Evaluation Study for
"Building Businesses' Climate Resilience (BBCR)'' Project in Sri Lanka

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1.0 Introduction

The Asian Disaster Preparedness Center (ADPC), established in 1986, is a non-profit, autonomous, regional organization, international in status and non-political in management, staffing, and operations. The ADPC has been established for scientific, educational, developmental, and humanitarian purposes that work to build the resilience of people and institutions to disasters and climate change impacts in Asia and the Pacific region.

With the support from the Nordic Climate Facility, UNEP DTU Partnership (UDP), ADPC, the Ceylon Chamber of Commerce (CCC) and MPEnsystems Advisory Pvt. Ltd. formed a consortium and launched the Building Businesses' Climate Resilience Project in Sri Lanka with the objective of developing a climate adaptation and disaster risk management (DRM) product that will allow businesses to reduce recurring losses while formulating measures to continue business operations during disruptive events.

The project is primarily focused on the garment sector as a pilot; however, the project has been adapted to accommodate the needs of local partners and the context of SMEs in the country and benefit other business sectors who may find the climate adaptation and DRM product developed relevant and applicable.

ADPC in Sri Lanka, working on developing a climate adaptation and disaster risk management (DRM) product that will allow businesses to reduce recurring losses while formulating measures to continue business operations during disruptive events. The project is being implemented by working closely with the Ministry of Industries who leads the Project Reference Group (PRG) comprising representatives from key government agencies and financial institutes to ensure the relevance of the product with concerned supporting/service providing organizations. Through co-creation process i.e. field visits and consultation with potential users of SMEs and other members, a Mobile App (BBCR tool) has been developed with inputs from all the partners in the consortium.

He said App contains two main features

The BBCR App contains the four main features

(i) weather forecast, rainfall tracking and warning alerts,
(ii) flood maps,
(iii) simple flood risk assessment and appropriate recommendations to help SMEs identify preparedness measures and
(iv) helpful phone contact numbers.

ADPC Sri Lanka contracted Vanguard Survey to run a phase 1 to ascertain the requirement of a tool like the BBCR tool in 2019 and thereafter to conduct a series of in-depth interviews to test the BBCR tool under phase 2 in 2020 and currently under phase 3 the efficiency and effectiveness of delivering the project and the tool's contribution to SMEs resilience to climate change impact in Sri Lanka is assessed.

2.0 Key Objectives of the Study

Climate related disasters is one of the most common problems faced by businesses, especially SMEs in Sri Lanka. Disasters due to Flood and Earth Slips are considered to common occurrences. Areas such as Rathnapura, Gampaha and parts of Colombo annually faces the threats and destruction due to flood.

Key objective of the study was to understand,

(i) How the project outcomes and outputs have contributed and or attributed in enhancing SME resilience to climate change impacts in Sri Lanka, increasing the awareness and capacity of SMEs on disaster risk management and adaptation.

(ii) How the project has been managed effectively and efficiently

3.0 Approach, Methodology and Target Group

Vanguard Survey tailormade the approach to achieve the deliverables specified by the ToR (mentioned in 3.0) and used a mixed approach combining both qualitative and quantitative methods. Attempts was made to carry-out the interviews via audio visual virtual platforms due to the Covid 19 impact. However, in the event the SME participant declined to participate via zoom / Microsoft Teams/Google Meets interviews, telephone interviews were used to capture data. Completed questionnaires were processed and converted into electronic form. The processed data was submitted to the client via Excel format, detailed survey report and a detailed power point presentation

Quantitative Component

Data collection is to be among SMEs in three districts of Sri Lanka – Gampaha, Kalutara and Ratnapura, in the combination of

- SMEs who were engaged in the project baseline survey (46)
- SMEs who were engaged in the pilot activities (18)

To gather primary data an enumerator administrated detailed questionnaire. The questionnaire was developed by the client and Vanguard further improved it and final questionnaire was rolled out once the approval obtained from the client. The data collection was carried out by experienced enumerators who have participated similar projects, between 30.06. 2021-19.07.2021.

Qualitative Component

The qualitative component of data collection was done via a detailed discussion guide amongst,

- PRG members (7),
- Other supporting institutions (7),
- Project team (8).

In line with the requirements of ToR ADPC nominated the PRGs, Project teams and Other supporting institutions for Vanguard to choose from for the qualitative in-depth interviews.

The Qualitative Study was focused on the project preparation and process followed in reaching the final product (i.e. current form of App), and the discussion broadly contained the following;

- Project's Consistency with National Climate Adaptation & Resilience.
- Nature of Project Objectives.
- Engagement of National Stakeholders in the project.
- Level of Awareness among SMEs.
- Attraction of the App for SMEs and Ability to Build Capacity of SMEs

The Quantitative component was mainly concentrated on the SME's reaction to the product that was made available to be tested by the end users. Although the target group is different and some of the inputs received from qualitative component was used in the development of the questionnaire. The quantitative survey primarily used to measure the level of preference for the App.

4.0 The Challenges and Limitations in the Data Collection

There were few members of PRG group did not participate in the study despite several reminders and follow-up calls. Following are the key challenges and limitations faced during the data collection.

- Due to Covid-19, the business dynamics among the SMEs had changed and their focus was on survival during the pandemic.
- The composition and employee size of most business have changed due to the economic downturn and Covid-19 related challenges.
- Some of the businesses have moved away from the flood prone areas to a much safer location. Hence, the disasters due to flood is no longer a problem.
- In some cases, the respondent (the managers who were in-charge of the business) who participated in the previous surveys had moved out of the business.

Qualitative Analysis

5.0 Findings of Qualitative Components

The qualitative component of the study was used to obtain information and feedback from the following target groups and the findings were analyzed in the following manner

5.1 Target Groups

- Views of PRG team members
- Views of Technical Team (identified and recommended by ADPC Sri Lanka mainly constituting of the developers of the APP)
- Views of Supporting organization

Since, the role played by each group is unique, the differences in opinions between them have shed a different light on varied perspectives and are insightful.

The analysis was carried out under the broad themes mention below, addressing the following key areas.

1. Project's Consistency with National Climate Adaptation & Resilience.
2. Nature of Project Objectives.
3. Engagement of National Stakeholders in the project.
4. Level of Awareness among SMEs.
5. Attraction of the App for SMEs.
6. Ability to Build Capacity of SMEs (addressed in 9, jointly with the Quantitative Analysis).
7. Ability to Face Flood Disasters.
8. Willingness to Use the app (Address in 8.13 jointly with Quantitative Analysis).
9. Key Drawbacks and Challenges of the app (addressed in 8.5 & 8.15).

5.2 Project's Consistency with National Climate Adaptation & Resilience

When the question was asked 'to what extend the project can be consistent with National Climate Adaptation and Resilience', there were varied responses amongst the target group. The common responses given by the PRG team are as follows.

> *"The project was planned in such a way that it meets the requirements of the country"*
> *"Inputs were received to meet the national requirements"*
> *"The project was a gradual development with all party's suggestions and contributions"*
> *"Change of people and officials in the government's end made it difficult for us to understand the consistency within a national plan"*

The above responses indicated that it was a gradual development process which included all the requirements. However, there were comments about the difficulties and challenges faced

when dealing with the government agencies dues to change of officials and senior members including subject ministers. The responses also reflected the frustration as well as the uncertainty of the government commitment made towards the project. It made the project reference team struggle in completing the work on time.

The technical team's common views are given below, and according to them there was a limited understanding of the consistency with the national plan.

> *"We were not a part of the initial discussion, but got involved at the stakeholder's discussions"*
> *"I think it had met all the needs of the country"*
> *"There was a greater understanding about what was needed to be done"*
> *"Being a technical person, I did not have much knowledge about the national plan" "It is sad to note that we could not get much data from meteorology department, and I wish they had played a prominent role at boarder level"*

The above statements indicate that that there were lot of assumptions about the needs of the country and the extent to which the objectives were in line with a national agenda. This is because of the limited engagement with nationally relevant issues and the technical aspects of the issues.

However, the supporting organizations had a very positive view and it reflect from the common theme of comments.

> *"Yes, it is in line with the national requirement" "We all contributed to the initial discussions"*
> *"It would have been really good if all the key organizations had been a part of the initials discussions"*
> *"I did not do much about the project as I attended only one meeting"*

The supporting organizations felt that the objectives are in accordance with the national requirement and indicated higher levels of satisfaction.

In summation, all three group members indicated a high level of satisfaction over the project's objectives been in line with the national climate adaptation and resilience agenda. When they were asked to submit a rating out of 10, the following ratings were received.

PRG Team	Technical Team	Supporting Organization
7	6	8

Reasons

PRG Team	Technical Team	Supporting Organization
The project is to support building Climate Adaptation and Resilience hence, all designs are in line with it.	The App was developed based on the inputs received, but were not sufficient to test the app.	We all contributed to it and our thoughts are in line with the national plans and objectives

Overall, the following transpired during the discussion on whether the project's objectives are in-line with the National Climate adaptation and Resilience.

- All agreed that the project's objective was in-line with the national agenda.
- Some held the view that some of the key organizations like Meteorology Department could have played a better role in the initial stage itself.
- Some of the officials of government bodies did not have any idea about the project.
- Their involvement had been attending only one meeting.
- Change of officials and not sharing information about the program had been a major drawback.
- Commitment from the national organizations had been below expectations of many PRG group members.
- Covid lockdowns also had taken away the amount of attention that should have prevailed to ensure consistency.

5.3 Nature of Project Objectives

The following transpired during the discussion about the nature of the project.

PRG Team

"It evolved with time and went through some significant changes".

"The focus was only on Floods."

"SME were given priority because of the considerable loss to the SMEs, and they struggled the most to recover from the losses. In addition, the SMEs did not have any mechanism or a supporting structure to recover from the losses, hence, a project of this nature was most suitable and appropriate."

The Project could not get proper support of all the target groups due to the pandemic and related lockdowns. Majority of the PRG members thought the pandemic related lockdown was a major setback for the timely progress.

Technical Team

"It is a creative and innovative project"

Some of the PRG members felt that way about the project, because of app's ability to forecast the possible flood level and kind of precautionary measures could be taken to prevent the losses. They also mentioned that a support of this nature can be immensely helpful to the SMEs specially for the small business who lacks the knowledge of business failure or disaster recovery.

"It had a very straight forward objective".

Majority felt that the objectives were clear and very straight forward.

Supporting Organizations

"The project is limited to floods only and it should have focused on all disasters related to rain such as earth slip."

Although majority felt that the objectives are clearly defined to assist probable flood victims, some of government agency officials felt that it did not cover flash flooding which also have a considerable impact on the SMEs

There was also a thought among the officials of few government agencies that this project covered only a part of a natural disaster but not most important disaster in the country, i.e.

"it does not cover the possible earth slip which also occurs due to rain. They argued that if the app tends to predict the possible flood due to rainfall why it couldn't predict the probability of earth slip based on the rainfall data. "

When the respondents were asked to rate nature of project objectives considering the appropriateness, timeliness and relevance, almost all had rated notable high despite the reservation on the coverage of the app.

PRG Team	Technical Team	Supporting Organization
8	8	8

Reasons

PRG Team	Technical Team	Supporting Organization
Considered to be most needed project and supposed to assist SMEs in the flood prone areas	The app can be converted into a good tool for business recovery and continuity	Since SMEs lack business plans and likely to build the capacity a lot

5.4 Engagement of National Stakeholders in the Project

PRG team

PRG team members indicated the following when discussed about the Engagement of National Stakeholders in the project

> *"There wasn't a sufficient support from the government organizations due to continued changes of officials and change of ministers".*

The new officials lacked knowledge and purpose of the exercise: Hence, resulted in the following.

- Lack of support,
- Re-educate and gain support,
- Blocks placed on the progress, slowing down the process,
- Inability to get the data from the Meteorology Department considered as one of the major setbacks to test the Apps to monitor the outputs.

Lack of buy-in from Banks and Insurance companies was viewed as a another short coming. Support from Regional Chamber could have been more appropriate, and efforts could have been more strategically focused. The chamber also struggled to get the buying-in of the SMEs in their respective districts mainly due to

- Shortage of staff
- Them having own issues to focus on.

The Chamber of Commerce could not deploy resources much, as they were also handling many other projects. Hence, in absentia of a dedicated team to handle all the communications and coordination with the targeted recipients was a difficult task.

Technical Team

The views of technical team members could be summarized as below. Couple of members were very happy and satisfied but few had some concerns, namely

- Lack of local technical team to support the main technical team,
- Lack of data to model and forecast the flood and its impact,
- Unavailability of regional data to test the app.
- Poor feedback from SMEs also can be considered as one the constrain in program development.
- Lack of active involvement, shortage of regular feedback and interactions to discuss the shortcomings and improvements of the app further, also can be considered as a major drawback.

The views of the technical team indicated their frustration connected to the development of the app and none availability of feedback for improvement as well as the challenges in inability to test the app for its predictability of floods.

Supporting Organizations

Unlike the technical team members, members of supporting organizations attributed the uncontrollable variable as the main cause for poor engagements.

- Covid related lockdowns have been one of the major setbacks.
- Constant changes created vacuum among government side of stakeholders.
- Knowledge and interest appear to be low among other stakeholders (banks and insurance companies).
- Some members felt that this project could assist the SMEs a lot, but not properly marketed to the target groups.

All the groups have rated somewhat lower than the ratings given for other aspects of the project piloting and rollout. This indicated that there was a lower level of satisfaction regarding the level of engagement received from some of the national organizations.

PRG Team	Technical Team	Supporting Organization
6	5	5

Reasons

PRG Team	Technical Team	Supporting Organization
Could not secure equal level of support from all stakeholders	Lack of ground support	Inconsistency in the team composition and lack of drive

The reasons given for level of engagement directed towards poor involvement of a national level state agencies. Overall, these responses can be summarized to the following.

- Poor support and cooperation caused most the delays
- Continuous changes in the state agencies teams

5.5 Level of Awareness amongst the SMEs

PRG Team

The common responses given by the PRG team of level of awareness among SME about the App are given below.

"Could have done much better than this".

"It would have been better if an awareness programs were carried out in small clusters "

"Teams did not have sufficient members to carry out the campaign"

"It was difficult to create a good awareness with on and off campaigns"

Almost all of them had similar views that there wasn't sufficient campaigning done to increase the awareness of app and its benefits. Some of the reasons are related to human resources and operationalization within the campaign.

Technical Team

Technical team's views were related to their limited interaction with the beneficiaries as they were mostly working on the feedback received from the teams working locally. Their interactions were limited to some of the workshops conducted in Colombo and very few visits to SME's business premises.

> *"There was very little interaction with SMEs and therefore, it is difficult to comment"*
> *Did not have any meaningful interaction"*
> *"Difficult to comment"*

The smooth product development process had challenges in the absence of continuous and critical feedback from the users. A panel of SME's could have been set up to provide continuous feedback.

Supporting Organizations

The views of the supporting organizations also indicated of the lack of awareness amongst the SMEs and there were reservations about the acceptance of the App among SMEs as they may have to subscribe it with a fee attached. Most of the SMEs expected that it should be provided by the government free of charge.

> *"Need to improve a lot"*
> *"Still SMEs are not aware, and it is difficult to create awareness overnight"*
> *"majority of the SMEs are not aware"*
> *"It will take time, and it should be done by their groups and networks"*
> *"They will not buy it if a fee needed to be paid"*

Most of them had their own ways of getting to know the threat of flood, via already set up WhatsApp groups, FB groups and other social network groups. They share the flood threats and make all of them prepare to face the flood.

The need for information appeared to be met by informal sources and groups and therefore, the app did not appeal to the SMEs. But the additional benefits such as forecasting, and business risk assessment could play major a role in making it attractive.

Further, the level of awareness can only come from the level of attention the SMEs pay to the benefits of the app. Generally, the businesses run by SMEs are managed by themselves and all the decisions are taken by the owners themselves. Hence, majority of them will not come forward to travel for workshops or awareness program planned in Colombo or locations not local to their business premises. There was a critical need identified to create awareness via small clusters of SMEs closer to their business premises.

The ratings given of out ten are given below.

PRG Team	Technical Team	Supporting Organization
4	5	4

Reasons

PRG Team	Technical Team	Supporting Organization
Not satisfied with the level of awareness.	Could not assess the level of awareness but felt it is at moderate level.	Various views, except for the majority felt not done enough to create awareness

The scores given in the table indicated that all agreed that the quantity of efforts put into create the awareness among SMEs are not sufficient and the efforts need to be expanded in such a way to have wider reach.

5.6 Attractiveness of the App for SMEs

When asked about attractiveness of the app to the SMEs, the responses given indicated their own perceptions based on one or two interactions had with the targeted beneficiaries. Their own expectations were based on the trust and confidence on the product. The responses given below clearly quantifies the same.

PRG Team

"As per the initial feedback and support received from the SMEs indicated that they would like it"

"All who participated in the workshops gave very positive feedback"

"Early research indicated positive feedback"

The above feedback was based on the concepts presented to the target audiences than their actual hands-on experience. The reality was that the gap between the final product and perceived expectation could be wider, and it may have turned in to a bigger disappointment. The ratings given for national level engagements and contributions by various stakeholders also showed that the ground reality of securing the support of all stakeholders is far from reality and this situation may reflect on the final product. Therefore, higher rating on the level of appeal for the product should be interpreted carefully.

Technical Team

The technical team displayed a strong confidence on their work and believed that it would be attractive to the target group. However, the couple of them acknowledged that the product is not completed yet and therefore, it would be difficult to comment on the attractiveness. Overall, all they believed as per their targeted specifications completed in the product it would be an attractive tool for the SME's.

They also indicated that it is important to have regular feedback from SMEs to develop a user-friendly product. The responses given below shows their views.

> *"It should be attractive for them"*
> *"Did not have any direct interaction to assess the attractiveness, but it is too early to say because the product is not completed"*
> *"Product is not completed to conclude anything"*
> *"This is an innovative product, and it should be appealing"*
> *"It is critical to have continuous feedback about the nitty-gritty to have fully functional app"*
> *"I wish that there was a local technical team to work with us"*

The above quotes indicated the trust and reservations the technical team had on the product. It showed the dilemma of probable success of the product and the fear of not been able to complete as per the expectation due to struggles on the ground.

Supporting Organizations

Supporting organizations views came from SMEs perspectives due to the lack of awareness among SMEs about the product and its benefits.

> *"Still SMEs are not aware, and it is difficult to create awareness overnight"*
> *"Majority of the SMEs not aware"*
> *"It will take time, and it should be done by their groups and networks"*

The views of the support organizations indicated that unlike the PRG and Technical Team, Support Organizations had not checked the app at the time of conducting the interview. Most of the responses were based on what they had read from the materials and theoretical assumptions.

- Lack of involvement by some members of supporting organizations, mainly the government entities indicated that the app having a low level of priority for them.
- Incomplete product and lack of data for forecasting should have been taken into consideration when interpreting the level of attractiveness and potential use.
- In some areas the SMEs have already established their own networks via social media to provide early warnings and indications. Could the App be a better option is a question that will needs to be answered.
- Since the flood issues are seasonal and non-regular, interest could die a natural death.

PRG Team	Technical Team	Supporting Organization
7	5	8

Reasons

PRG Team	Technical Team	Supporting Organization
All felt that the app will be appealing to SMEs.	They could not assess the level of appeal as they claim the product is not completed.	Assessment based on theoretical benefits.

- Overall, the following were learned regarding the attractiveness of the App
- Initial feedback and assumptions are driving the rating.
- Both PRG team and Supporting organization have higher expectation.
- Most of the Supporting organization's respondents have not tested the app

Quantitative Analysis

6.0 Analysis of the Quantitative Data

6.1 Demography of the Respondents

The respondents consist of SME business participated in the pilot survey and average years in business was 15, and almost 65% fell into the age group 36-55 yeas, where the majority were qualified in GCE A/L and about 25% possessed a first degree or equivalent as the highest education level. This shows the depth of business knowledge and experience not only in their operations but also about the knowledge on climate changes in their respective regions and local areas. The details of the respondents given in the ***Annexure 1.***

Number of years in the current location?

Mean	Mode	Median	Base
13	10	10	63

Number of times affected by flood

Mean	Mode	Median	Base
9	2	5	54

Average loss when affected by flood?

Mean	Mode	Base
1,697,272.95	1,000,000.00	44

Employee composition of your organization?

Mean	Mode	Median	Base
35	5	11	56

Male %	Female %
71%	48%

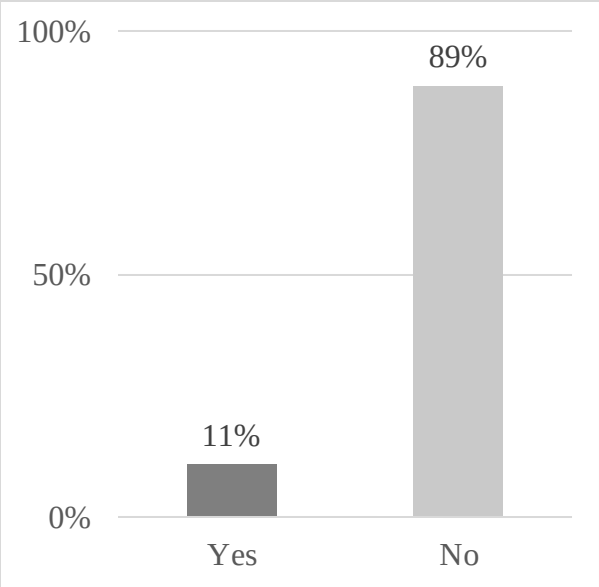
Base - 64

Business and its damages

These businesses have been operating in the current location for last 13 years and affected by flood almost every year (9 out of 13 years) and lost almost SLR 1.5 million at each time.

The business have an average of 35 employees but the mode and median can be considered as the correct indications

Availability of a person responsible to handle all the disaster related issues.



Notably, only 11% of business claimed to have as assigned a person to be in charge and responsible for handling disaster related issues and the rest did not have any dedicated personnel, which indicates these respondents have been fire-fighting disasters and have not tried to handle the frequently occurring problems in a planned manner.

Base – 64

6.2 Loss Comparison of the Flood Damage

Loss of revenue as a result of flood

Mean	Mode	Base
1,861,938.78	1,000,000.00	49

Loss as a percentage of total revenue?

Mean	Mode	Base
25	10	23

Percentage of the loss of revenue recovered

Mean	Mode	Base
52	50	36

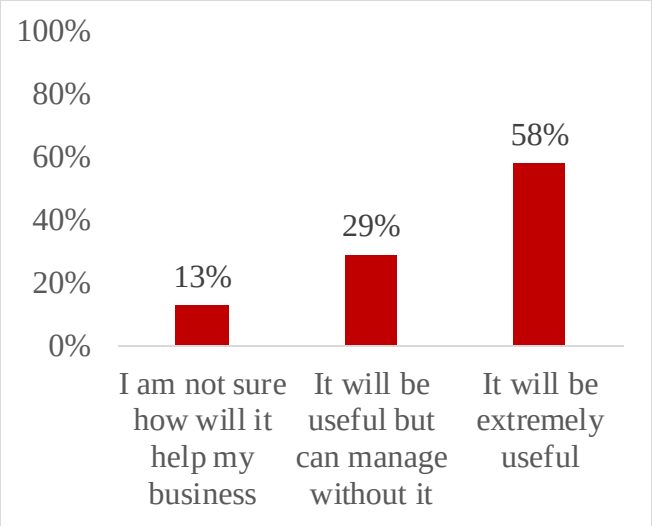
Loss due to flood have been an average of LKR 1.8 million, with mode of LKR 1.0 million

These losses were about 25% of their revenue, which appeared to be an underclaimed figure and compared to the size of the business and duration of the business the losses appeared to be very little.

6.3 The APP

All the respondents were taken through the app via both navigation and the materials which described the benefits of the app and how it can be used. In certain cases, the enumerator had to repeat the process to make sure that the respondents have understood the benefits and the nature of the exercise. The given below responses indicate their reactions.

The Extent to which the App can be Useful for the Business



42% of the respondents claimed that they are not sure of the App due to lack of trust and due to their confidence on their own ability in managing the challenges and flood related issues on their own.

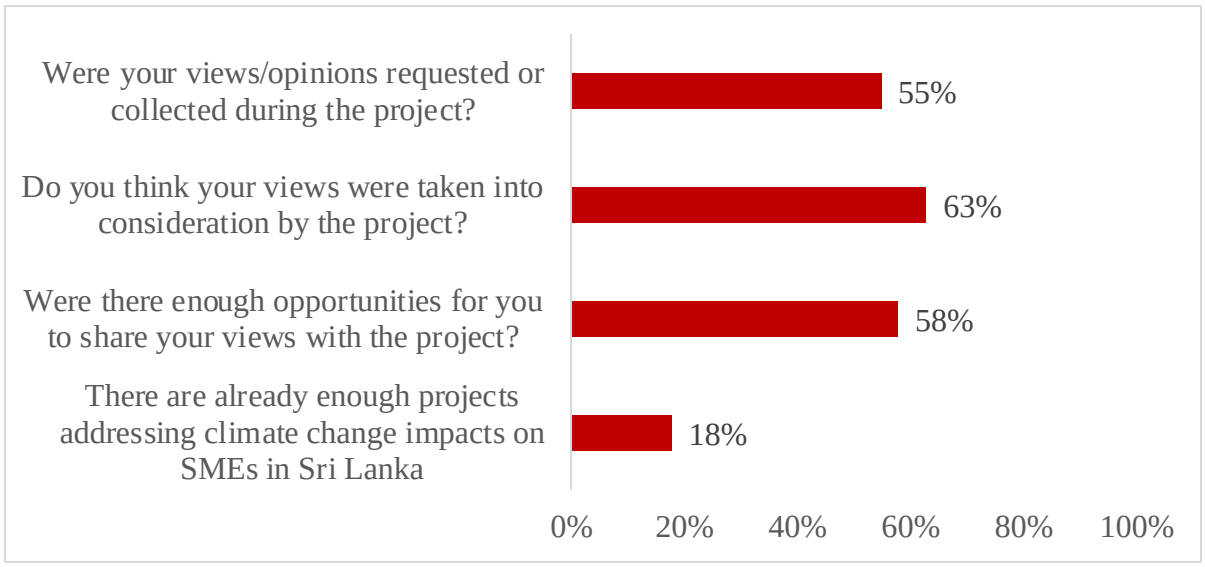
	I am not sure how will it help my business	It will be useful but can manage without it
Early warnings of floods		14%
Because of I can minimize my loss		43%
Inconvenience of getting data from other institutes		14%
Using alternatives		14%
Accidents can be prevented		
Cannot place trust until tried & tested.	100%	
The floods don't have a large impact on me		14%

Base – 24

When asked the reasons for not considering the app to useful, those who said they are not sure that they need to test it and see whether it works well to meet their requirements, and for those who think that they can mitigate the losses, the flood did not have much impact because they have developed alternative ways to manage the challenges hence consider the app will not be much of use.

6.4 Satisfaction of Participation in the Project

Mean	Mode	Median	Base
6.95	8.00	8.00	40

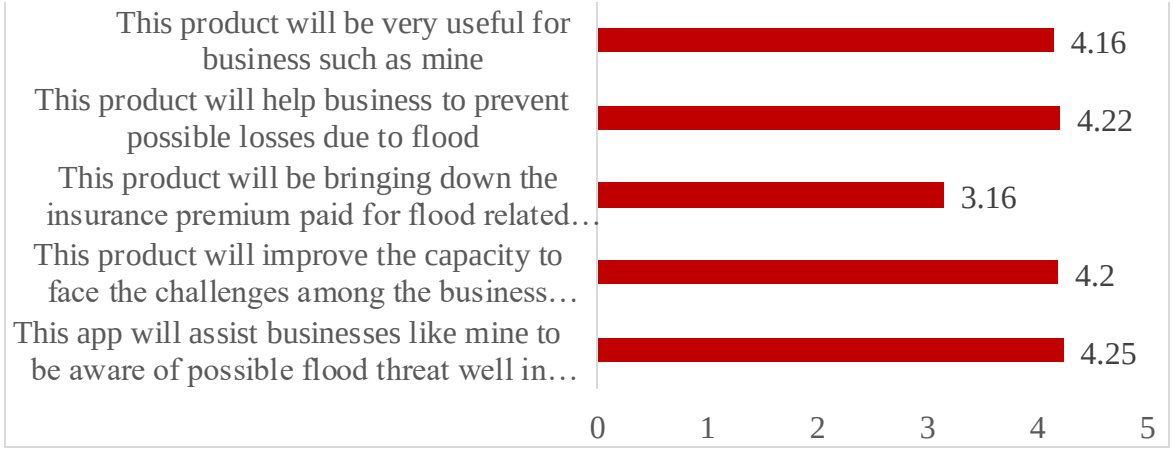


Base 64

When the respondents were asked to rate out of 10 for the level of satisfaction they have regarding the participated in the project, majority indicated a mean of 6.95 with a mode of 8, which can be considered a good rating. When asked about whether the project paid due attention to their views and taken into consideration for the development of the app, over 50% responded positively and their appreciation, which can be treated as one of the better outcomes regarding tool development.

6.5 Benefits of the final Product (App)

The respondents were asked to give rating on the benefits of the app using 5-point scale and their responses are given below.



Base – 64

All the statements have been rated above 4 but below 4.5, which means that the respondents were agreeing to the statement and but not overwhelmingly approving the statement. Considering the Sri Lanka culture and lessons from other studies, responses to be very positive, the rating needs to be above 4.5.

However, considering the confusion and doubts about the products (App) output and benefits, the answers appear to be positive, and the respondents have understood the benefits. They were not sure whether this app would help them regarding reduction in insurance premium. It should also be noted that most of the SMEs in Sri Lanka do not go for general insurance and most importantly, according to the respondents, the companies do not promote or encourage SMEs to take an insurance cover against flood disaster.

6.6 Suggestions for Improvements

The given below answers indicates suggestion given by the respondents when they were asked *"what changes to be done to the app"*

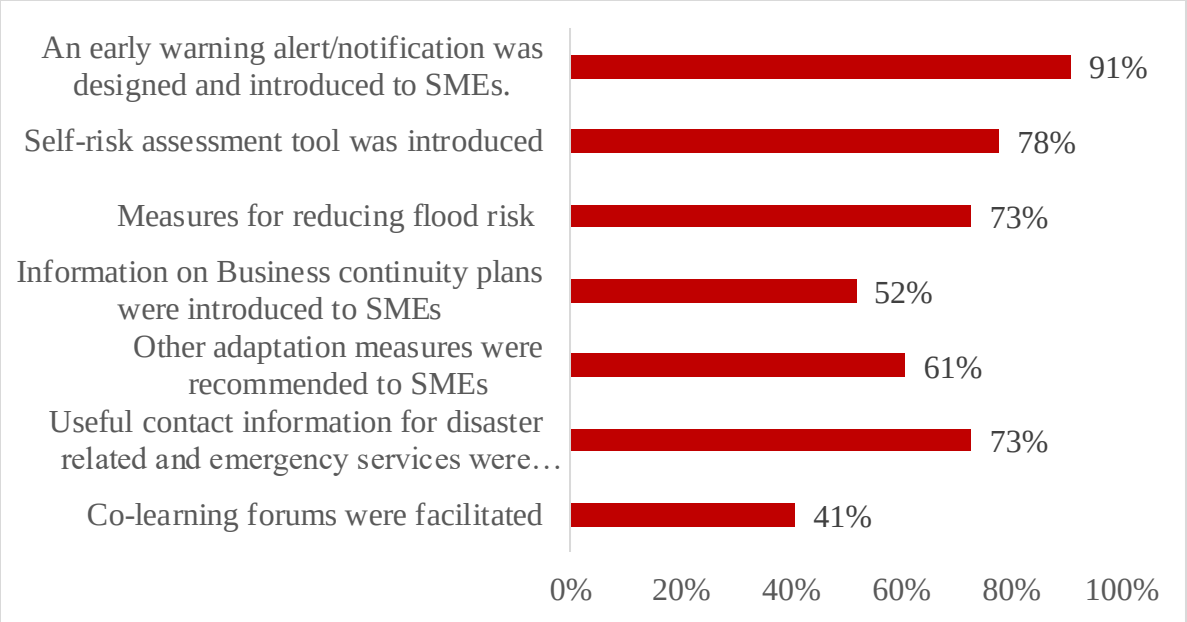
Modifications or Improvements	%
Obtaining some more public ideas / input	10%
It would be better if the app is directed towards technical aspect and general awareness being created.	10%
Conducting awareness town wise.	8%
Providing an allowance/payment/ incentive for using the app.	8%
Visiting the institute (SMEs) to explain in detail about the app	8%
Maintain an ongoing relationship and contact with business organisation regularly	5%
Creating awareness about weather report research	5%
Giving it to those in need / or most appropriate persons	3%
Develop a methodology to obtain prior information on power outages due to flood	3%

Base – 40

The above-mentioned suggestions are related to non-technical aspects, and it indicates that the respondents may have poor knowledge about technical or business risk assessments related knowledge. These types of suggestions also confirm the SME's poor knowledge on business risk assessment as well as lack for long-term thinking.

Most of the suggestions are related to creating awareness about the app and educating the SMEs about improving the knowledge on weather.

6.7 Contribution in Building Local SMEs' Business Resilience.



Base – 64

Almost all the respondents agreed that the App will equip them to build their resilience against the flood disaster, and similarly agreed with all the other flood related statements, but when it came to

"Information on Business continuity plans were introduced to SMEs" and
"Co- learning forums were facilitated"

not many agreed. This difference could be due lack of understanding on business continuity, and many did not participate in the workshops carried out in Colombo.

Most of them indicated that they prefer to have any discussion closer to their business premises and that it will not possible to travel out of their city with their workload. This shows that any future programs in Colombo or any centralized location will not attract many participants and workshops focusing small clusters or their local association will likely to bear more fruits.

6.8 Credibility of the Flood Warning

Mean	Mode	Median	Base
3.55	3.00	3.00	64

	Not sure	Neutral	Confident	Extremely confident
It cannot be trusted or otherwise, only after using.	50%	44%	11%	
We can get to know in advance about the disaster situation		6%	42%	22%
I trust the information that is given to me		6%	26%	22%
According to the information provided so far, the app can be trusted			16%	56%
Weather forecasts are unreliable		15%		
Cannot be trusted yet, as it's not functional.		9%		
Generally accepted		3%	5%	
Ability to minimize damage				22%
It would be better if it could tell the extract time of the flood		3%	5%	
Even though similar apps are being introduce currently by various organisation, nothing is proved successful.	50%			
If there is a mechanism to measure the amount of the rain water in the upstream areas and predicted flood , then can be trusted		3%		

Base – 64

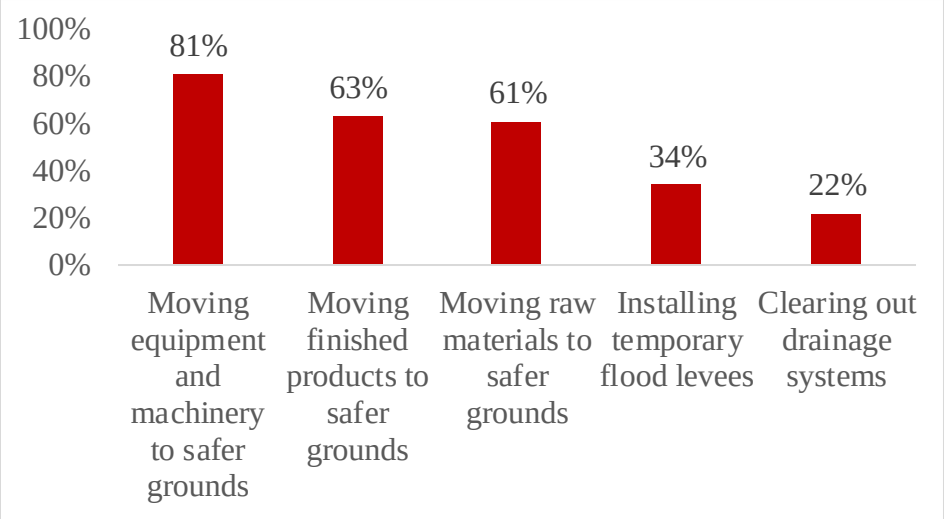
Many of the respondents had their reservations about the trustworthiness of the app and the rating given in a 5-point scale is 3.55 which indicates there is somewhat lack of confidence as to how the app will sort out the problem. It should be noted that these responses are after navigating through the app with the assistance of enumerators and mostly an instant reaction. The app too had its limitations due to lack of rainfall data. In addition to the above, the respondents also claimed that they have seen similar apps and they have not been successful. They probably were referring to some apps for free available in play stores. Lack of trust on the app and lack of weather data is visible among SMEs and attention needs to be paid to build their confidence. Therefore, creating success stories and using those stories as reference point will be the key for the success of the app.

6.9 Ability to Respond to Prior Flood Warnings (48-72HRS)

Mean	Mode	Median	Base
3.50	3.00	3.00	64

The respondents have given a rating of 3.50 in a 5 point scale where 1 is able to and 5 is most able to, this results indicate that the respondents were not sure rather skeptical about the ability of the app and whether they could rely on the app to make the changes

Response to to Prior Flood Warnings (48-72HRS)



Base – 64

The response for the given indicates that the SMEs are keener to shift their products than making a collective effort/action (rather personal interest and safeguarding their properties seems to be the key concern).

6.10 Possible Reduction of Flood Loss.

	24 hrs %	Base	48 hrs %	Base	72 hrs %	Base
Physical infrastructure	50	49	60	52	100	49
Equipment and products	40	51	40	54	100	50
Direct expenses	10	45	50	48	50	45
Indirect expenses	20	49	30	50	100	47

All are confident that 72 hours prior notice could benefit immensely and prevent the losses by 100% but not sure of 24-hour notice because of the challenges they have shifting their equipment's within the short period of time. Most confirmed that all the businessmen in the areas will be trying the relocate the raw materials and equipment's which could result in short of transport and human resources to move their goods

6.11 Recovery Time (days) to Get Back to Business as Usual (2013-2018)

When the SMEs were asked to indicate the time in days need to recover from disaster and indicated the given below times.

Mean	Mode	Median	Base
14	4	7	57

It is has taken closer to a year to get back to their 'business to a usual' level. A mean of 14 days indicate the struggles SME go through to get back to their normal rhythm of business, which is considerably high, but it is recommended when interpreting the results to consider the mode to be more realistic time frame because the mean contains some outliers.

Estimated Recovery Time with early Flood Warning (48-72 HRS Prior)

When the SMEs were asked to indicate the time period in days that would enable them to recover if there is an early warning system (which can give 48-72 hours prior) in place, and given below table indicates the responses

Mean	Mode	Median	Base
6	1	2	29

They felt that the recovery period could be reduced to almost 6 days to come back to normal and this is over 50% reduction in their recovery period. However, in this case also mode should be considered because the mean contains few outliers, hence, the perceived recovery period could be one day

6.12 Ranking of the App's Functionalities.

Mean	Rank 1	Rank 2	Rank 3
Flood and rainfall warnings	40%	14%	46%
Self-risk assessment	21%	59%	21%
Tailored adaptation recommendations	30%	33%	37%

Base - 63

Rankings had been almost evenly distributed and this is in indication of lack of clarity in the product and Unique Selling Proposition of the product. It should be noted that the ranking has been given after mere browsing the app and reading the materials which seems not instilled the confidence about the benefits

6.13 Willingness to Use the App

This question was from the stakeholders to understand their perception as how the end-users would treat the app, and all were asked to rate "SME's willingness to use the App" based on their observations and knowledge on the product, the PRG team and Support organizations team gave a higher rating.

PRG Team	Technical Team	Supporting Organization
7	5	8

The supporting organization have given a higher rating completely based on the knowledge obtained from the print materials given to them. Most of the respondents have not tested the app in their own phones, rather they had half-baked knowledge after skimming the print materials. PRG team's ratings were merely based on their higher expectations on the product.

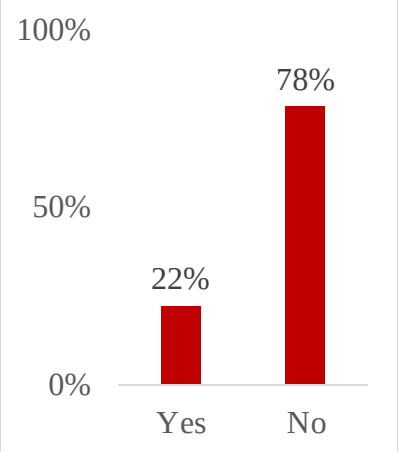
The technical team was very careful in their rating because they were aware of the ability and drawbacks about the App.

Reasons

PRG Team	Technical Team	Supporting Organization
All felt that the app will be appealing to SMEs.	They could not assess the level of appeal as they claim the product is not completed.	Assessment based on theoretical benefits.

6.14 Willingness to Pay for the Current App and Amount

The SME were asked to indicate whether they would pay a subscription and how much would they be willing to pay, their responses are given below.



Base – 64

Amount willing to pay			
Mean	Mode	Median	Base
2,700.00	500.00	1,500.00	8

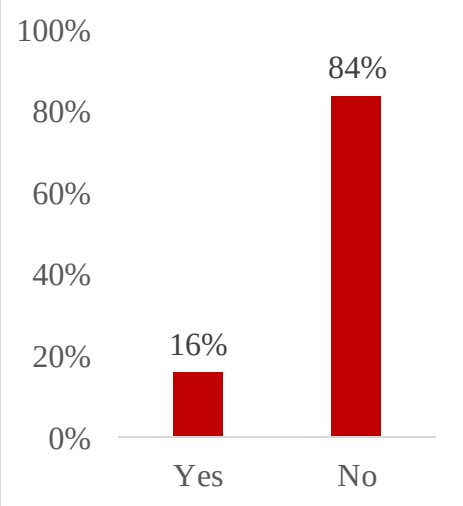
Not willing to pay?

	Percentage
Trust cannot be placed on the app	18%
App not required	16%
The status of the app should be checked	12%
There have other alternatives	10%
The payment cannot be decided until further details of the app is obtained.	8%
There's no need to pay money	6%
It can be decided according to usefulness / because it is not functional yet	6%
Because I am ready to move the business to another location	4%
It can be decided upon the decision of the board of directors	4%

Major reason for not willing to pay is lack of confidence on the product followed by non-requirement of an app to take precautionary mechanism to prevent any losses from flooding which is understandable as most of them have been engaging in their business for last 13 years and may be familiar with the seasonality of the flood.

It is also clear from the above responses the app may have to be proven in terms of its capability to get any payment, hence, shows the importance of success stories to promote the same.

6.15 Completed Flood Risk Analysis on the SME.

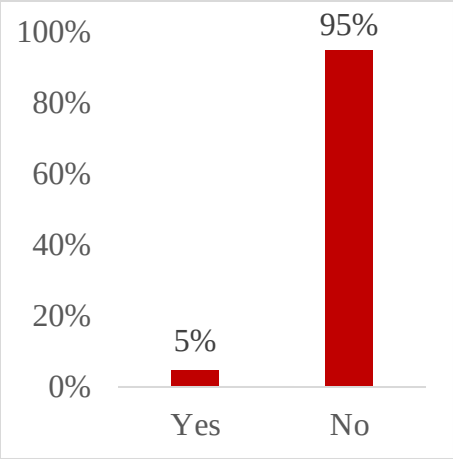


Cost of Risk Analysis			
Mean	**Mode**	**Median**	**Base**
75,000.00	0.00	0.00	4

Of the 64 respondents, only 4 have done a risk assessment to their business, and average charges for one time risk assessment has been SLR 75,000/=. This shows how much a SME needs to spend for risk assessment, and therefore, the financial benefit of the should be done highlighting the cost benefits

Base – 64

Maximum Cost SME's are willing to Incur on a Future Risk Analysis.



Mean	Mode	Base
5,033.33	100.00	3

Very small group i.e. 5% (3) of the respondents said that they willing to pay for risk assessments and for LKR 5,000/-, which is a very negligible number, it indicates that the SMEs are not interested in assessing the future risk as most are firefighting with day to day issues

Base – 64

Reasons

When asked as to why they are not willing to pay, the given below responses were given.

	Percentage
It isn't currently set up	13%
Because there is not trust yet	9%
That is not necessary	8%
There is no need to spend money	6%
Due to economic problems	6%
Because we can understand it	5%
It can be decided upon after a discussing with the others in the company.	5%
It should be given more thoughts	5%
There are other available other alternatives	3%
Because the business is moving elsewhere	3%

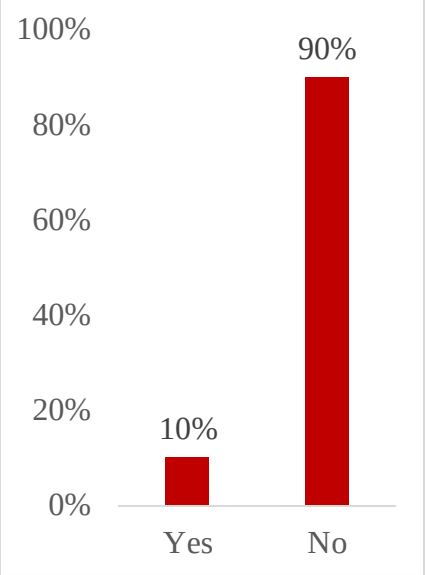
Given responses can be broadly categorized as follows.

1.Lack of trust on the app as it is not completed

2.Unnecessary financial cost

3.Non-requirement of such service, because of availability of other alternatives, moving to a much safer location etc.

6.16 Things the Project has not addressed



Base - 40

	Percentage
Preferred if it also focused on other issues related to the industry as well	25%
The technical aspect inadequate.	25%
It would be great if we could get a quick awareness of the rain fall	25%
It would be better to get details of those who have living in the upper stream of the river, to ascertain the floods. Only based on such data only, we could recommend flood information.	25%

Very small percentage agreed that there some areas to be addressed and their responses are related to rainfall and location of rainfall. The response

> *"It would be better to get details of those who have living in the upper stream of the river, in order to ascertain the floods. Only based on such data only, we could recommend flood information",*

indicate that it is important capture rainfall data in the areas of their location because the flooding can take place due rain in hill area and can result in increase in water levels, and it could lead to a flood.

Future of the App

7.0 Ability to Build Capacity of SMEs

All the teams i.e. Technical Team, PRG Team, and Support Organizations strongly felt that the app will build the capacity of SMEs to face the disaster related to flood, and commented that with sufficient training, SMEs will be able to predict the flood and should be able to take necessary precautions to avoid or minimize the losses. Whereas SMEs clearly pointed out that they need confirmation about the accuracy and consistency on its output. A wait and see approach were visible among the SME about the app.

There was consensus among all about "how the app is going to build the capacity of the SMEs" that is based on the confidence about the probable outcome of the product and how it could solve most of the commonly faced problems of SMEs. The comments shared by the respondents can be summarized as follows.

- All felt that the app will provide sufficient notice and indication about the flood.
- The business can plan the necessary action accordingly.
- The technical team felt that lack of data for modeling and not linking it with the local whether data were drawbacks in forecasting floods. This concern could be treated as valid and justifiable because the app needs to be tested with the regional weather data as past data is a crucial element for modeling and forecasting
- Support group believed that with right training and education the SMEs can be equipped to face flood related challenges.

A clear gap between ADPC team (PRG, Technical and SOs) and SMEs can be seen. Further, SMEs have clearly indicated that they will not pay for the app unless they see something worthy, and notable percentage of SMEs also mentioned that they have other alternative options to mitigate the damages and to have early warning notice regarding the flooding.

8.0 Conclusions

Based on the analysis carried the following can be concluded

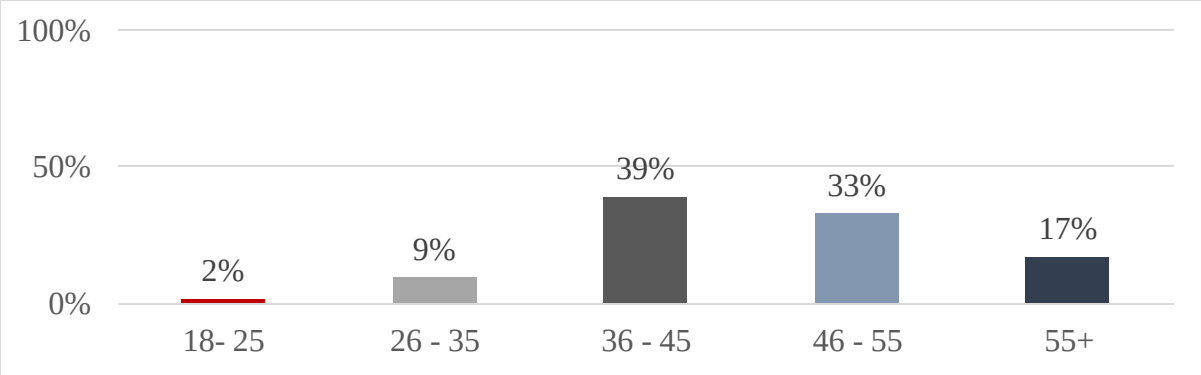
- Project and the APP
- Appealing solution to the target group.
- Has the potential to become day to day product, provided a proper awareness and marketing campaign is carried out.
- Pricing should be around LKR 3,000/- and focus on low price and high volumes.
- Awareness
- A team should be dedicated to work on the awareness building campaign.
- Campaign should be done via local traders' association and groups.
- Distrust and doubts over the capability of the app needs to be addressed.
- Have a separate team to handle the operations, relationships, and campaigns.
- Have local technical team to work with developers and operate.

Demography- SME

Number of years in business?

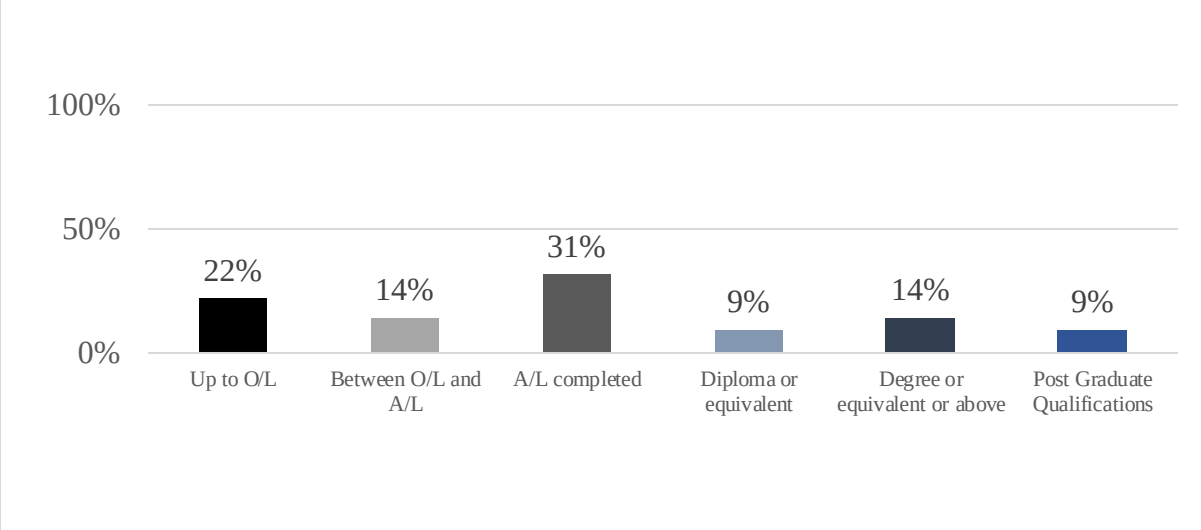
Mean	Mode	Median	Base
15	10	15	64

Age of the current owner



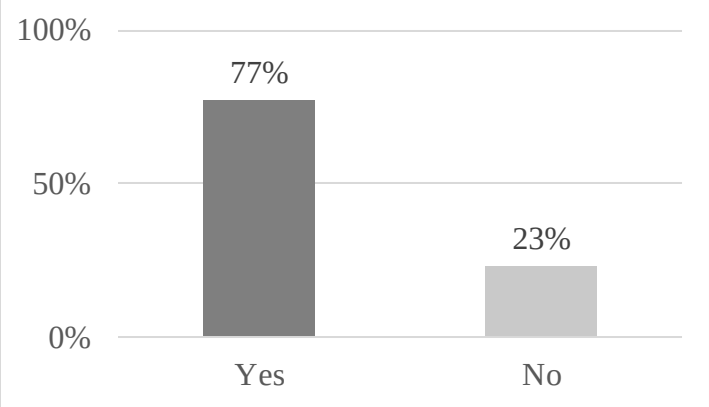
Base – 64

Highest level of education



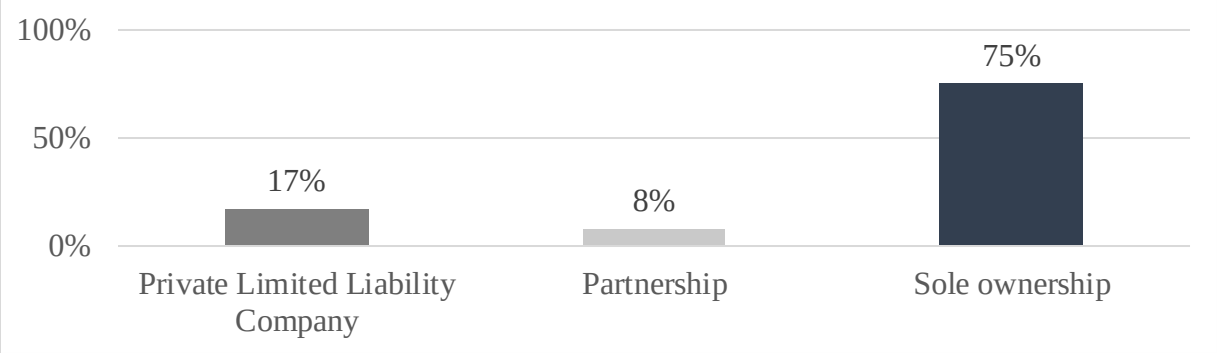
Base – 64

Is this your own business (i.e. ownership)?



Base - 64

What is the legal structure of the firm?



Base - 64

Business Sector?

Business Sector	Business Sector	Business Sector
Printing / Stationary	Aluminum	Concrete
Garment / fabric products / ready made	Motorcycle sheet designed and sheet cover design	Stone mills
Wood shop	Animal husbandry	Production activities
Distribution and grocery	Services (doctor) / Ayurvedic	Distribution activities
Hotel sector	Vehicle service center	Tea industry
Food products	Retail and wholesale	Hardware
Rubber products	Service of engineering	Product of plastics
Welding plants	Photography and studio	Spare parts