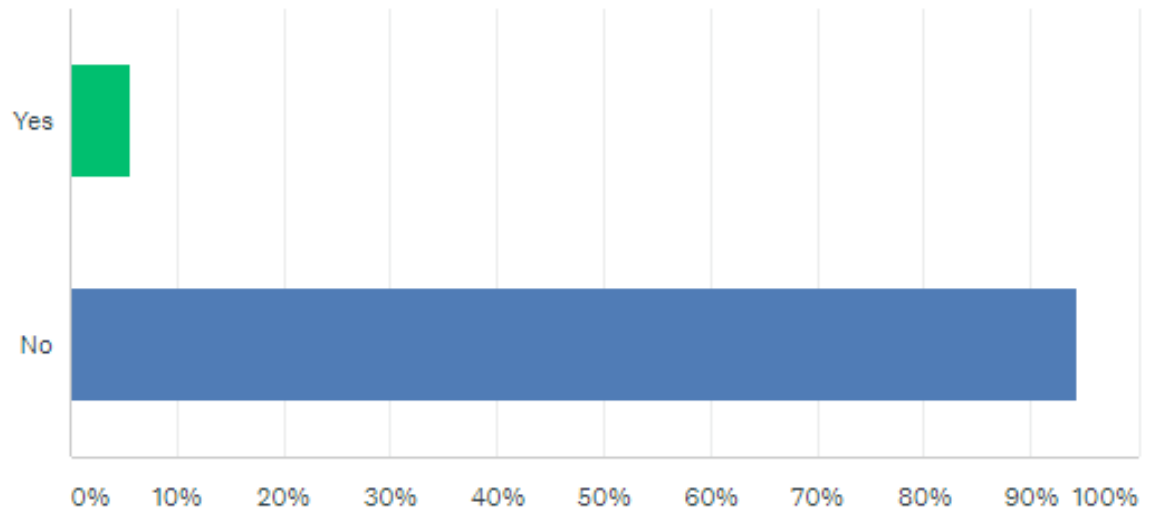
Interest in learning more about the water project- 89% of respondents were interested in learning more about the project.

Answered: 390 Skipped: 2



Staff Members completing the Survey- 94% of respondents indicated that they were not JN staff members however it should be noted that 77 of 392 or 20% skipped the question.

Answered: 315 Skipped: 77



5. Risk Assessment

At the beginning of the assignment the major risk in this demand study was timing, as the months of August and September in Jamaica are difficult months to get meetings and interviews of senior executives arranged as many of them take holidays in August with their families and return at the end of August to prepare their children for school in September.

In spite of this the consultant was able to interview seventeen major developers which was in excess of the target of ten major developers and six Architects and Engineers were also interviewed.

In terms of the Associations, presentations were made to the Jamaica Developers Association, the executive team of the Master Builders Association and to the Jamaica Institution of Engineers and discussions were held with individual members of all the associations.

Though there was first hand feedback from developers, Architects, Engineers and consumers mainly through individual interviews or persons completing individual surveys, the accuracy of the estimates of demand for water adaptation loans is based on assumptions of the projects discussed proceeding from the planning stages to implementation and this is dependent on a number of factors moving forward with no major natural or other disasters.

Furthermore, the estimates of amounts to be borrowed are not based on budgets already prepared for projects but in most cases are derived based on estimates per unit from one supplier which can be fine-tuned when more accurate estimates of the costs of water saving devices are obtained when the suppliers study is completed.

In spite of the above, in our opinion, the estimates of loan demand are as accurate as current information can provide and indicate that there is significant demand for the loans.

6. Summary Findings & Conclusions from the Market Demand Study

6.1 Developers & Professionals

All the developers and the professionals (Architects and Engineers) interviewed, positively supported the idea of building future homes with water saving devices.

The major concern was whether the costs would increase the house prices above the acceptable levels by consumers.

All the ongoing developments were at stages where it was not likely to be able to include water saving devices unless they were already planned for and were ordered in which case financing had already been secured.

Fifteen of the seventeen private development companies interviewed indicated that they were interested in borrowing for including water adaptation technology in their developments.

The likely average demand for loans for water adaptation in housing developments planned for 2019-2021 is estimated at Ja\$279.07 million over the next three years broken down as \$62.44M in 2019; \$113.68M in 2020 and \$102.95M in 2021.

Interest rates for loans for developers in most cases were between 6% and 9% and it therefore seems that to make the loans attractive they should be as close to 6% as possible.

Developers Terms for loans are all considered interim or short term loans as most developers are paid out in full by the house buyer either with cash or a mortgage loan. The loans for water adaptation devices were therefore all considered short term loans by developers of between 1 and 3 years.

The costs and the savings of Water Saving Devices need to be presented very simply and there need to be options which can be presented to developers and homeowners.

Adding the cost to the home and providing either short term loans or bundling the cost into a mortgage puts JN is in an excellent position to lead in introducing water savings for homeowners.

The Architects in particular were openly supportive of the concept of having water saving devices and in some cases water collection and distribution systems incorporated in the designs and costs for new developments and for individual home owners or those doing improvements to their homes.

6.2 Consumers

Up to November 30th, 2018 there were 392 respondents to the consumer Survey which was significantly higher than the 200 projected.

Probably the most significant finding of the Consumer Survey is that though 89% of respondents wish to find out more about the water saving devices and the project overall, only 30% of them are interested in borrowing to finance the costs.

Though 57% of the respondents had water bills higher than \$3000/month, 65% earned less than \$1.2M/year therefore selling a consumer to spend \$100K and more to install water saving devices is likely to be a hard sell.

In spite of this there seems to be a high percentage of consumers wishing to install water saving devices, however, this enthusiasm may be dampened if the costs to replace existing inefficient devices is deemed to be too high.

It seems more likely that consumers would consider borrowing if they planned to do major refurbishing of their homes or if they were building new homes and the water saving devices were a part of the total loan.

With over 85% of respondents being female and likely key decision makers, 74% get their information from Social Media or the Internet and with 45% being from Kingston and St. Andrew and 25% from St. Catherine, any marketing plans need to take this into consideration.

Interestingly, 96% of respondents indicated that Climate Change was a concern and this must be reinforced if attitudes are to be changed to be more acceptable of and increase demand for loans for water saving devices.

Regarding interest rates for consumers, this would need to be more in line with mortgage rates for housing loans which currently are between 7-8% per annum and based on the responses from consumers these could be over a five year period.

Taking into consideration the results of the consumer surveys in order to estimate demand from consumers the following assumptions were made:

- Households targeted would be 2,000 in 2019; 3,000 in 2010 and 4,000 in 2021;
- The average loan amount would be \$100K.

Based on the above assumptions combined with the survey results, the loan demand estimates were \$14.3M in 2019, 21.4M in 2020 and \$28.5M in 2021 as derived in table 6 below.

Table 6- Estimated Loan Demand from Consumers

Assumptions	2019	2020	2021
Target # of Households	2,000	3,000	4,000
Only 46% own homes	920	1,380	1,840
50% would install WSD	460	690	920
31% would borrow from JN	143	214	285
Assume average loan \$100K	100,000	100,000	100,000
Total Annual Loans	14,300,000	21,400,000	28,500,000

6.2 Combined Estimated Loan Demand by Developers & Consumers

The combined estimated demand for loans for Water Saving devices derived from the research in this study is summarized in the table 7 below which indicates that the total loan demand is expected to be \$79,080k in 2019, \$138,195K in 2020 and \$134,570k in 2021.

Table 7- Combined Estimated Loan Demand by Developers & Consumers

Developers/Consumers	Loan Demand 2019 (\$'000)	Loan Demand 2020 (\$'000)	Loan Demand 2021 (\$'000)
Developers	64,780	116,795	106,070
Consumers	14,300	21,400	28,500
Overall Total	79,080	138,195	134,570

Appendix A-1- Financing Water Adaptation- PowerPoint Presentation to Associations



Financing Water Adaptation in Jamaica's New Urban Housing Sector

Robert Stephens- IADB Consultant
Cicyln Joseph-Johnson & JN Group



Specific Objectives

1
Facilitate uptake of water adaptation measures in the housing sector across Jamaica, including the use of rain water harvesting systems and water efficient fixtures.

2
Increase climate resilient housing in Jamaica, through greater awareness of the business and financial cases for developing and building homes with water efficient measures.

3
Increase efficiency in the use of water by Jamaican homes, improve the reliability of water supply and enhance Jamaica's water security and climate resilience.



Problem

1. **Climate change** will exacerbate already serious challenges facing the country's water supply and distribution system.
2. **Inconsistent water supply** challenges the business models of developers and construction companies and threatens local communities.
3. **Limited financing and an uncertain business case for water adaptation** are main barriers to the uptake of water efficient measures by developers and construction companies.



Project Components



LOAN FACILITY
On-lending of funds for the Integration of Water Adaptation Measures in Jamaican Housing



TECHNICAL ASSISTANCE
Business and Financial Cases, Capacity Building, Entrepreneurship, Awareness Raising



Project Impact

- First of its kind globally
- High potential for upscaling and replication
- Changes in behaviour of market participants
- Generate business opportunities
- Lower water costs to homeowners
- Improve water security



Current Status

1. **Housing Developers** meetings are now taking place to identify projects where water adaptation loans can be facilitated by JN Bank.
2. **Architects & Engineers** are being encouraged to include water adaptation technologies in the designs of new and refurbished houses for their clients and to direct them to JN bank for financing.
3. **Individual Home Owners/Potential owners** are being invited to contact JN Bank to arrange financing for the water adaptation components of their new or refurbished homes through JN Bank.
4. **Contact:** Robert Stephens at 876-909-6338 or rspragma@yahoo.com to register your projects or indicate your interest in financing.



Thank you

“Around the world, climate change is an existential threat – but if we harness the opportunities inherent in addressing climate change, we can reap enormous economic benefits”

Ban Ki-moon





FINANCING WATER ADAPTATION



IN JAMAICA'S NEW URBAN HOUSING SECTOR

www.waterprojectja.com

Despite Jamaica's association as "Land of Wood and Water", the country's water supply stands to be affected by the effects of climate change if preventative measures are not implemented. Already, drought and shifting patterns of rainfall and inconsistent water supplies exacerbate serious challenges impacting the country's water, collection and distribution systems. An opportunity exists for architects, Engineers and housing developers to incorporate water efficiency features in our housing designs. The adaptation of such measures can help our housing sector to manage its water usage.

The Jamaica National Group (JN Bank and JN Foundation) in collaboration with the Climate Investment Funds (CIF), Pilot Program for Climate Resilience (PPCR), Multilateral Investment Fund (MIF) and the Inter-American Development Bank (IDB) have embarked on a four year project to "**Enhance Jamaica's climate resilience through the use of water-adaptation technology in the country's housing sector**".

"The Water Project Jamaica", consists of two components: 1. A Technical Cooperation component, which involves developing the business and financial cases for water efficiency, capacity building, supporting entrepreneurship and public awareness and 2. A Loan Facility primarily for housing developers, which will be launched later on in the year. The loan facility will provide funding to housing developers and homeowners to encourage the use of water adaptation technologies in the housing sector.

"The Water Project Jamaica" is the first of its kind globally as it relates to the engagement of the private sector by the PPCR to resolve issues related to climate vulnerability. The model therefore has potential for upscaling and replication across Latin America and the Caribbean and in similar markets facing climatic challenges to water security. The project is also expected to generate business opportunities for the local suppliers of water efficient products and services, while lowering water costs to homeowners and improving water security in Jamaica.

Interested members who wish to register their Housing Development Projects to access Water Adaptation Loans should contact Mr. Robert Stephens- IDB Consultant at 876-909-6338 or rspragma@yahoo.com."

For More information on the water project, visit www.waterprojectja.com

Appendix A3

Gleaner Articles

Make More Climate-Smart and Resilient Houses

Published: Saturday | September 29, 2018 | 12:00 AM

Engineers, who are often 'the lead' on major housing development projects, are being urged to construct climate-smart and resilient homes and buildings in Jamaica, by implementing water-adaptation measures, such as water-harvesting systems and water-efficient fixtures.

Cicyln Joseph-Johnson, senior project manager at The Jamaica National Group, made that recommendation in her address to participants at Engineers' Week 2018, which was held by the Jamaica Institution of Engineers at the Knutsford Court Hotel in Kingston, recently.

Joseph-Johnson's presentation focused on the Water Project Jamaica, a four-year venture, which is being implemented by the JN Foundation, in collaboration with JN Bank, the Inter-American Development Bank and the Pilot Programme for Climate Resilience.

"Climate change and its impact are realities," she stated. "The greater part of the impact is water, when we get floods, droughts, or hurricanes, which are significant. It is getting hotter and drier; sea levels are rising; and there is positive proof that our people need to adopt measures to address climate change."

She argued that "the change" is impacting our water supply and distribution systems that are challenged by inconsistent supplies, which she said underscored the need for implementing water-adaptation measures.

In regard to the measures, Joseph-Johnson informed that, "for large construction developments, you may want to look at grey water harvesting; and storing more water, which can be reused," noting that a study conducted by the National Water Commission revealed that 40 per cent of indoor water use in homes is used to flush toilets and only five per cent for cooking and drinking.

The senior project manager said that the water project, which is the first of its kind in the Caribbean, will assist Jamaicans to adapt to climate change and implement measures that will result in more efficient use of water.

She said the project has two components, with the first being a loan facility, which is being administered by JN Bank, for the integration of water-adaptation measures in Jamaica housing sector; and the second element focuses on technical assistance and sensitization.

JN Bank to Provide Loans for Developers, Householders to Install Water Adaptation Systems

Published: Sunday | November 25, 2018 | 2:19 PM

Jacqueline Cameron, JN Water Project manager in discussion with Dwight Ricketts, immediate past president of the Jamaica Institution of Engineers (JIE) at the group's awards gala, held at the Jamaica Pegasus Hotel in New Kingston recently.

Jamaica National (JN) Bank is to roll out a new loan product that provides financing to housing developers and homeowners for the installation of water adaptation systems.

This comes as JN Bank is urging developers to start building houses with water adaptation systems and mechanisms to harvest and recycle rain water, as part of measures to cope with the effects of climate change.

Pointing out that droughts were getting more severe, manager of JN Bank's Water Project, Jacqueline Cameron, said water adaptation systems could assist households with recycling rain water for use in gardens, laundry and flushing toilets.

While the details of the new loan product is being finalised for roll out in the new year, Cameron, who was addressing members of the Jamaica Developers Association recently, said: "The great news for developers really is that through the JN Water Project, they will be able to access loans from JN Bank to install water adaptation devices."

She explained that the water project was created to address issues associated with climate change by providing limited financing for water specific projects in housing developments.

"Having recognised this shortfall, the JN Water Project was developed, based on a partnership between: the JN Foundation, the Inter American Development Bank (IDB), JN Bank, Climate Investment Funds, the Pilot Programme for Climate Resilience, and the Multilateral Investment Fund," JN executive explained.

Robert Stephens, the demand study consultant for the water project, explained further: "The IDB through the Water Project is looking at Jamaica to essentially set the pace for the rest of the Caribbean; and, the rest of the world, through this project."

According to Stephens, "It has the potential to be up-scaled, in terms of its applications, not only for housing, but in other areas, given changes in the market place. Therefore, it is important to begin to educate developers and home owners about the importance of saving water."

He added: "Climate change is affecting us severely. The fact is that, we need to increase the water resiliency in our housing developments; and, ensure that we use water efficiently, because the next possibility for war in the world could be about water."

JN says the over-arching purpose of its four-year project is to assist the country to enhance its climate resilience through the use of water adaptation technology in the housing sector.

By creating this special loan facility, the bank says the aim is to facilitate greater use of water adaptation measures in houses, such as rain water harvesting systems, water efficient taps and showers, low-flush toilets, efficient irrigation systems, grey-water recycling facilities, and other relevant efficiency measures.

Appendix A4 - List of Private Sector Housing Developers, Architects & Engineers Contacted

Organization	Representatives	Email	Telephone
West Indies Home Contractors (WIHCON)	Mr. Harshad Anaokar	harshada@wihcon.com	876-922-6670
New Era Homes 2000 Ltd.	Mr. Leo Taddeo Mrs. Carol Mendez	attorney@neh2000.com accounts@neh2000.com	876-978-1054
Carib Homes (Managing Green Village Dev.)	Mr. Paul Sogaard	pas@carib-homes.com	876-823-2581
Gore Developments Ltd.	Ms. Joanne Padgett	joanne@goredevelopments.com	876-978-3909
Kemtech Homes Ltd.	Sylvester Tulloch	sylvester.tulloch@gmail.com	876-631-5263
Narcisse Holdings	Charlene Narcisse	info@charlenenarcisse.com	876-868-1800
Island Homes Ltd.	Michael Lake/Gina Harrison-	gharrisonwork@gmail.com developments@islandhomesja.com	876-929-1153 876-361-4462
Rosemead Ltd	Anup Chandiram	anup@cwjamaica.com	876-926-4788
Shelter Plus Limited	David Garel		876-383-3967
Geon Homes	Reynold Scott	geon@cwjamaica.com	876-926-5136
Tara Dev. Limited	Fredrik Moe	Moe.fredrik@gmail.com	876- 322-9473
Barana Limited –	Barry Chisholm	barringtonchisholm@gmail.com	876- 995-3787
Panjam Investments Ltd.	Stephen Facey	stephenfacey@panjam.com	876-929-4511
Matalon Homes	Peter Matalon	peter@matalonhomes.com	876-765-3120
Garco Construction Ltd.	Rohan Grant	Rohan_garco@cwjamaica.com	876-372-3358
Architect	Marvin Goodman	goodarch@gmail.com	876-925-7895
Architect	Douglas Stiebel	Stiebel.douglas@gmail.com	876-381-1286
Architect	Robert Woodstock	rwoodstock@hmrwarchitects.com	876-816-6944
Architect	Omari Wright	odwright@hotmail.com	876-419-4797
Architect	Rivi Gardner	rivi@cwjamaica.com	876-818-5434
Engineer	Peter Jervis	peter@jervis.com	876-577-9229

Appendix A-5

Estimated Developers Loan Estimates 2019-21

Developer	Units 2019	Type & income target	Estimated Water Saving device installed cost/unit (\$'000)	Optimistic Estimated Loan Demand 2019 (\$'000)	Average Estimated Loan Demand 2019 (\$'000)	Pessimistic Estimated Loan Demand 2019 (\$'000)
Gore	Already financed	2 bath Low income	122	0	0	0
New Era	200	2 bath Low income	122	12,200	6,100	0
WIHC	200	2 bath Low income	122	24,400	12,200	0
138 Student Living	325	1 bath low income	63	20,475	10,238	0
Narcisse Holdings	55	2 bath mid income	130	7,150	3,575	0
Panjam	46 over 3 years	2 & 3 bath hi income	201	3,082	1,541	0
Tara Dev. Ltd.	438 over 3 years	2 bath mid income	130	18,980	9,490	0
Matalon Homes	21	3 bath hi income	201	4,221	2,110	0
Island Homes	40	2 bath mid income	130	5200	3900	2600
Barana Ltd.	0	2 bath mid income	130	0	0	0
Rosemead	10	3 bath hi income	201	2,100	1575	1050
Garco	20	2 bath lo-mid income	130	2,600	1,300	0
Moorland	30	2 bath mid income	130	3,900	1,950	0
Total				104,318	53,983	3,650

Developer	Units 2020	Type & income target	Estimated Water Saving device cost/unit (\$'000)	Optimistic Estimated Loan Demand 2020 (\$'000)	Average Estimated Loan Demand 2020 (\$'000)	Pessimistic Estimated Loan Demand 2020 (\$'000)
Gore	600	2 bath, Low income	122	73,200	36,600	0
New Era	200	2 bath low income	122	24,400	12,200	0
WIHC	200	2 bath low income	122	24,400	12,200	0
138 Student Living	325	1 bath low income	63	20,475	10,238	0
Narcisse Holdings	55	2 bath mid income	130	7,150	3,575	0
Panjam	46 over 3 years	2 & 3 bath hi income	201	3,082	1,541	0
Tara Dev. Ltd.	438 over 3 years	2 bath mid income	130	18,980	9,490	0
Matalon Homes	21	3 bath hi income	201	4,221	2,110	0
Island Homes	40	2 bath mid income	130	5,200	3,900	2,600
Barana Ltd.	0	2 bath mid income	130	0	0	0
Rosemead	10	3 bath hi income	201	2,100	1,575	1,050
Garco	20	2 bath lo-mid income	130	2,600	1,300	0
Moorland	40	2 bath mid income	130	5,200	2,600	0
Total				191,008	97,329	3,650

Developer	Units 2021	Bathrooms & income target	Estimated Water Saving device cost/unit (\$'000)	Optimistic Estimated Loan Demand 2021 (\$'000)	Average Estimated Loan Demand 2021 (\$'000)	Pessimistic Estimated Loan Demand 2021 (\$'000)
Gore Developments	600	2 bath, Low income	122	73,200	36,600	0
New Era Homes	200	2 bath low income	122	24,400	12,200	0
WIHC	200	2 bath low income	122	24,400	12,200	0
138 Student Living	0	1 bath low income	63	0	0	0
Narcisse Holdings	55	2 bath mid income	130	7,150	3,575	0
Panjam	46 over 3 years	2 & 3 bath hi income	201	3,082	1,541	0
Tara Dev. Ltd.	438 over 3 years	2 bath mid income	130	18,980	9,490	0
Matalon Homes	21	3 bath hi income	201	4,221	2,110	0
Island Homes	40	2 bath mid income	130	5,200	3,900	2600
Barana Ltd.	20	2 bath mid income	130	2,600	1,300	0
Rosemead	10	3 bath hi income	201	2,100	1,575	1050
Garco	20	2 bath lo- mid income	130	2,600	1,300	0
Moorland	40	2 bath mid income	130	5,200	2,600	0
Total				173,133	88,392	3,650