PREPARE

URBAN DISASTER RESILIENCY AND PREPAREDNESS IN TRINIDAD + TOBAGO

RAPID DAMAGE ASSESSMENT TRAINER'S MANUAL

February 2022 -TRINIDAD AND TOBAGO

USAID FROM THE AMERICAN PEOPLE

dpm Office of Disaster Preparedness and Management

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Urban Disaster Resiliency and Preparedness in Trinidad and Tobago (PREPARE TT)

The goal of PREPARE TT is to provide a clearer picture of the probable impact of an urban earthquake disaster and facilitate advocacy and planning initiatives around strengthening seismic disaster risk reduction and preparedness measures in Trinidad and Tobago; to reduce the lives lost, people injured, internally displaced persons, and social and economic disruption.

The U.S. Agency for International Development (USAID)

The U.S. Agency for International Development is an independent U.S. federal agency responsible for planning and administering economic and humanitarian assistance around the world.

The Bureau for Humanitarian Assistance (BHA)

The Bureau for Humanitarian Assistance provides life-saving humanitarian assistance—including food, water, shelter, emergency healthcare, sanitation and hygiene, and critical nutrition services— to the world's most vulnerable and hardest-to-reach people. BHA is the lead federal coordinator for international disaster assistance, harnessing the expertise and unique capacities of other U.S. government entities to effectively respond to natural disasters and complex crises around the world.

BHA takes a holistic look at humanitarian aid, providing assistance before, during and after a crisis—from readiness and response to relief and recovery. This includes non-emergency programming that is foundational to linking humanitarian assistance to long-term development and the journey to self-reliance.

Miyamoto International, Inc.

Miyamoto International is a global structural engineering and disaster risk management reduction firm providing resiliency expertise that sustains industries and safeguards communities around the world.

Acknowledgements

With the approval of the Government of Trinidad and Tobago the PREPARE TT program is being implemented. The lead government agency for the program is the Officer of Disaster Preparedness and Management, Ministry of National Security.

This RDA Trainer's Manual was prepared by Engineers Dr. Navin Ramroop and Mr. Datta Balroop of Tharuna Limited with guidance from the PREPARE TT Program's Technical Advisory Committee for Rapid Damage Assessment (RDA) which included representatives of the Office of Disaster Preparedness and Management (ODPM), APETT, BOETT, Miyamoto, MOWT, MRDLG, TTBS.

Disclaimer

This protocol is made possible by the support of the American People through the United States Agency for International Development (USAID) its Bureau for Humanitarian Assistance (BHA). The contents of this protocol are the sole responsibility of Miyamoto International and do not necessarily reflect the views of USAID or the United States Government.

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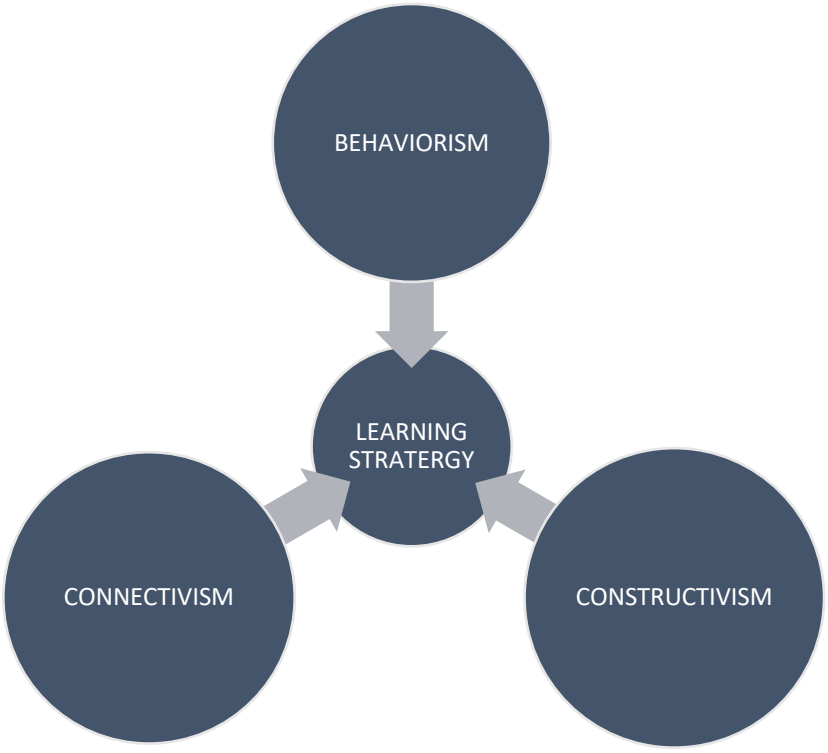
ACRONYMS AND NOTATIONS

APETT	Association Professional Engineers of T&T
BOETT	Board of Engineers of Trinidad and Tobago
GoRTT	Government of the Republic of Trinidad and Tobago
MNS	Ministry of National Security
MOWT	Ministry of Works and Transport
MRDLG	Ministry of Rural Development and Local Government
ODPM	Office of Disaster Preparedness and Management
T&T	Trinidad and Tobago
TEMA	Tobago Emergency Management Agency
THA	Tobago House of Assembly
TTBS	Trinidad and Tobago Bureau of Standards
USAID BHA	United States Agency for International Development, Bureau of Humanitarian Assistance (formerly USAID OFDA)
USAID OFDA	United States Agency for International Development, Office of Foreign Disaster Assistance
UWI-SRC	University of the West Indies Seismic Research Centre

CONTENTS

INTRODUCTION

This document is intended to guide persons who will be conducting training sessions for Rapid Damage Assessment (RDA) inspectors. The main pedagogical aspect for conducting sessions is instructive as the trainer will be informing the use of the RDA forms as well as the software. The program is designed for participants with varying learning abilities and age groups *(for this program Group A will be participants forty years and older, and Group B – participants younger than 40 years old)* and so, instruction is carried out via various educational strategies. These include:



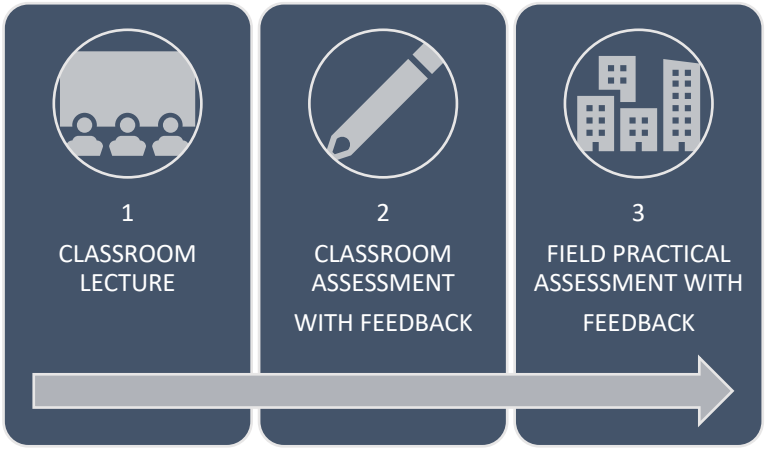
1. Behaviorist Pedagogy: This is the main construct for the entire program due to its instructive nature. The core of the learning strategy is learning through instruction. This is most effective for Group A participants.

2. Connectivist Pedagogy: This strategy is utilized throughout the programme. Information is conveyed to the leaner by various means such as Media (a PowerPoint presentation) and a practical session. Participants will be grouped together to discuss various elements of the programme, and apply the classroom session to the field exercise. This is an excellent method to reinforce the material for Group A participants, however, its main purpose is designed to maximize the learning potential of Group B participants.

3. Constructivist Pedagogy. This learning strategy is all about the 'hands-on approach'. This aims to promote learning by doing. The practical aspect of this course reinforces the classroom material for both learning groups.

PROGRAMME STRUCTURE

The course programme has three (3) main components.



On successful completion of this training course, the participant would be able to:

Knowledge and Understanding:

1. Express an understanding of the use of the RDA forms.
2. Describe the procedure for conducting an RDA inspection.
3. Explain the various building tags and their placement.

Intellectual skills:

4. Identify necessary equipment needed for inspection.
5. Distinguish various levels of damage to a structure.
6. Identify the critical areas of a structure to be inspected.
7. **Practical skills:**
8. Use form A (paper and Software based) for inspecting a building.
9. Use form B (paper and Software based for inspecting a bridge.

THE CLASSROOM

The classroom component is a PowerPoint lecture that is delivered by a trained instructor. The following timeline is suggested for the session:

Day 1

8:30 am – Participants register and seated

9:00 am – Start

10:30 am – Break (20 mins)

10:50 am – Continue

11:30 am – Administer assessment

11:45 am – Discussion of answers for assessment

12:00 noon – Close for Lunch

1:00PM- In house Practical sessions

Day 2

8:30 am – Participants register and seated

9:00 am – Start

10:30 am – Break (20 mins)

10:50 am – Continue

11:30 am – Practical sessions

11:45 am – Discussion of digital application

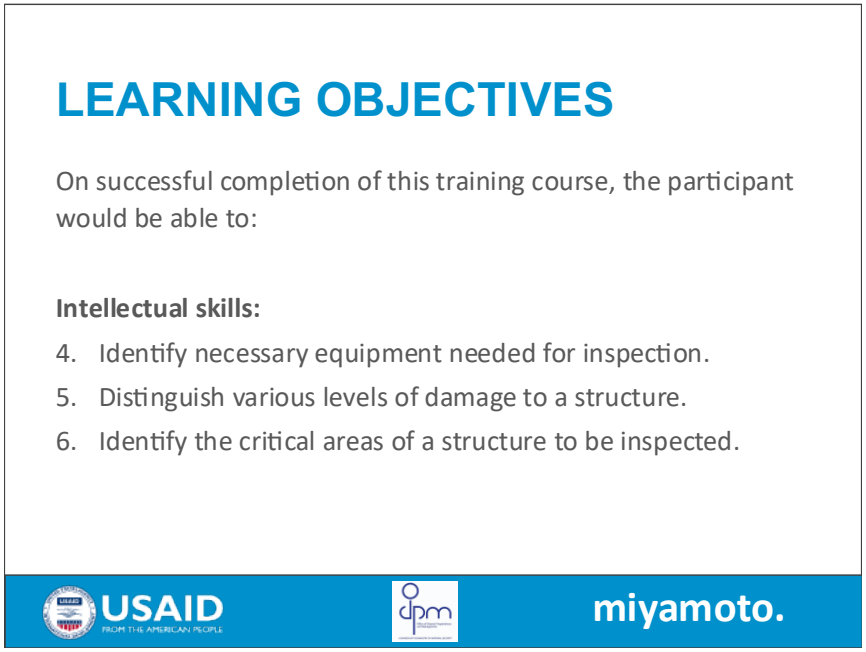
12:00 noon – Course Close

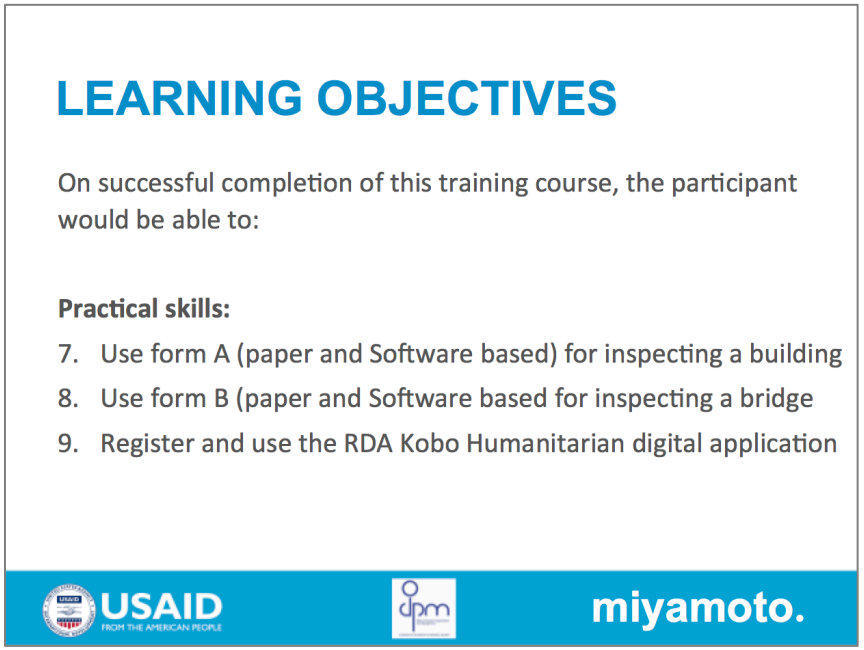
INSTRUCTOR'S GUIDANCE NOTES

The following pages has guidance notes that correspond to each slide which the trainer should use. The trainer is also encouraged to draw from their own experiences in the field as well and apply it to the session.

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The PREPARE TT and its stakeholders are introduced: a. ODPM b. USAID c. MIYAMOTO INTERNATIONAL d. MOWT e. APETT f. BOETT 2. The instructor is introduced by: a. Name b. Credentials c. Work Experience d. Work Experience relevant to Damage Assessment
SLIDE 1	

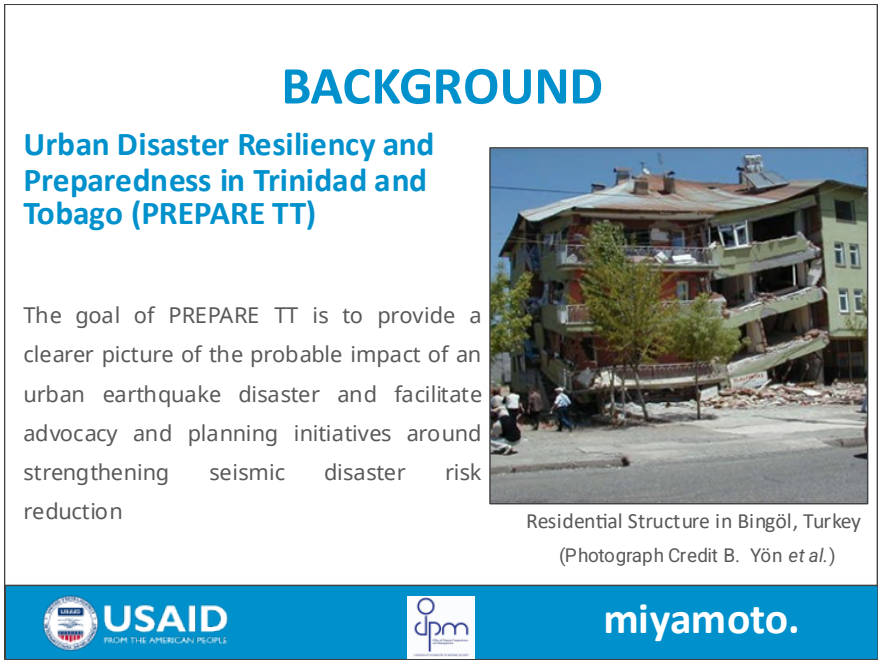
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
LEARNING OBJECTIVES On successful completion of this training course, the participant would be able to: **Knowledge and Understanding:** 1. Express an understanding of the use of the RDA forms. 2. Describe the procedure for conducting an RDA inspection. 3. Explain the various building tags and their placement. USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	There are 3 components of the learning objectives, these are: i. Knowledge and Understanding, ii. Intellectual skills and iii. Practical skills. Describe each sub-item in relation to the course. Refer to page 6-11 of the user guide
SLIDE 2	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor briefly explains either: a. Each item individually OR b. All items collectively 2. It should be stated explicitly that this programme is indented for training inspectors to use the two forms (A & B) and that they should already have some experience in inspection of structures. 3. It should be also stated that this course is NOT intended to train inspectors to identify/analyze the severity of defects however, it will cover major defects and where to locate them.
SLIDE 3	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor reads this slide and proceeds to the next slide
SLIDE 4	

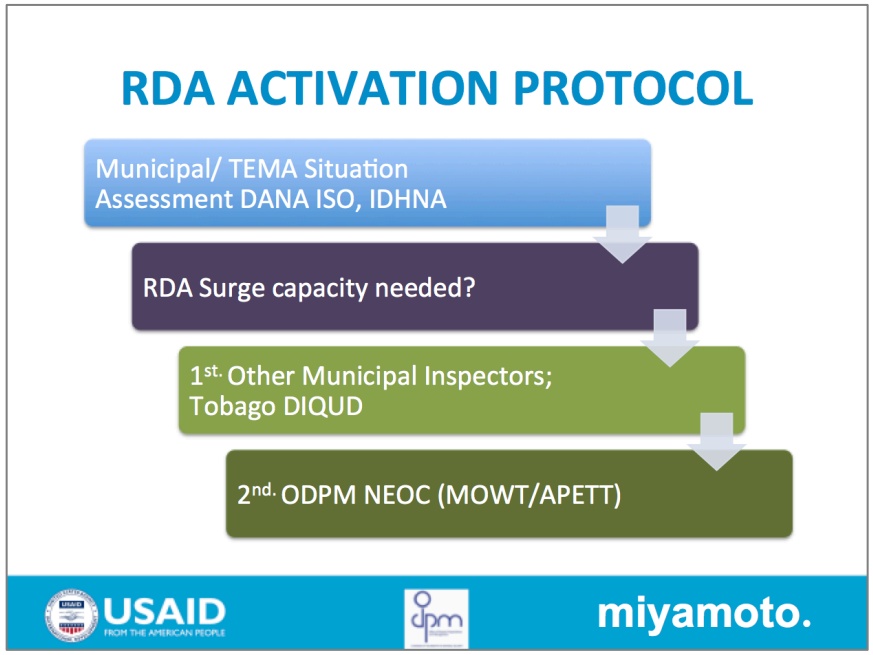
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The presentation outline is introduced by itemizing the contents and learning objectives, also assumptions i.e. already qualified and experienced C/S engineers/technicians 2. The instructor mentions the assessment at the end of the presentation. Refers the participants to the RDA Guideline Form A&B reference guide and to the protocol. No mention of the assessment being multiple choice will be made at this time. 3. Successful candidate be determined through two assessments. A written assessment and a field exercise. The written carries a weighting of 50% and the practical 50%. Trainers must achieve a minimum score of 90% while RDA inspectors must make a minimum score of 70%. The instructor mentions the practical session at its scheduled location.
SLIDE 5	

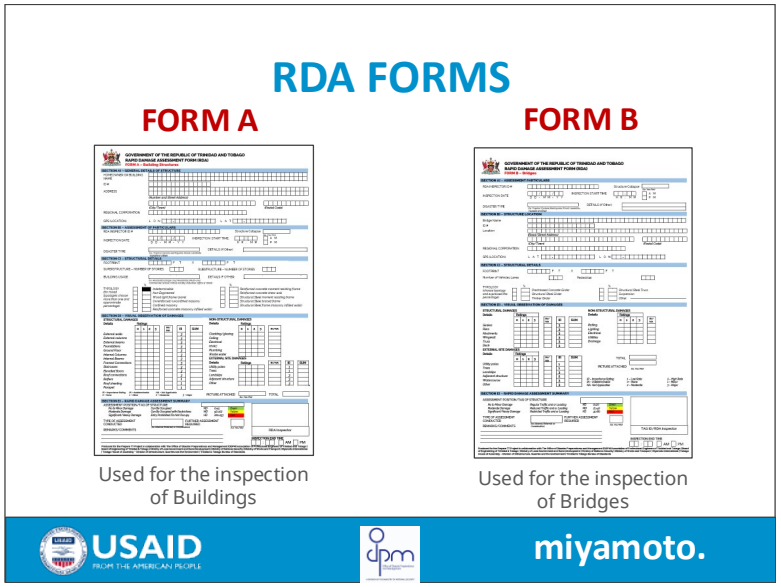
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
PURPOSE OF TRAINING • To train inspectors to use specific forms for the rapid inspection of structures. • To supplement training in identifying various defects of structures. • To reinforce safety procedures during post-disaster inspection of structures.  Apartment complex in Haifa, Israel (Photograph Credit Dr R. Farhat) USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor briefly explains either: a. Each item individually OR b. All items collectively 2. It should be stated explicitly that this programme is intended for training inspectors to use the two forms (A & B) and that they should already have some experience in inspection of structures. 3. It should be also stated that this course is NOT intended to train inspectors to identify/analyze the severity of defects however, it will cover major defects and where to locate them. The protocol for activating the use of the assessors at Levels 1 , 2 and 3 events needs to be covered by MOWT, MRDLG and TEMA
SLIDE 6	

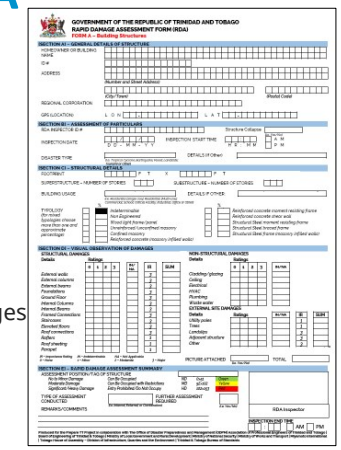
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	The Urban Disaster Resiliency and Preparedness in Trinidad and Tobago (PREPARE TT) Aims to clarify what can happen post disaster and in doing so urge the development of disaster mitigation and reduction And by doing this (next slide)
SLIDE 7	

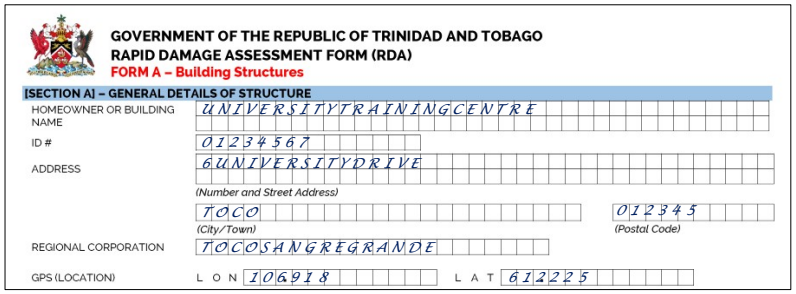
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
# BACKGROUND **Urban Disaster Resiliency and Preparedness in Trinidad and Tobago (PREPARE TT)** Also to provide preparedness measures in Trinidad and Tobago; to reduce the lives lost, people injured, internally displaced persons, and social and economic disruption.  Residential Structure in Bingöl, Turkey (Photograph Credit B. Yön *et al.*) USAID FROM THE AMERICAN PEOPLE · dpm · miyamoto.	(narration continued from previous slide) The negative social and economic impact from disaster events can be reduced through preparedness measures.
SLIDE 8	

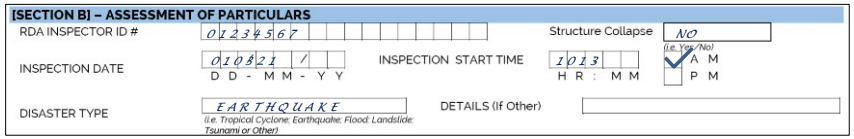
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
BACKGROUND **Purpose of the RDA** The Rapid Damage Assessment (RDA) tool is used for the inspection of structures so that any misunderstandings or varied assessments after a disaster occurs, is minimized.  Commercial Structure in Kidapawan Town, Philippines (Photograph Credit J. Hollingsworth) USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	The instructor reads this slide and briefly explains • A Rapid Damage Assessment (RDA) instrument has been developed for use after a natural disaster. Civil/structural engineers and engineering technicians (trained in using the RDA forms), would be deployed post-disaster to inspect buildings and bridges and determine their fitness for occupancy or use. • The RDA has been specifically, developed to allow an inspector to complete an assessment in under thirty minutes. The evaluation of the structure is conducted using a fillable form with predetermined items for the inspector to check. • There is also a software application that inspectors can use on a mobile device that can be used instead of the paper-based version. This document is intended to guide civil/structural engineers who will be conducting training sessions for RDA inspectors.
SLIDE 9	

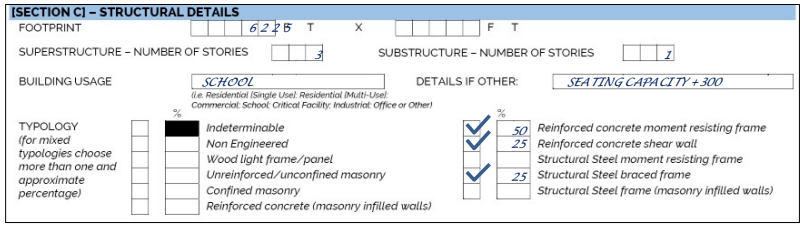
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	See Rapid Damage Assessment (RDA) Operations Protocol. The RDA shall generally be used after a Level 2* greater disaster event where it is deemed that any building or bridge structure/s may have become unsafe due to the event or there is the desire/need to determine, by rapid assessment, the integrity of a building or bridge 1. Municipalities /TEMA initiate emergency action plan for assessments: Damage and Need Assessment (DANA) Continuum: Initial situation Overview (ISO), Initial Damage Assessment (IDA), Initial Disaster Humanitarian Needs Assessment IDHNA 2. Log all incoming requests for assessment and prioritise critical and non-critical structures 3. Determine the need for RDA surge capacity and initiate additional resource requests through MRDLG and (L2/3) the ODPM, NEOC (MOWT/APETT). For Tobago through DQUID and TEMA EOC 4. Coordinate and receive permission from within the agency to carry out the assessments 5. Structures like schools or shelters or other critical structures within a region shall be prioritized and assessed within one or two days (Level1 & 2 events); c.3 days -4 weeks post-ex Level 3 events 6. Assess non-critical structures after critical structures have been assessed. *Level 1 Very localized hazard/disaster event (within a municipality or Tobago) Level 2 Hazard event impacting multiple municipalities of such a serious nature that it affects/threatens multiple loss of life, property, environment, economic damage. A disaster area(s) may be declared Level 3 A national scale hazard impact/disaster
SLIDE 10	

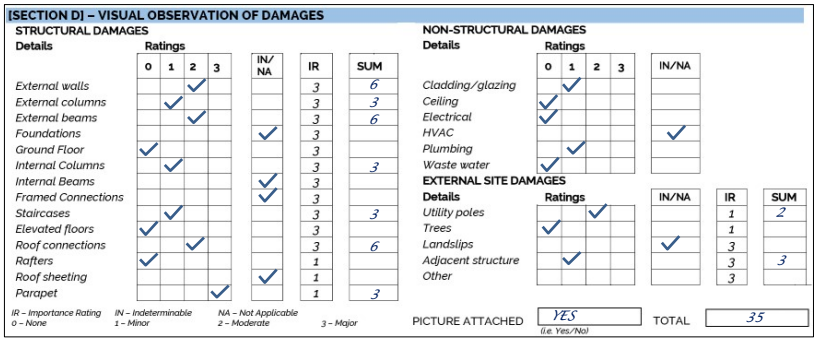
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. Invite participants to view their personal copy of the form and follow along each section. 2. The result from completing these forms is structure tagging. 3. This is literally placing a coloured tag on the structure once the inspection (and form) is complete. 4. The tags determine how fit the structure is for use or occupancy. 5. A green tag means its Safe 6. A yellow tag means it has restricted use and or access. 7. A red tag means it is unfit for use or occupancy and even entry. 8. Now we will go though how to use each of these forms in detail.
SLIDE 11	

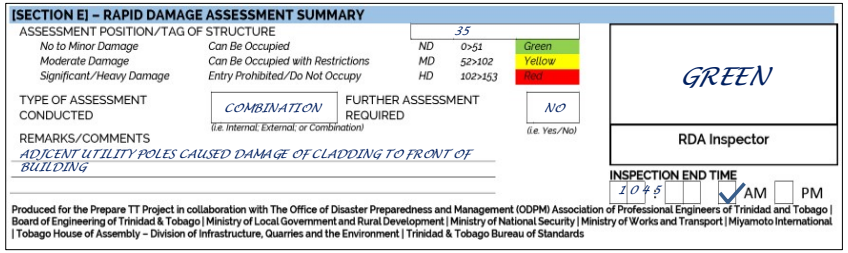
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
# FORM A ## Used for Building Structures **Composed of 5 sections** • SECTION A – General Details of Structure • SECTION B – Assessment Particulars • SECTION C – Structural Details • SECTION D – Visual Observation of Damages • SECTION E –Rapid Damage Assessment Summary  USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. Instructor to outline each section. 2. Invite participants to view their personal copy of the form and follow along each section.
SLIDE 12	

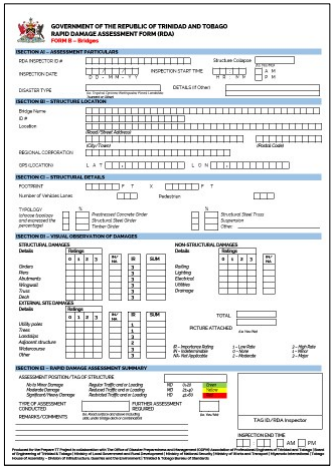
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
 USAID FROM THE AMERICAN PEOPLE miyamoto.	1. The instructor refers the participants to page 21 of the User's Guideline 2. The importance of each item should be explained to encourage acceptance and appreciation from the participants.
SLIDE 13	

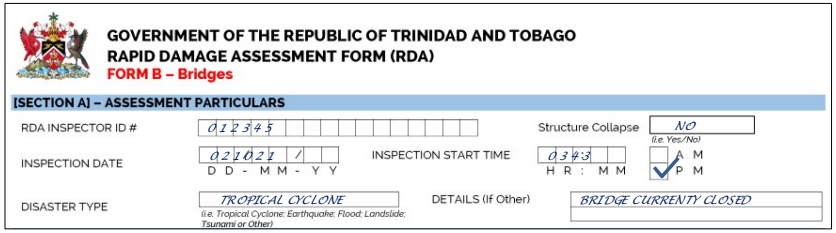
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
 	1. The instructor refers the participants to page 22 of the User's Guideline and explains each fillable item 2. The importance of each item should be explained to encourage acceptance and appreciation from the participants.
SLIDE 14	

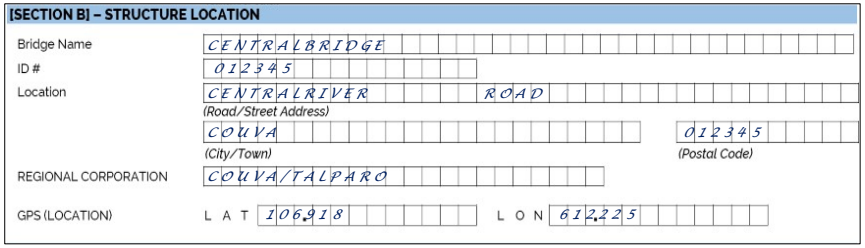
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor refers the participants to page 22-31 of the User's Guideline and explains each fillable item 2. The importance of each item should be explained to encourage acceptance and appreciation from the participants.
SLIDE 15	

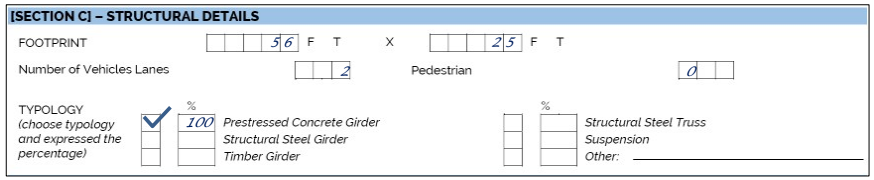
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
RATING X IR = SUM  [SECTION D] – VISUAL OBSERVATION OF DAMAGES STRUCTURAL DAMAGES Details / Ratings (0 1 2 3) / IN/NA / IR / SUM External walls 2 — IR 3 — SUM 6 External columns 1 — IR 3 — SUM 3 External beams 2 — IR 3 — SUM 6 Foundations — IN/NA ✓ — IR 3 Ground Floor 0 — IR 3 Internal Columns 1 — IR 3 — SUM 3 Internal Beams — IN/NA ✓ — IR 3 Framed Connections — IN/NA ✓ — IR 3 Staircases 1 — IR 3 — SUM 3 Elevated floors 0 — IR 3 Roof connections 2 — IR 3 — SUM 6 Rafters 0 — IR 1 Roof sheeting — IN/NA ✓ — IR 1 Parapet 3 — IR 1 — SUM 3 NON-STRUCTURAL DAMAGES Details / Ratings (0 1 2 3) / IN/NA Cladding/glazing 1 Ceiling 0 Electrical 0 HVAC — IN/NA ✓ Plumbing 1 Waste water 0 EXTERNAL SITE DAMAGES Details / Ratings (0 1 2 3) / IN/NA / IR / SUM Utility poles 2 — IR 1 — SUM 2 Trees 0 — IR 1 Landslips — IN/NA ✓ — IR 3 Adjacent structure 1 — IR 3 — SUM 3 Other — IR 3 IR – Importance Rating 0 – None; IN – Indeterminable 1 – Minor; NA – Not Applicable 2 – Moderate; 3 – Major PICTURE ATTACHED: YES (i.e. Yes/No) TOTAL: 35 USAID FROM THE AMERICAN PEOPLE · miyamoto.	1. The instructor refers the participants to page 30 of the User's Guideline and explains each fillable item 2. The importance of each item should be explained to encourage acceptance and appreciation from the participants. 3. The SUM calculation is explained by example. Participants are asked to use their calculators/cell phones to do the calculation. 4. The instructor MUST impress the importance to do correct calculations and mention that in the past there were simple arithmetic errors in the calculation. 5. Participants are encouraged to recheck their work.
SLIDE 16	

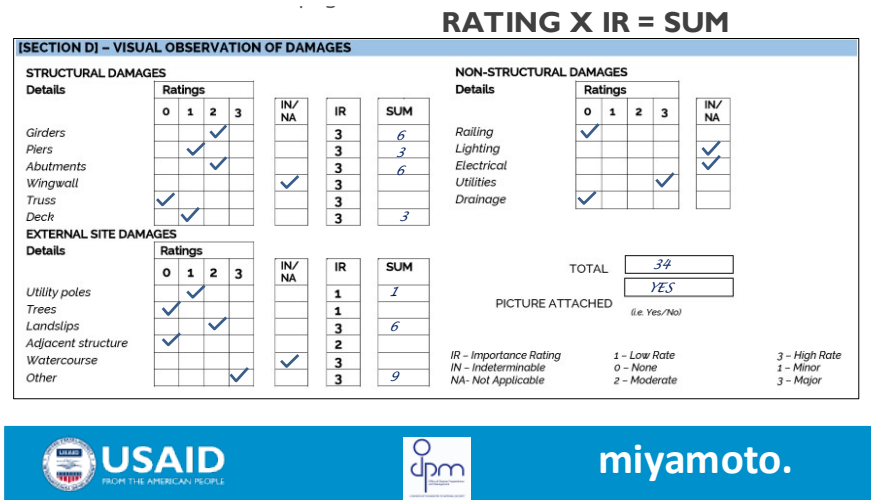
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor refers the participants to page 31 of the User's Guideline and explains each fillable item 2. The importance of each item should be explained to encourage acceptance and appreciation from the participants. 3. Additional explanations can be given for the REMARKS/COMMENTS section by means of examples 4. At this point the instructor stops and asks if any of the participants has any questions or would like to revisit any of the previous slides.
SLIDE 17	

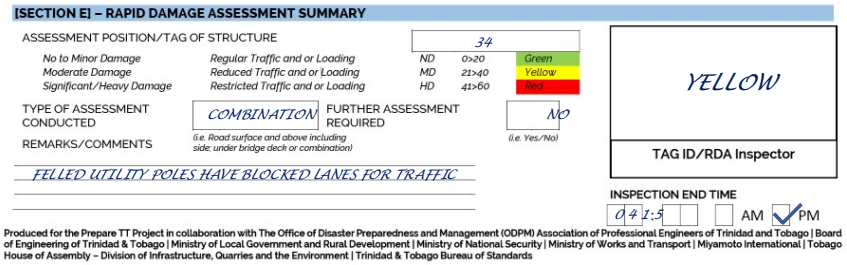
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
# FORM B ## Used for Bridges **Composed of 5 sections** • SECTION A – Assessment Particulars • SECTION B – Structure Location • SECTION C – Structural Details • SECTION D – Visual Observation of Damages • SECTION E –Rapid Damage Assessment Summary  GOVERNMENT OF THE REPUBLIC OF TRINIDAD AND TOBAGO RAPID DAMAGE ASSESSMENT FORM (RDA) FORM B – Bridges USAID FROM THE AMERICAN PEOPLE · miyamoto.	1. Instructor to outline each section. 2. Invite participants to view their personal copy of the form and follow along each section.
SLIDE 18	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
 USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor refers the participants to page 32-39 of the User's Guideline and explains each fillable item for form B 2. The importance of each item should be explained to encourage acceptance and appreciation from the participants.
SLIDE 19	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
 USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor refers the participants to page 34 of the User's Guideline and explains each fillable item 2. The importance of each item should be explained to encourage acceptance and appreciation from the participants.
SLIDE 20	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
 USAID FROM THE AMERICAN PEOPLE miyamoto.	1. The instructor refers the participants to page 35 of the User's Guideline and explains each fillable item 2. The importance of each item should be explained to encourage acceptance and appreciation from the participants.
SLIDE 21	

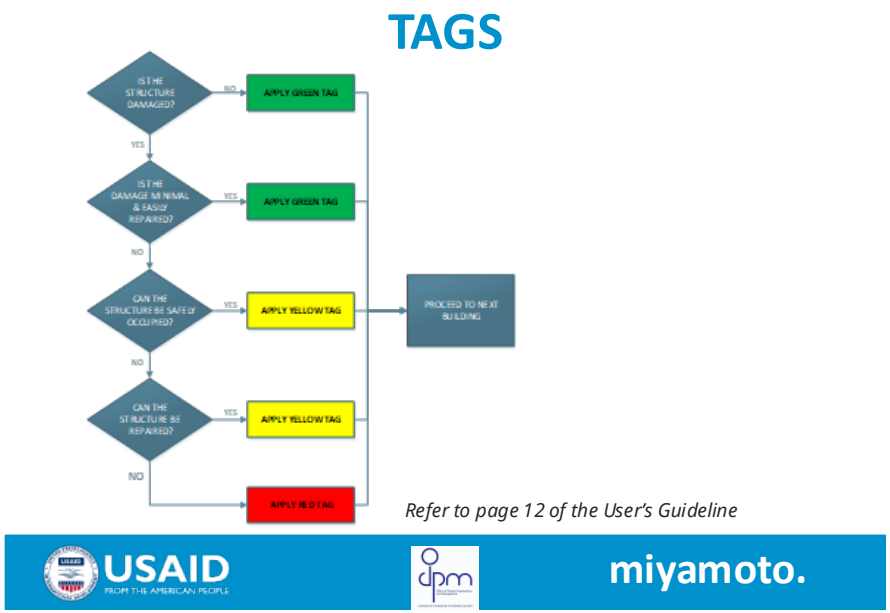
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
 USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor refers the participants to page 38 of the User's Guideline 2. The importance of each item should be explained to encourage acceptance and appreciation from the participants. 3. The instructor explains each fillable item citing the same procedure as FORM A 4. The importance of each item should be explained to encourage acceptance and appreciation from the participants. 5. The SUM calculation is explained by example. Participants are asked to use their calculators/cell phones to do the calculation. 6. The instructor MUST impress the importance to do correct calculations and mention that in the past there were simple arithmetic errors in the calculation. 7. Participants are encouraged to recheck their work.
SLIDE 22	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor refers the participants to page 39 of the User's Guideline and explains each fillable item 2. The importance of each item should be explained to encourage acceptance and appreciation from the participants. 3. The importance of each item should be explained to encourage acceptance and appreciation from the participants. 4. Additional explanations can be given for the REMARKS/COMMENTS section by means of examples 5. AT THIS POINT THE INSTRUCTOR STOPS AND ASKS IF ANY OF THE PARTICIPANTS HAS ANY QUESTIONS OR WOULD LIKE TO REVISIT ANY OF THE PREVIOUS SLIDES.
SLIDE 23	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
TAGS **GREEN TAG** **USED FOR:** Entry and Occupancy  *Refer to page 13 of the User's Guideline*	1. The instructor describes the GREEN Tag and its fillable sections. 2. The use of the tag is explained. 3. Placing of the tag is described.
SLIDE 24	

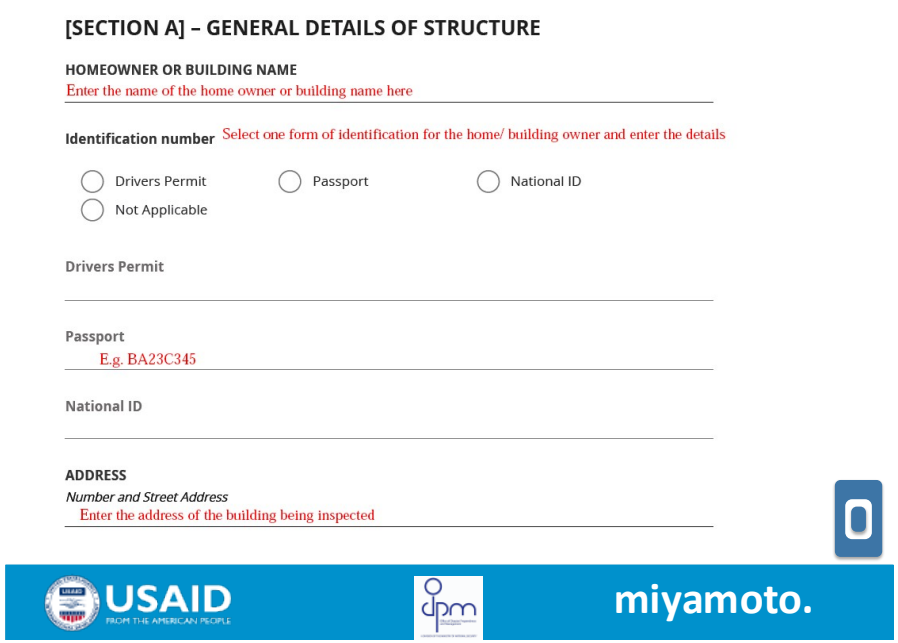
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
TAGS **YELLOW TAG** **USED FOR:** Entry & Occupancy with Restricted Access  *Refer to page 13 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor describes the YELLOW Tag and its fillable sections. 2. The use of the tag is explained. 3. Placing of the tag is described.
SLIDE 25	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
TAGS **RED TAG** **USED FOR:** NO Entry & NO Occupancy  *Refer to page 13 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor describes the RED Tag and its fillable sections. 2. The use of the tag is explained. 3. Placing of the tag is described.
SLIDE 26	

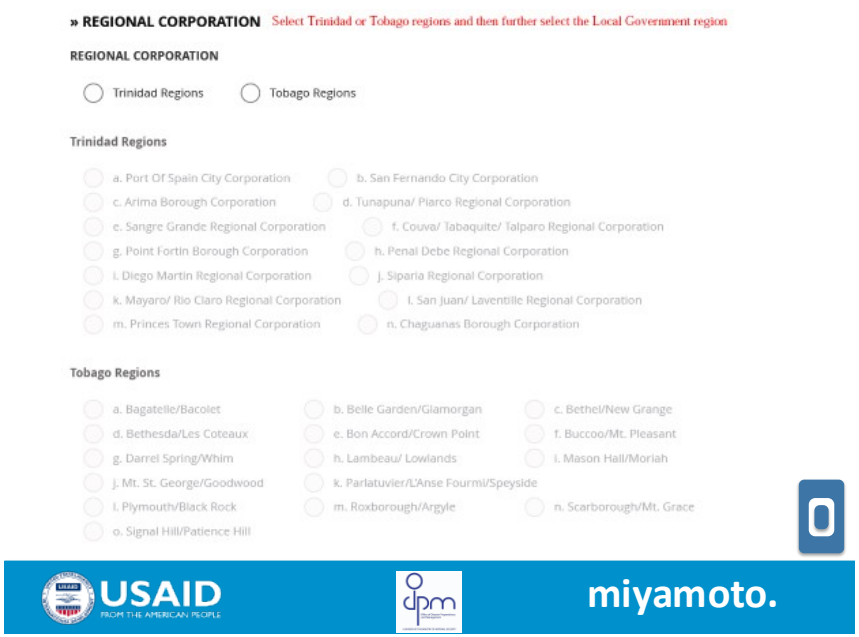
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor describes the items on the list
SLIDE 27	

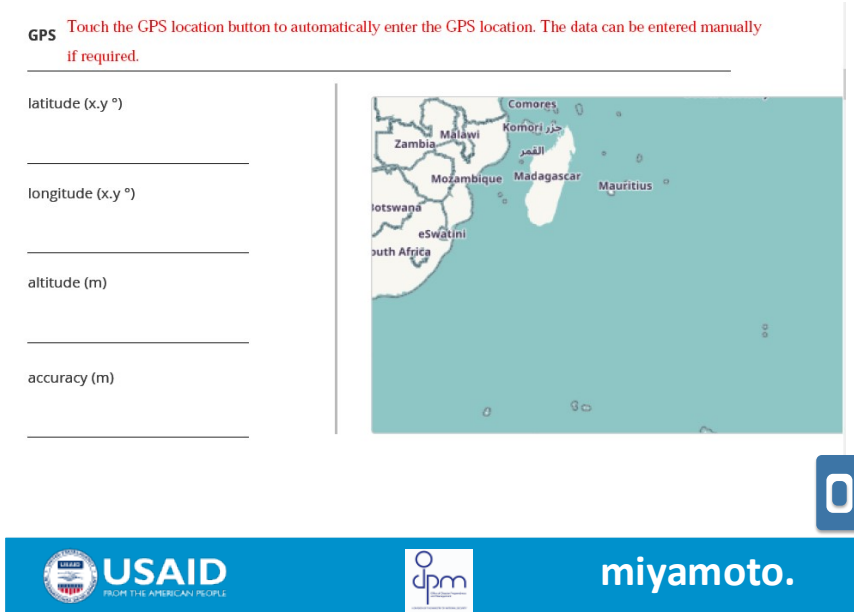
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
DEMONSTRATION **USE OF THE KOBO APPLICATION**  USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor announces that the following slides show the procedure to use the KOBO application and refers to page 40 in the guidance document. 2. The instructions are similar to that of the paper based forms. 3. The instructor informs the participants that they can register on KoBo and informs them that the second session will be dedicated to the digital application use. The instructor refers them to the installation guideline within the user guide.
SLIDE 28	

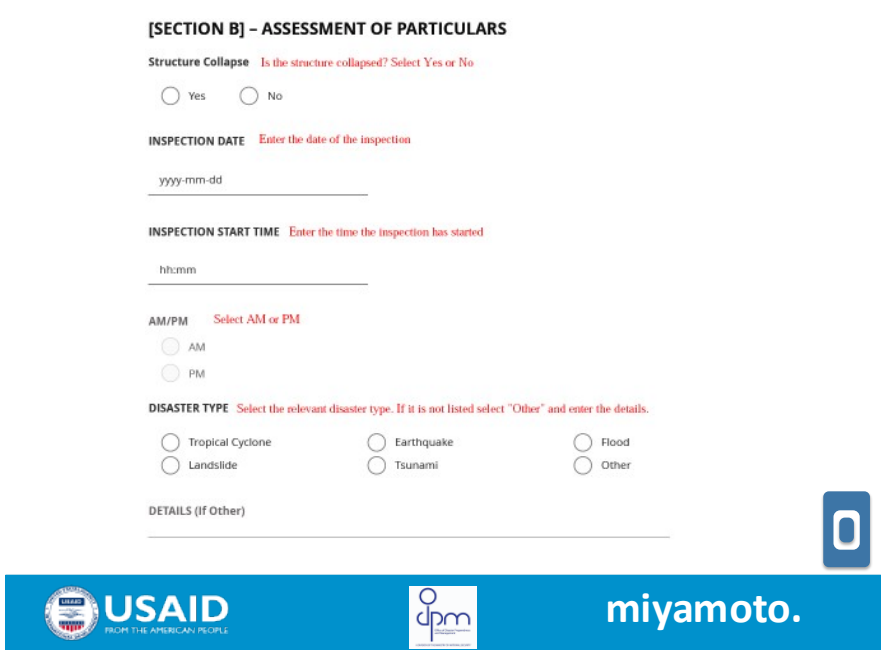
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
Government of the Republic of Trinidad & Tobago - "PREPARE TT PROGRAM RAPID DAMAGE ASSESSMENT FORM A – Building Structures" This note can be read out loud    	1. Form A within the KOBO application will now be shown. 2. The instructor announces that the following slides show the procedure to use the KOBO application for Form A and refers to page 42 in the guidance document
SLIDE 29	

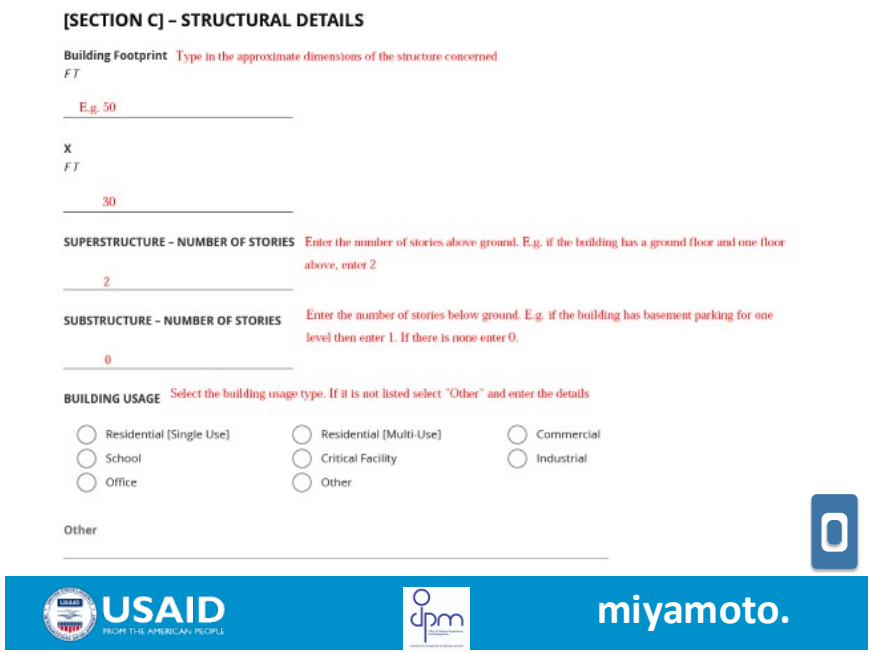
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor ensures that all participants are registered and have access to the forms. 2. The instructor outlines the various sections of the slide. 3. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 30	

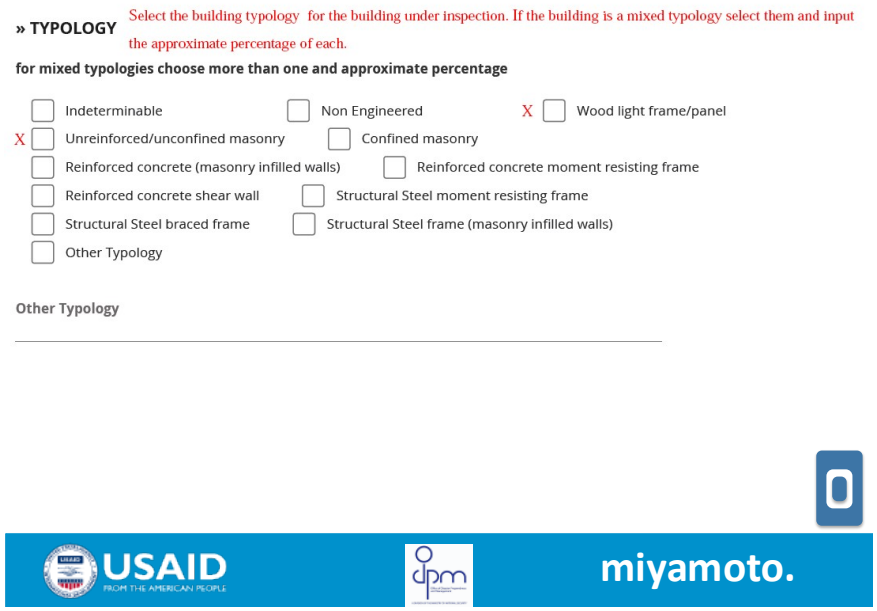
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 31	

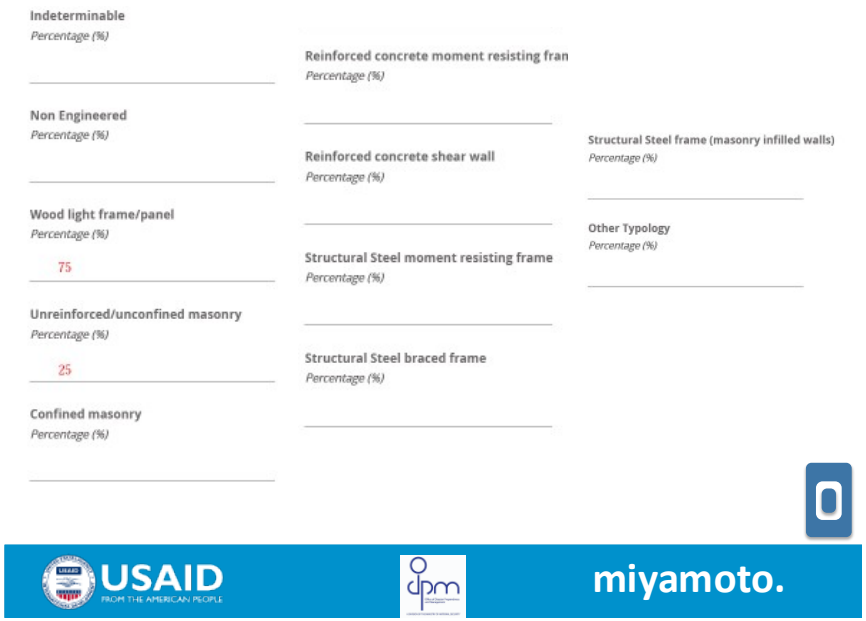
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 32	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 33	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 34	

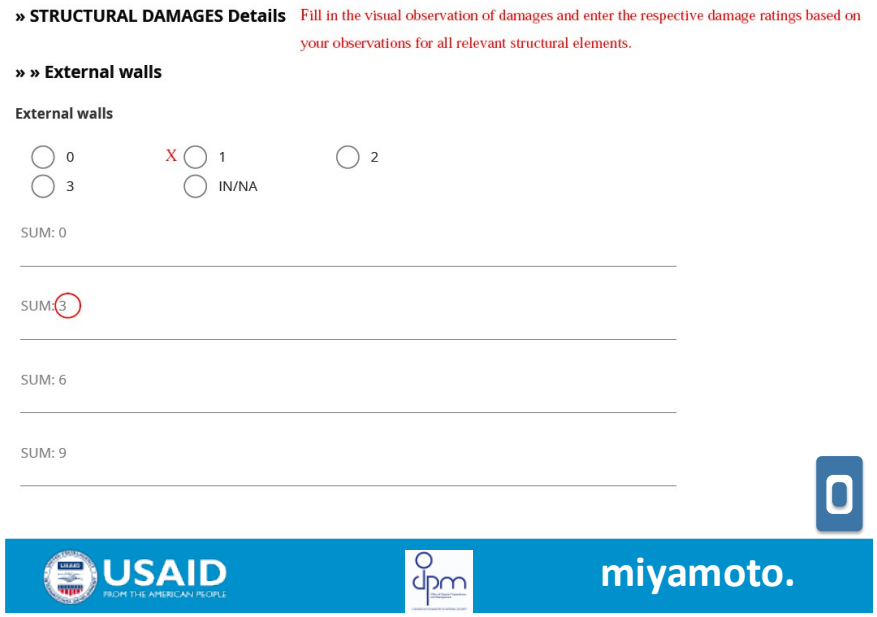
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 35	

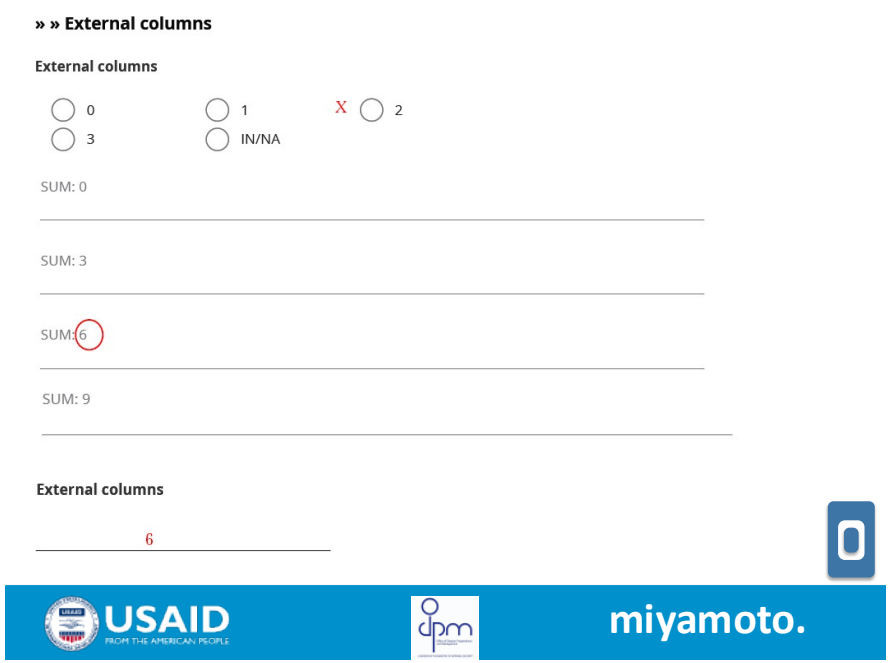
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 36	

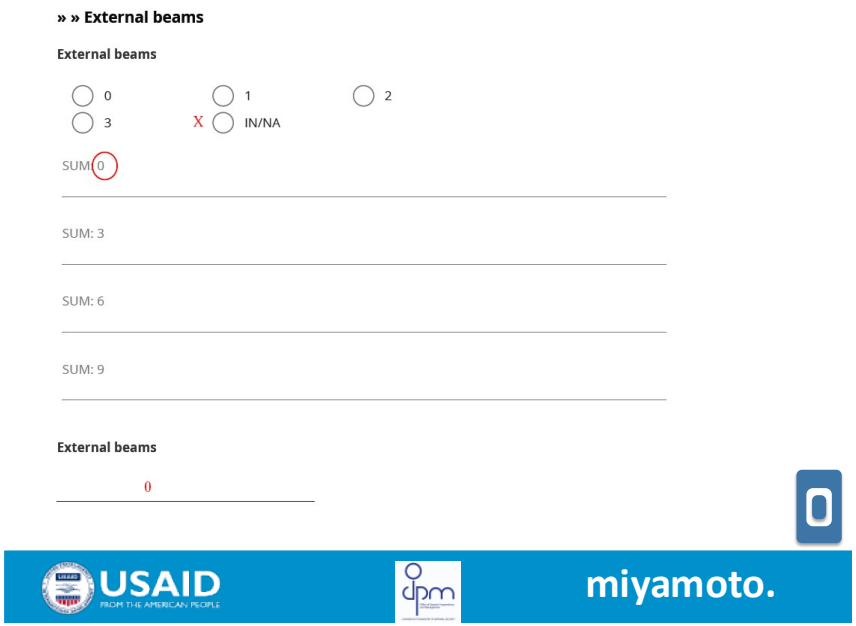
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 37	

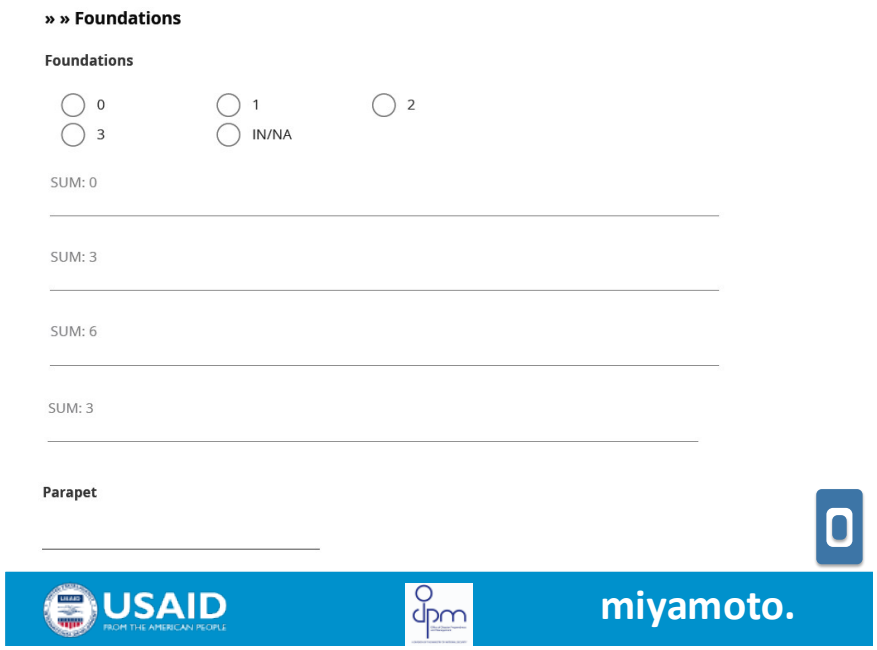
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
[SECTION D] – VISUAL OBSERVATION OF DAMAGES **» Reminders** Damages must be viewed at the local site and their potential impact on the neighboring members. Indeterminate (IN) – This means that the extent of damage is unable to be determined at the time of inspection and should be checked off with a note indicating that that particular element may need further review. Not Applicable (NA)- This means that the particular structural or non-structural element does not apply to the particular structure. The RDA inspector must look at all damages and conclude whether damages are structural or non-structural. Damages are graded from 0 to 3. 0 = no damage, 1 = minor damage, 2 = moderate damage, 3 = major damage   	1. The instructor describes the items on the list
SLIDE 38	

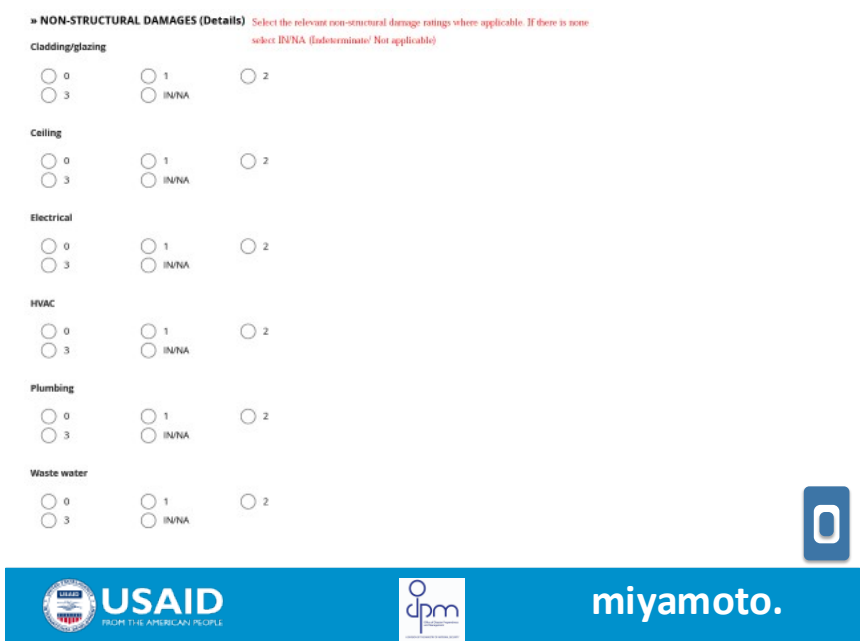
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
1 – Structural Damages: Inspect each structural element listed and assign a damage rating (from 0 to 3). These will be multiplied automatically by the importance rating. 2 – Non-structural Damages: Inspect each structural element listed and assign a damage rating (from 0 to 3). 3 – External site damages that pose a danger to the immediate structure Inspect each structural element listed and assign a damage rating (from 0 to 3). These will be multiplied automatically by the importance rating. E.g. an external column with a damage rating of 3 is multiplied by an IR of 3 to give a total of 9, which is now the new assigned grade for the external column. Remember to verify the final grade of the structural element being reviewed by entering the number calculated in the blank field provided. 	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 39	

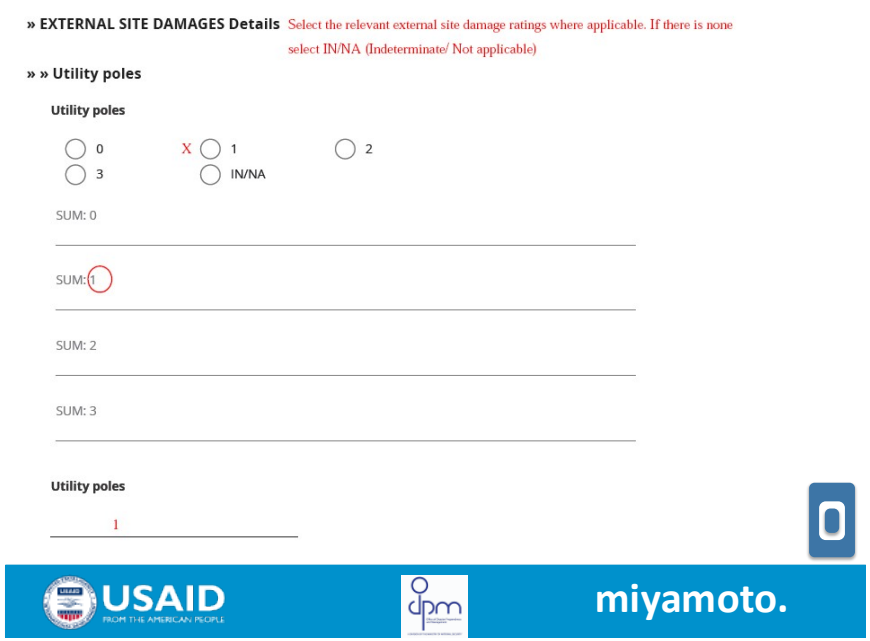
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 40	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 41	

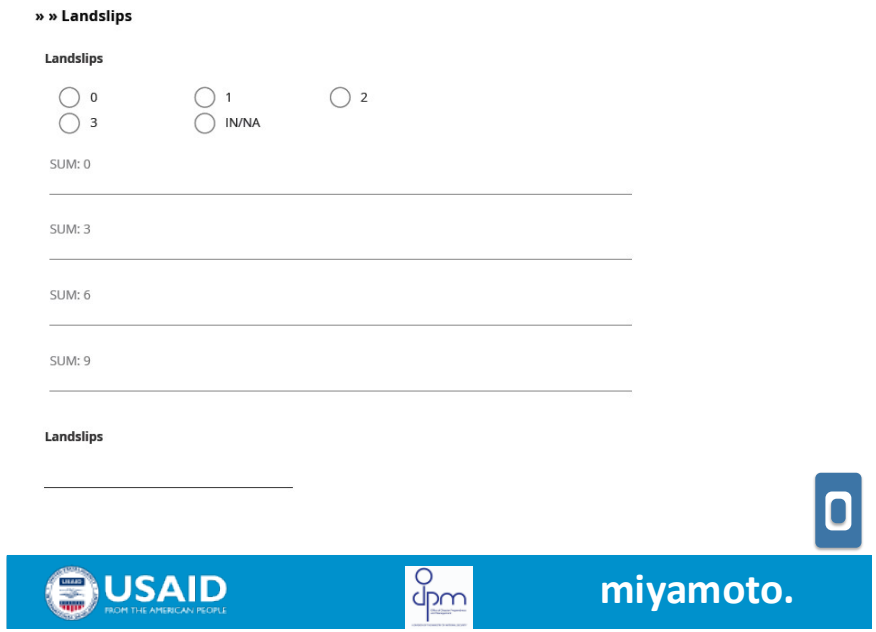
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 42	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 43	

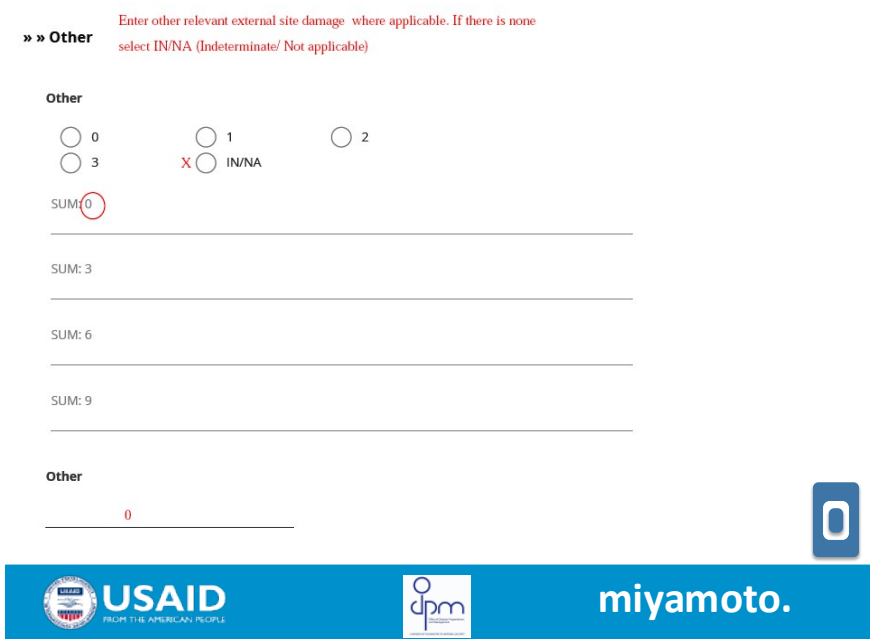
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 44	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 45	

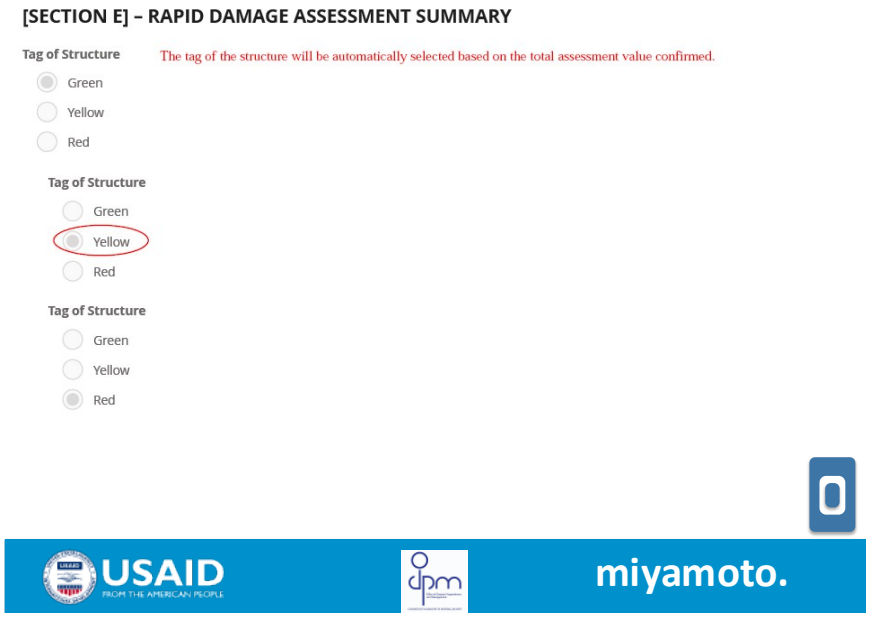
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 46	

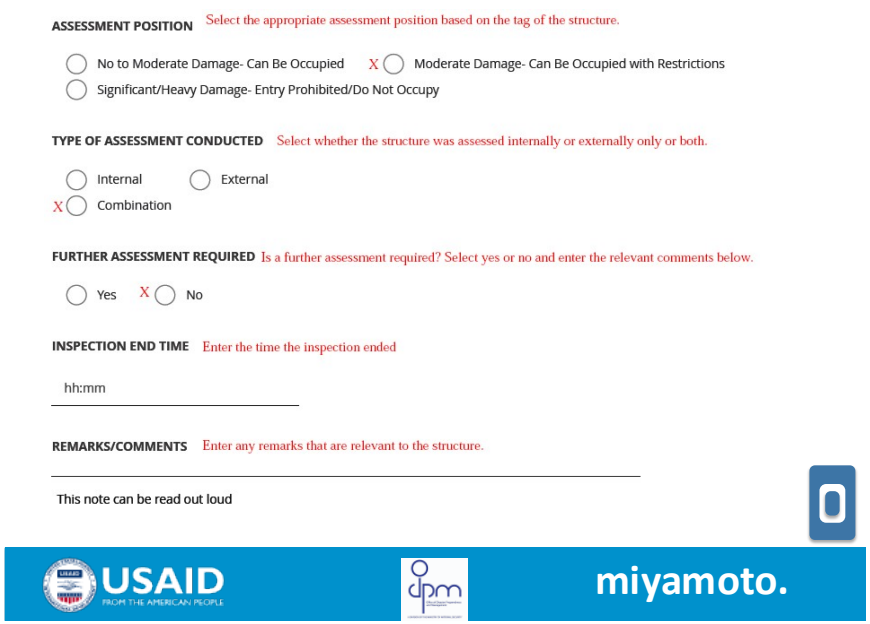
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 47	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 48	

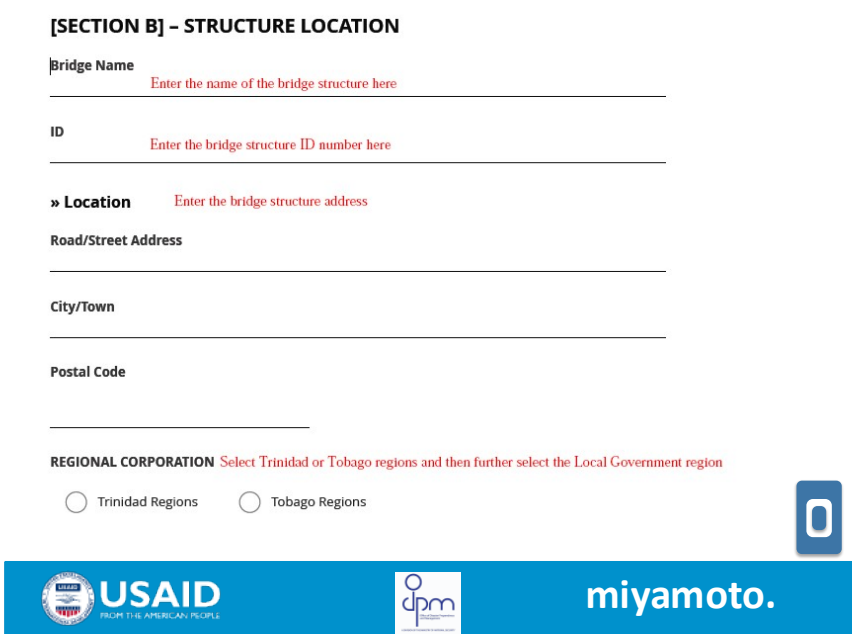
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 49	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 50	

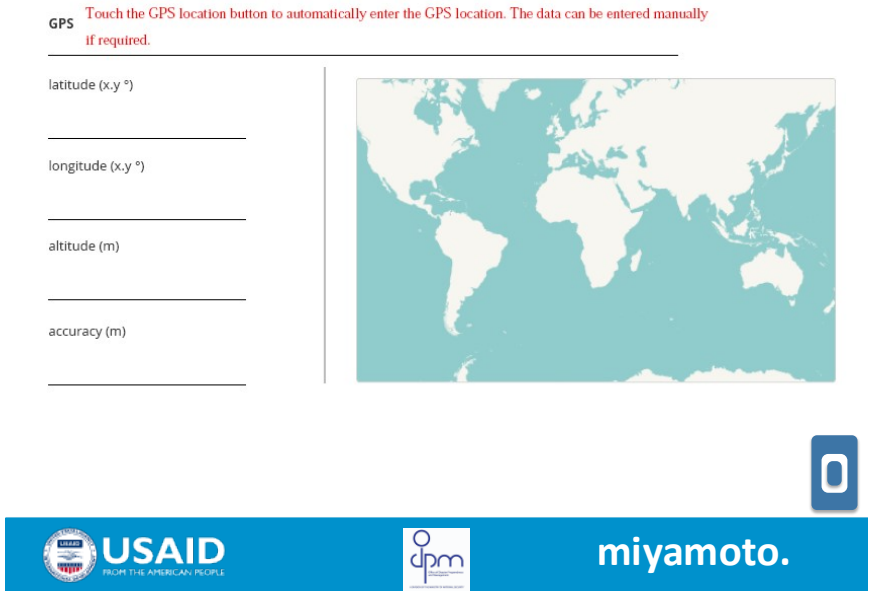
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 51	

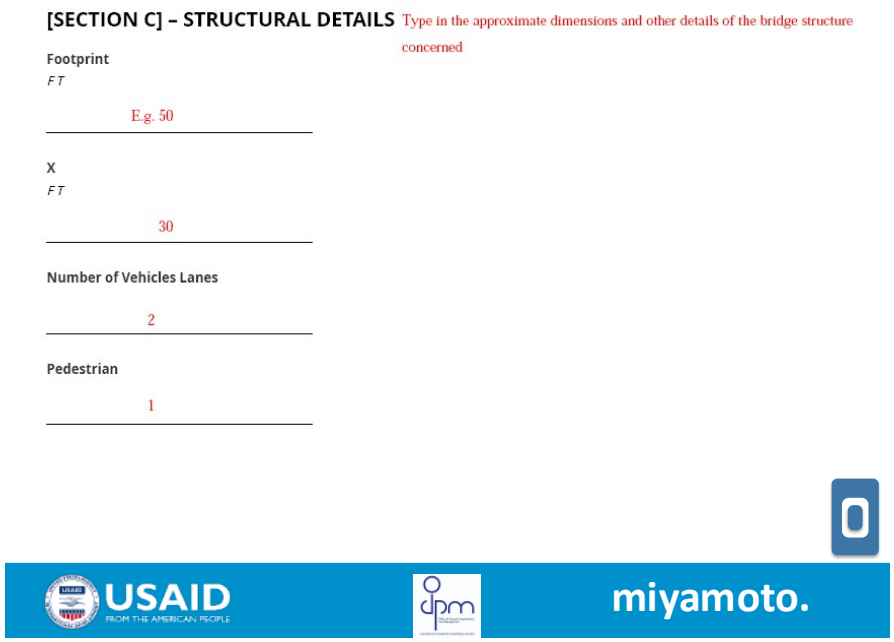
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 52	

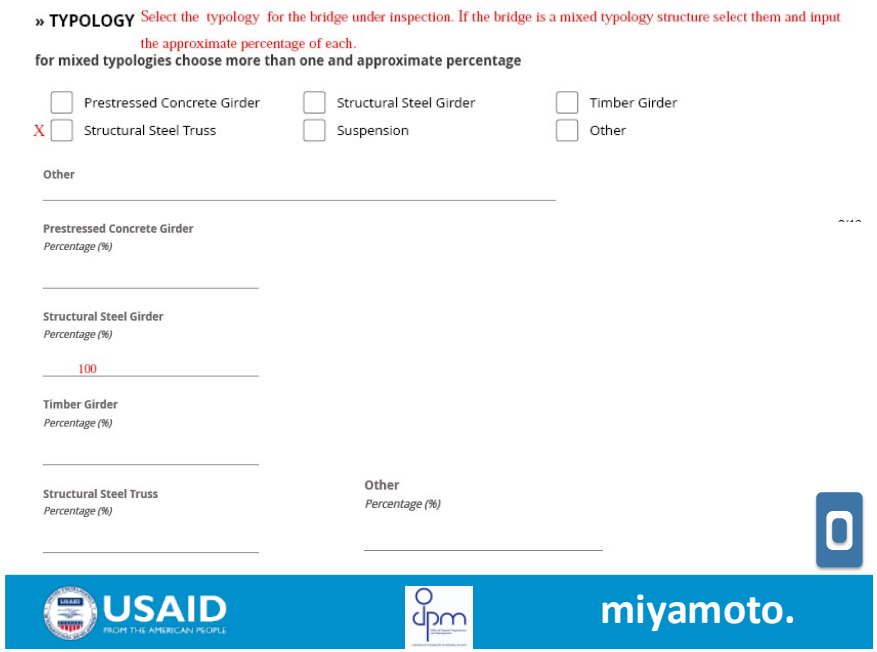
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
GOVERNMENT OF THE REPUBLIC OF TRINIDAD AND TOBAGO **RAPID DAMAGE ASSESSMENT FORM (RDA) FORM B – Bridges** This note can be read out loud    	1. Form B within the KOBO application will now be shown. 2. The instructor announces that the following slides show the procedure to use the KOBO application for Form B and refers to page 57 in the guidance document
SLIDE 53	

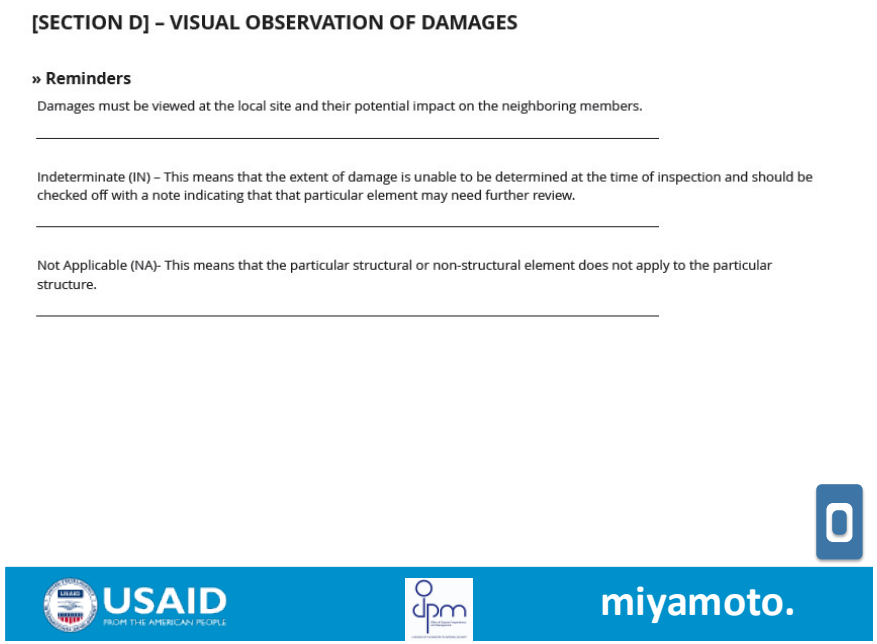
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor describes the items on the list
SLIDE 54	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 55	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 56	

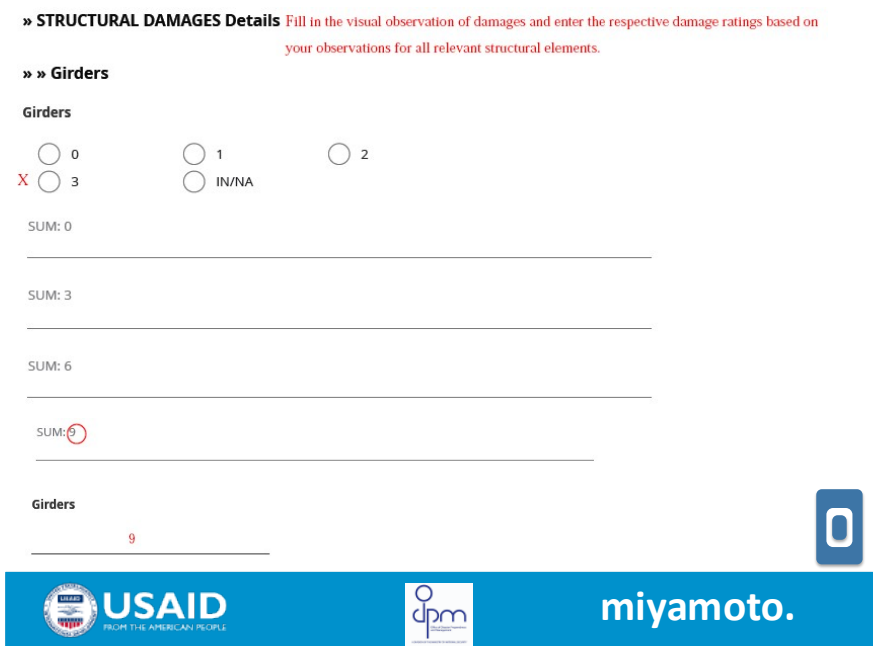
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 57	

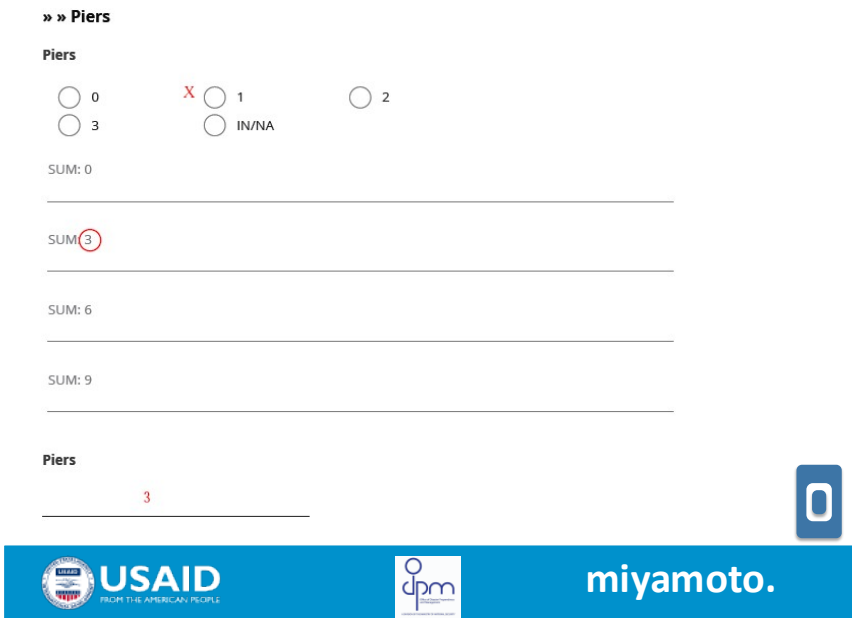
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 58	

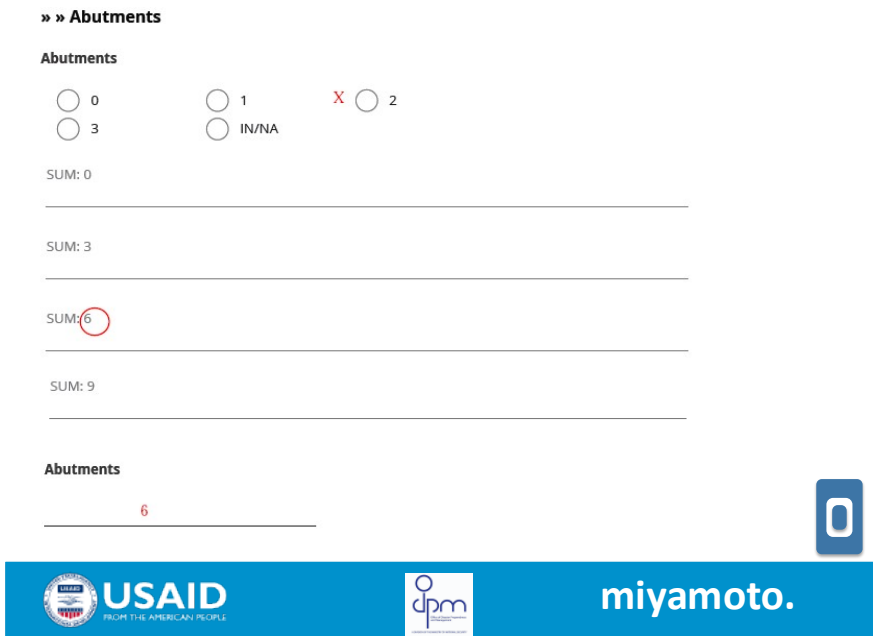
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 59	

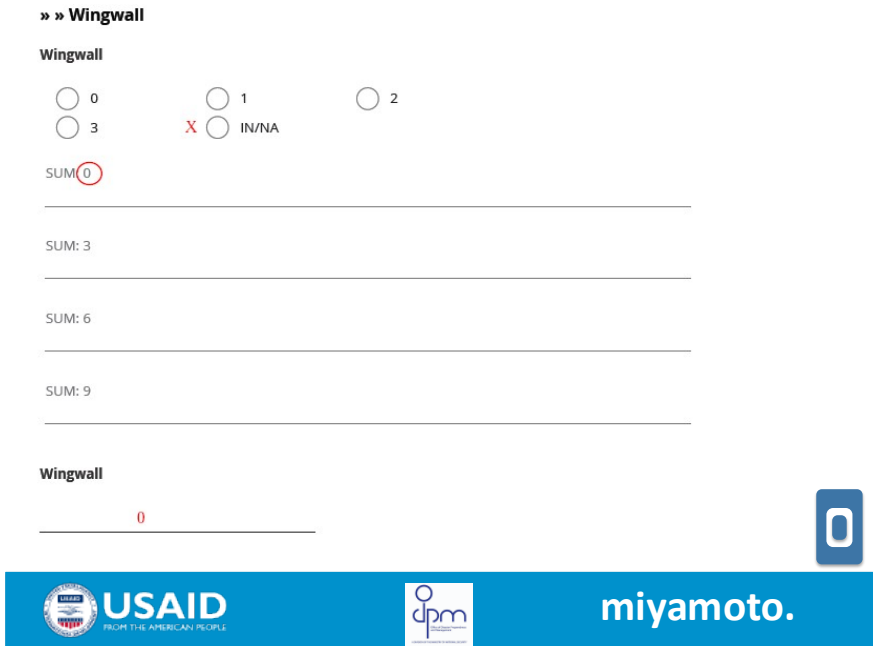
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
The RDA inspector must look at all damages and conclude whether damages are structural or non-structural. Damages are graded from 0 to 3. 0 = no damage, 1 = minor damage, 2 = moderate damage, 3 = major damage 1 – Structural Damages: Inspect each structural element listed and assign a damage rating (from 0 to 3). These will be multiplied automatically by the importance rating. 2 – Non-structural Damages: Inspect each structural element listed and assign a damage rating (from 0 to 3). 3 – External site damages that pose a danger to the immediate structure Inspect each structural element listed and assign a damage rating (from 0 to 3). These will be multiplied automatically by the importance rating.   	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 60	

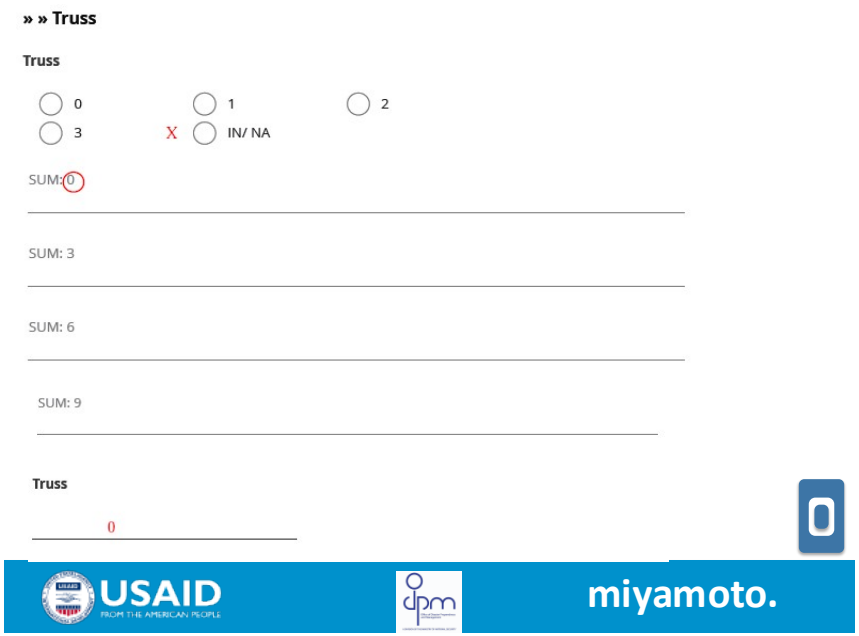
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
E.g. an external column with a damage rating of 3 is multiplied by an IR of 3 to give a total of 9, which is now the new assigned grade for the external column. Remember to verify the final grade of the structural element being reviewed by entering the number calculated in the blank field provided. 	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 61	

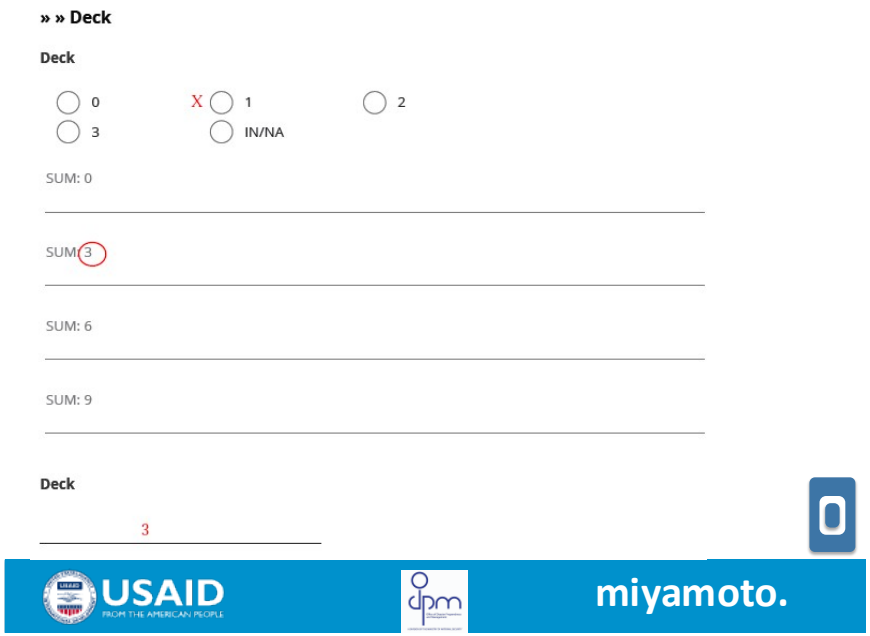
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 62	

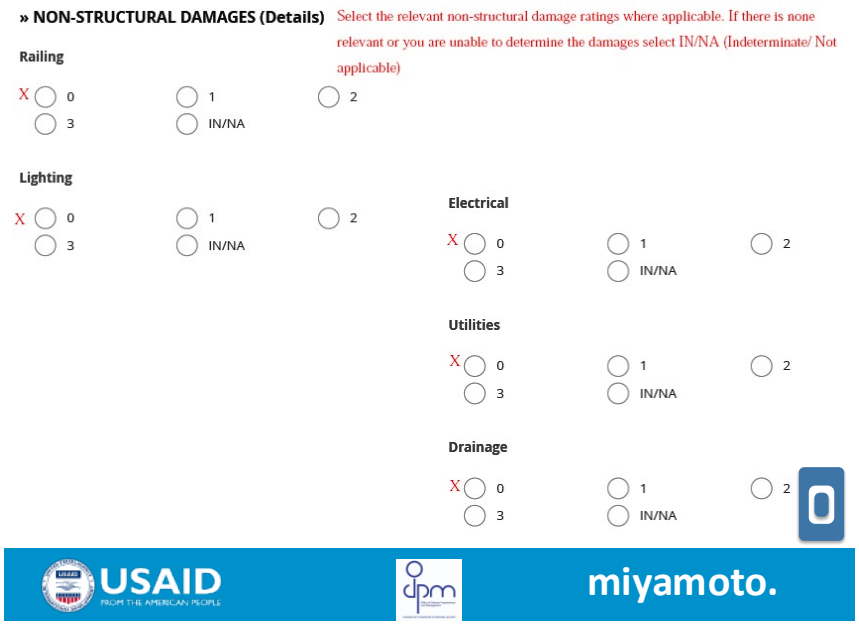
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 63	

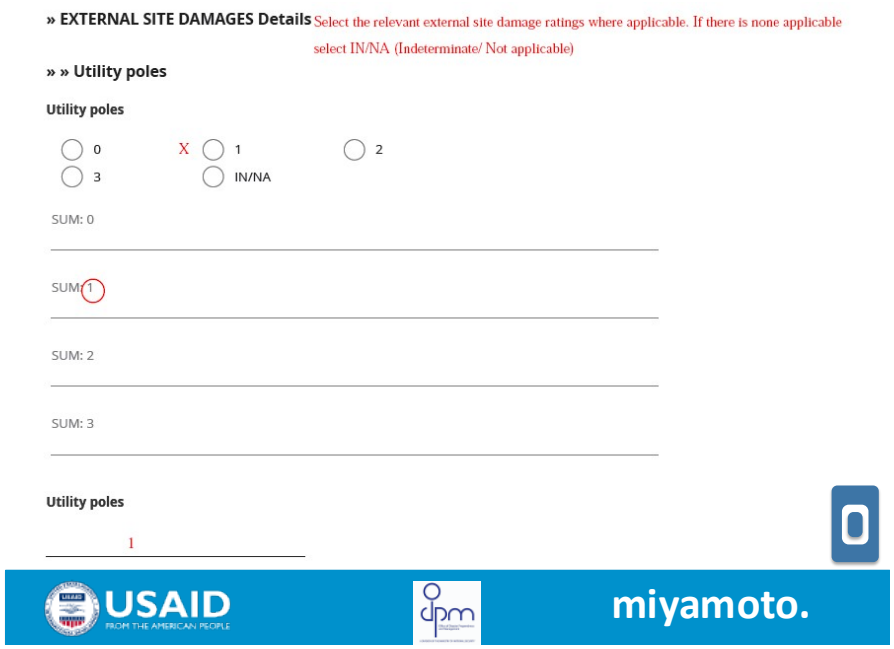
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 64	

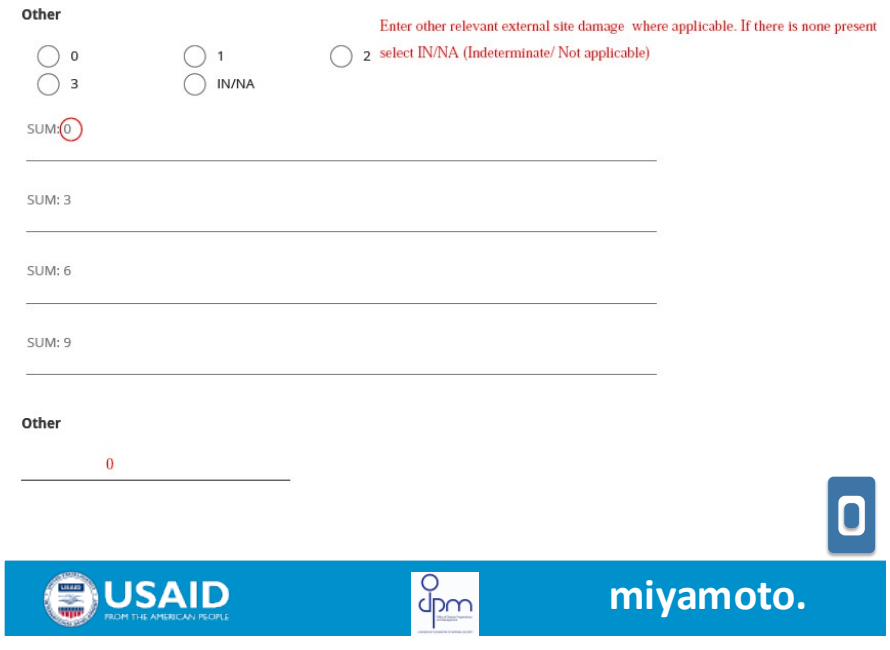
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 65	

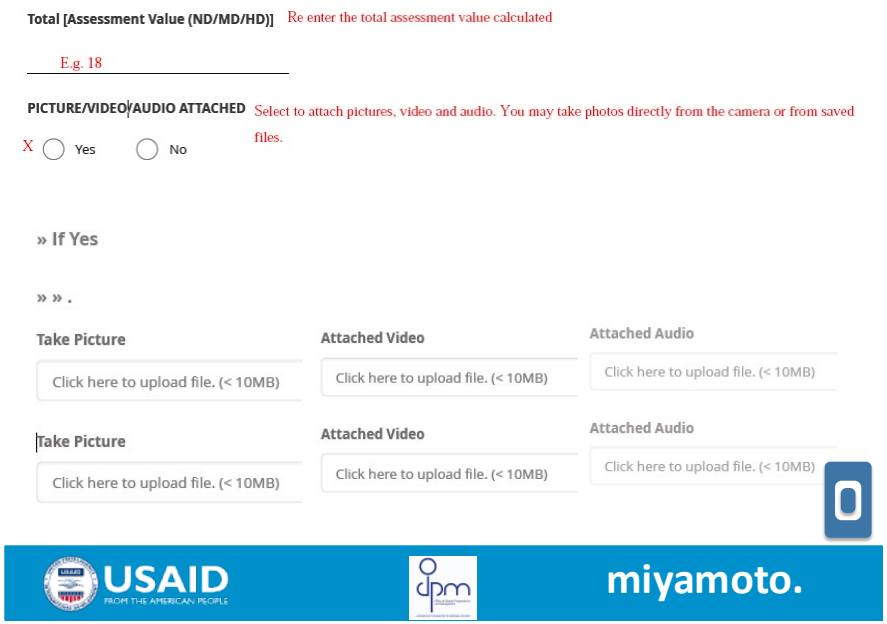
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 66	

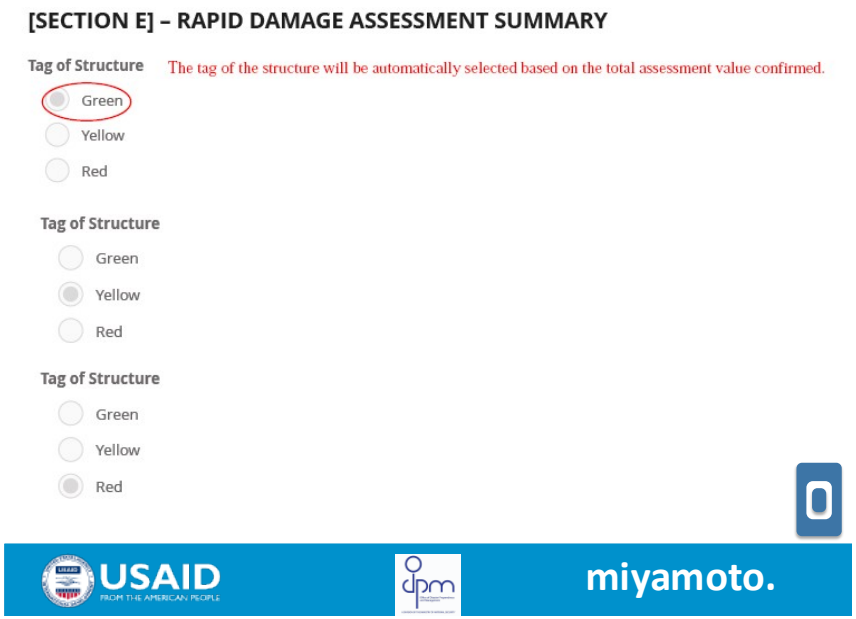
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 67	

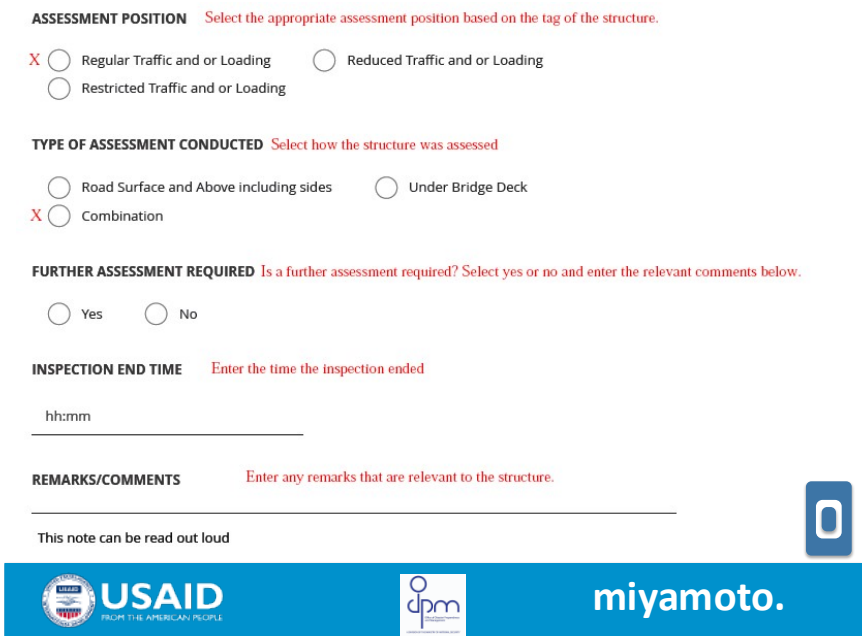
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 68	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 69	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE70	

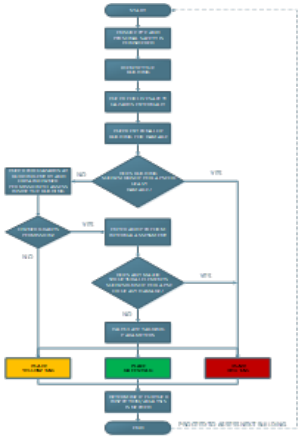
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 71	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 72	

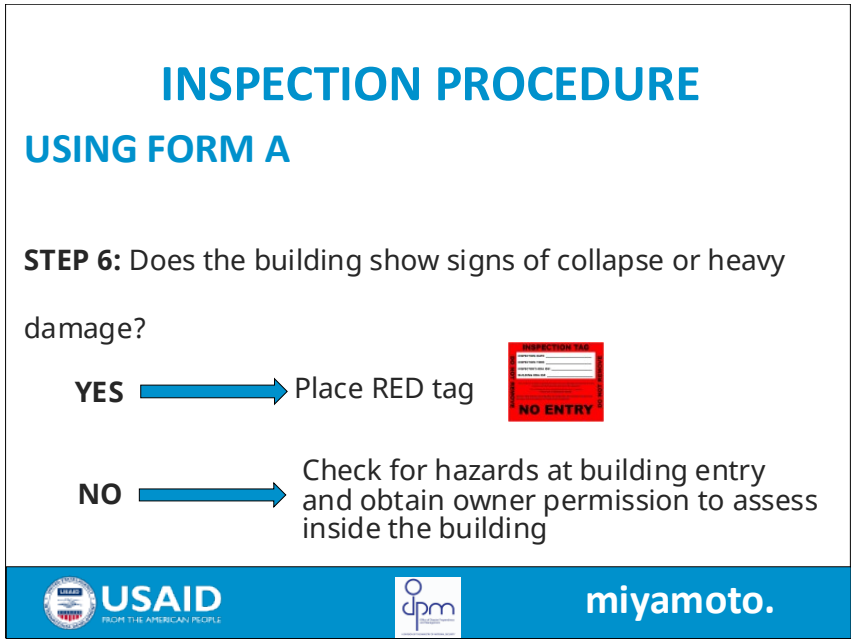
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor outlines the various sections of the slide. 2. The instructions for use are in RED. The instructor explains these instructions.
SLIDE 73	

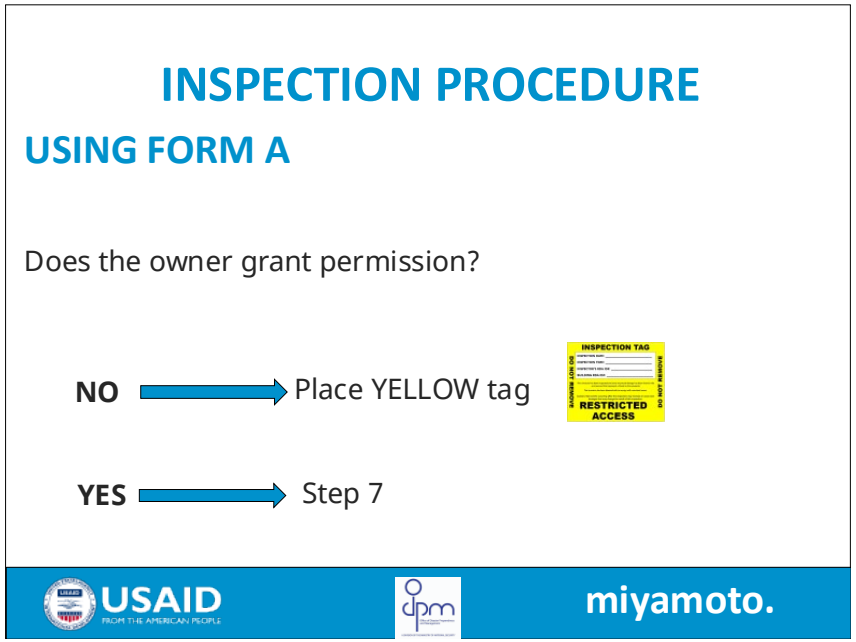
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
# WHAT YOU NEED **Safety Equipment:** i. Safety helmets (ANSI Z89.1 or similar) ii. Safety glasses (ANSI Z87/Z87+ or similar) iii. Steel-toe safety boots (ANSI Z41 or similar) iv. Protective coverall v. Dust/Gas mask (depending on the site to be visited) vi. Safety gloves (depending on the site to be visited) *Refer to page 7 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor describes the items on the list 2. The instructor asks the participants if they think that any other materials would be needed. The instructor would have to be able to assess if additional materials stated by the participants would be appropriate or can be hazardous.
SLIDE 74	

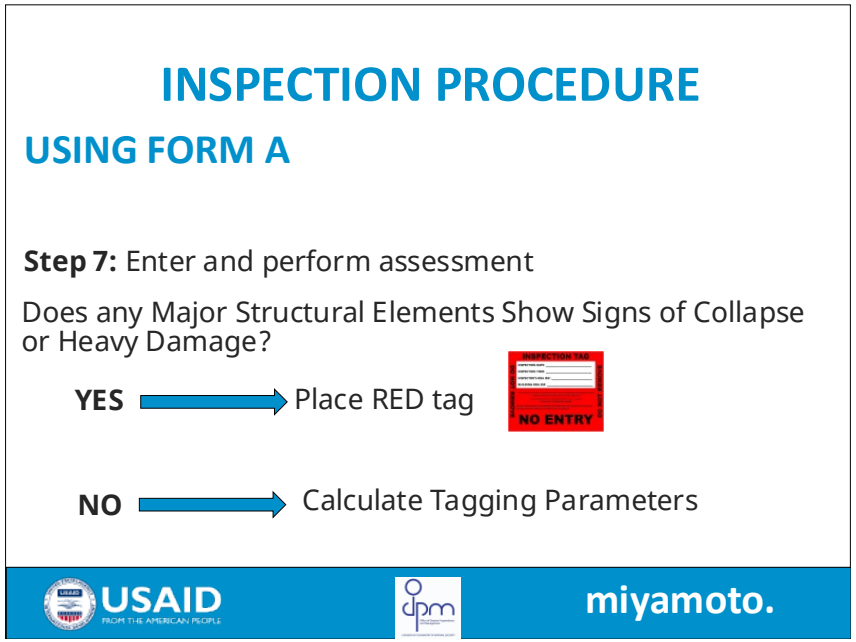
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
WHAT YOU NEED **Some additional items that might be of interest to the inspector to have for a day of inspections are:** i. Clipboard for RDA forms ii. Extra pens iii. Torchlight iv. 100 ft. measuring tape v. 30 ft. measuring tape vi. Laser pointer vii. Camera viii. GPS device/ mobile phone ix. Bottle water (for drinking) x. Hand sanitizer xi. Lunch/snacks xii. Backpack to carry items. *Refer to page 7 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor describes the items on the list 2. The instructor asks the participants if they think that any other materials would be needed. The instructor would have to be able to assess if additional materials stated by the participants would be appropriate or can be hazardous.
SLIDE 75	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
INSPECTION PROCEDURE FOR BUILDINGS  *Refer to page 9 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. Instructor to outline and briefly explain each step giving scenarios where applicable.
SLIDE 76	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
INSPECTION PROCEDURE FOR BUILDINGS **10 Step Procedure for RDA Inspections** **STEP 1:** Ensure PPE and personal safety is considered **STEP 2:** Identify the Building **STEP 3:** Check for live safety hazards externally **STEP 4:** Check external for Building Damage *Refer to page 9 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE · dpm · miyamoto.	1. Instructor to outline and briefly explain each step giving scenarios where applicable.
SLIDE 77	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor briefly explains the process of selecting YES or NO
SLIDE 78	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	The instructor briefly explains the process of selecting YES or NO
SLIDE 79	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor briefly explains the process of selecting YES or NO
SLIDE 80	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
INSPECTION PROCEDURE **USING FORM A** **Step 8:** Place appropriate Tag in a safe visible location **Step 9:** Determine if further inspection is needed **Step 10:** Exit site and move to next inspection. USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	Instructor to outline and briefly explain each step.
SLIDE 81	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
INSPECTION PROCEDURE FOR BRIDGES  *Refer to page 11 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE · miyamoto.	1. The instructor briefly explains either: a. Each item individually OR b. All items collectively
SLIDE 82	

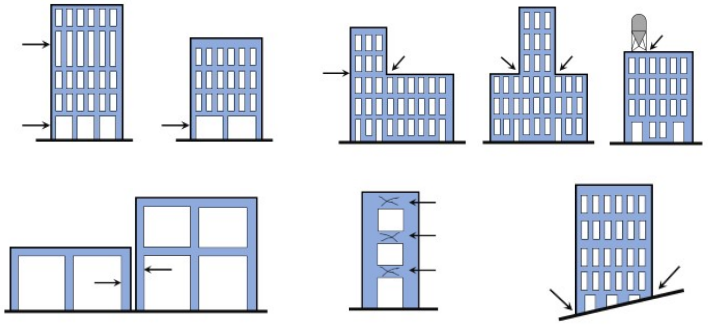
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
INSPECTION PROCEDURE FOR BRIDGES **9 Step Procedure for RDA Inspections** **STEP 1:** Ensure PPE and personal safety is considered **STEP 2:** Identify the Bridge **STEP 3:** Check for live safety hazards externally *Refer to page 11 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. Instructor to outline and briefly explain each step.
SLIDE 83	

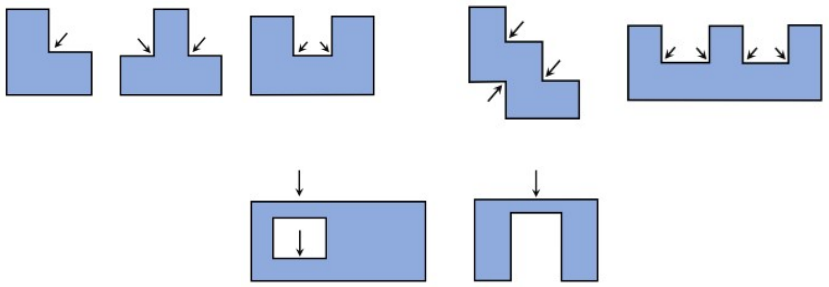
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
# INSPECTION PROCEDURE ## USING FORM B **STEP 4 :** Does the bridge show signs of collapse or heavy damage? **YES** → Place RED tag  **NO** → Check for hazards at bridge entry USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor briefly explains the process of selecting YES or NO
SLIDE 84	

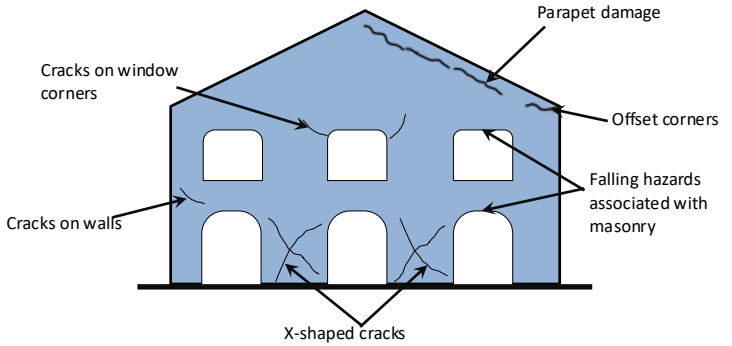
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
INSPECTION PROCEDURE **USING FORM B** **STEP 5** Is it safe to enter? **NO** → Place YELLOW tag  **YES** → Step 6 USAID FROM THE AMERICAN PEOPLE · dpm · miyamoto.	1. The instructor briefly explains the process of selecting YES or NO
SLIDE 85	

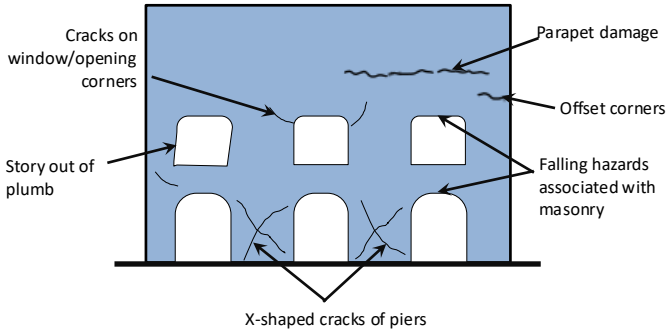
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
INSPECTION PROCEDURE **USING FORM B** **Step 6:** Enter and perform assessment Does any Major Structural Elements Show Signs of Collapse or Heavy Damage? **YES** → Place RED tag  **NO** → Calculate Tagging Parameters USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor briefly explains the process of selecting YES or NO
SLIDE 86	

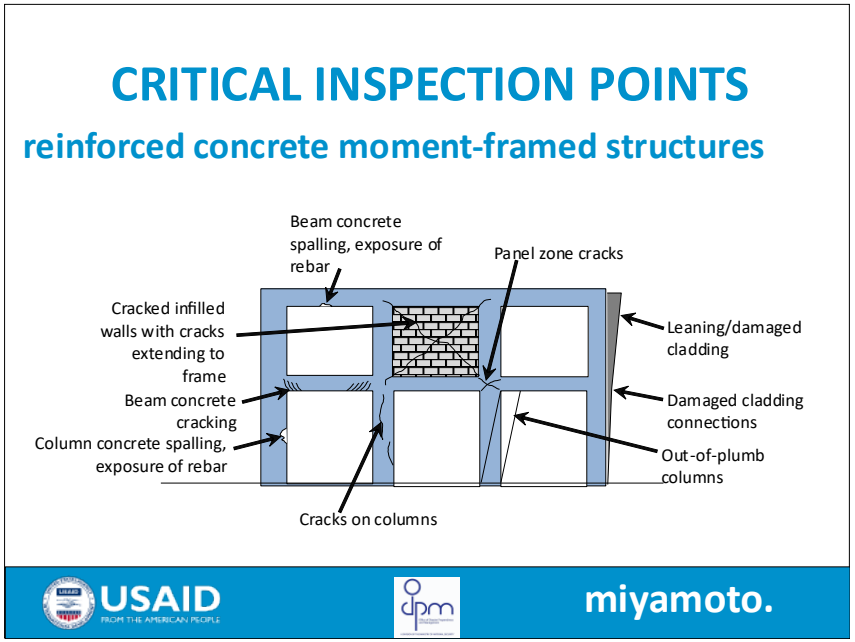
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
INSPECTION PROCEDURE **USING FORM B** **Step 7:** Place appropriate Tag in a safe visible location **Step 8:** Determine if further inspection is needed **Step 9:** Exit site and move to next inspection. 	2. The instructor briefly explains either: c. Each item individually OR d. All items collectively
SLIDE 87	

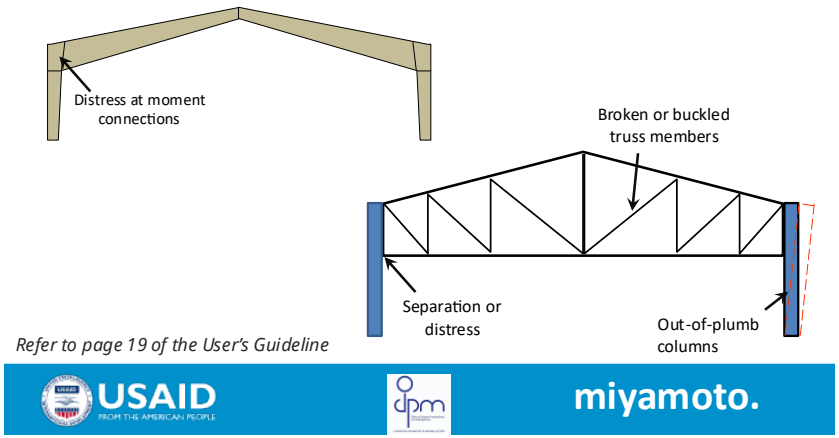
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
CRITICAL INSPECTION POINTS **VERTICAL SECTIONS**  *Refer to page 17 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor briefly explains the critical location for inspecting on each diagram.
SLIDE 88	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
CRITICAL INSPECTION POINTS **HORIZONTAL SECTIONS**  *Refer to page 17 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor briefly explains the critical location for inspecting on each diagram.
SLIDE 89	

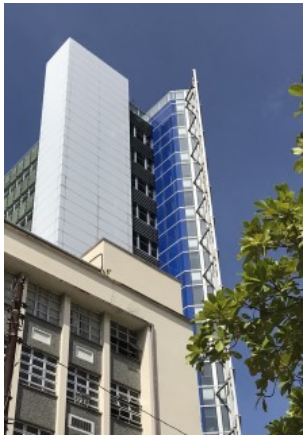
POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
CRITICAL INSPECTION POINTS **unreinforced masonry bearing-wall structures**  *Refer to page 18 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor briefly explains the critical points for inspection
SLIDE 90	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
CRITICAL INSPECTION POINTS **reinforced concrete shear wall structures**  *Refer to page 18 of the User's Guideline* USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor briefly explains the critical points for inspection
SLIDE 91	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor briefly explains the critical points for inspection
SLIDE 92	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	1. The instructor briefly explains the critical points for inspection
SLIDE 93	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
INSPECTION SAFETY  1. NEVER put yourself at risk 2. ALWAYS be aware of your surroundings 3. Vet all external damages before entering a structure 4. Investigate general safety 5. NEVER climb any part of the structure to inspect. Bridge in Tunapuna, Trinidad (Photograph Credit Dr N. Ramroop) USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	1. The instructor impresses the importance of SAFETY when conducting inspections. 2. A building should not be inspected if the inspector feels unsafe due to: a. Severe damage b. Hostile occupants c. Infestation of insects and/or vermin d. The smell of gas (this should be reported immediately to the fire service). e. If the inspector feels unwell.
SLIDE 94	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
Recognition & Credits 1. ODPM 2. USAID 3. MIYAMOTO INTERNATIONAL 4. MOWT 5. APETT 6. BOETT 7. TTBS 8. MRDLG  USAID FROM THE AMERICAN PEOPLE dpm miyamoto.	The instructor closes the session and recognises the following entities. The entire name for each stakeholder should be spoken. 1. ODPM - Office of Disaster Preparedness and Management 2. USAID BHA - United States Agency for International Development Bureau for Humanitarian Assistance 3. Miyamoto International In PREPARE TT implementing agency 4. MOWT – Ministry of Works and Transport 5. APETT – Association of Professional Engineers of Trinidad and Tobago 6. BOETT – Board Of Engineering of Trinidad and Tobago 7. TTBS – Trinidad and Tobago Bureau of Standards 8. MRDLG – Ministry of Rural Development and Local Government
SLIDE 95	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	The instructor specially thanks USAID BHA for their funding as well as the ODPM and Miyamoto International for their work in developing the RDA.
SLIDE 96	

POWERPOINT SLIDE	INSTRUCTOR'S GUIDANCE NOTES
	The instructor now proceeds to administer the assessment
SLIDE 97	

RDA ASSESSMENT

The assessment component is given to allow participants to gage whether or not they have understood the material.

1. It is administered with a time limit of 15 minutes.
2. They are allowed to use the course notes.
3. Upon completion, it is important to go through the answers with them.

This assessment is to ensure that you have understood the material presented.

Instructions:
Circle the letter of your answer from the choices given.

Time: 15 mins

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1. Which of the following best aligns with the purpose of the RDA assessment?
    a. To assess any structure in record time.
    b. To compile a detailed assessment of all structure damages after a natural disaster.
    c. To minimize misunderstandings of varied assessments after a natural disaster
    d. None of the above.

2. In section C of form A, how is the Typology assessed?
    a. Review the structure and tick the appropriate box and estimate the associated percentage.
    b. Review the structure and tick the only dominant typology throughout the structure.
    c. Review the structure and record at least two typologies.
    d. None of the above.

3. In section D of form A, what is the formula for calculating the sum?
    a. Rating + IR = Sum
    b. Rating x IR = Sum
    c. Rating x 3(IR) = Sum
    d. Rating x 2(IR) = Sum

4. In section E of form A, what would Moderate Damage mean for the structure's occupancy?
    a. Can be occupied.
    b. Can be occupied without restrictions.
    c. Can be occupied with restrictions.
    d. Cannot be occupied, and entry is prohibited.

5. In section D of form B, if a utility pole falls and damages the bridge's abutment, what would the sum be?
    a. 0
    b. 1
    c. 2
    d. 3

6. If the owner of a structure does not grant permission to enter, what do you do?
    a. Call and report to your superior.

b. Move to the next structure.
c. Record denied entry and place a yellow tag.
d. All of the above.

7. If a structure shows that their major structural elements have collapsed, what should be done?
    a. Place a red tag and move on to the next structure.
    b. Inspect the adjacent structures to ensure the building is safe to enter.
    c. Place a yellow tag and recommend further assessment
    d. None of the above.

8. When assessing the severity of cracks, one should;
    a. Examine the length and depth.
    b. Examine the damages nearest to the crack.
    c. Examine the location of the crack.
    d. All of the above.

9. Which of the following should not use on RDA inspections?
    a. Safety harness
    b. Safety glasses (ANSI Z87/Z87+ or similar)
    c. Protective coverall
    d. Dust/Gas mask

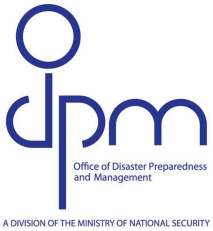
10. Safety is your number one Priority. You should:
    a. Vet all damages before entering a structure
    b. Only climb on items that appear to be study
    c. Investigate damages of adjacent structures before entering
    d. All of the above.

END OF ASSESSMENT

Answers:

1. c
2. b
3. b
4. c
5. d
6. c
7. a
8. d
9. a
10. a

For further information please contact:



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TRINIDAD AND TOBAGO RAPID DAMAGE ASSESSMENT TRAINERS' MANUAL 2022