

Developing Guidelines on School Safety and Resilient School Building Codes

INCEPTION REPORT



CONTENTS

List of Acronyms

Scope of the Inception Report

Note on progress and initial findings

Relevance of the Technical Approach

Approach (Ref. PART4- Description of Approach, Methodology, and Workplan for Assignment)

Methodology (Ref. PART4- Description of Approach, Methodology, and Workplan for Assignment)

Workplan (Ref. PART4- Description of Approach, Methodology, and Workplan for Assignment)

Summary of Strengths, Challenges and Areas of Improvement in the approach, methodology and workplan

Rapid Review of the Process

Provisional conclusions

Annexes

LIST OF ACRONYMS

CCGC – Coordination Council for Disaster Management
CEDH – Centre for Development Studies and Habitat
CPGU – Cellule de Prevention et Gestion des Urgences (Madagascar)
CTGC – Technical Council for Disaster Management
DaO – Delivering as One (United Nations project to gather all Agencies to act in a coordinated manner)
DIPLAC - Direcção De Planificação e Cooperação [MINED]
DPECS - Direcções Provinciais de Educação e Cultura [MINED]
HFA – Hyogo Framework for Action 2015
DPOPH - Province Direction for Public Infrastructure and Housing of the MOPH
INAM – National Institute of Meteorology
INGC - National Institute for Disaster Management
MICOA – Ministry of Coordination of Environmental Affairs
MINED – Ministry of Education
MOPH – Ministry of Public Works and Housing
One-UN – United Nations Delivering as One project
UEM/FAPF – University E. Mondlane, Faculty of Architecture and Physical Planning
UNDAF – United Nations Development Action Framework
UNDP – United Nations Development Programme
UNICEF – United Nations Children Fund
UN-ISDR – United Nations International Strategy for Disaster Reduction
UN-Habitat – United Nations Human Settlements Programme
UPCE - Unidades Provinciais de Construções Escolares [MINED]
SDPI - District Planning and Infrastructure Direction of the MOPH

MOST USED ABBREVIATIONS

TCG – Technical Consultative Group
WP – Working Packages (WP1, WP2...)
WS – Workshops (WS1, WS2...)

SCOPE OF THE INCEPTION REPORT

1. In compliance with the requested deliverables in the Technical Proposal signed with the World Bank (WB), UN-Habitat and UEM-FAPF hereby submit an inception report to the project *Developing Guidelines on School Safety and Resilient School Building Codes*.
2. The report provides a summary of key findings, to be further explored throughout the process. Its overall purpose is to compare the methodological approach proposed in the *Technical Project Proposal* with the experience of the early stages of implementation (WP1 and initial WP2), thus to confirm the overall approach, present the limitations and challenges and highlight a number of specific areas to be fine-tuned for discussion with the WB. Finally suggestions for the modification of the timeline are submitted.
3. The specific objective of this report is to determine an updated focus of the project and its overall scope, including the sampling strategy, the data collection instruments, the technical resources and expertise updated, the resources cost-shared and needed, and the timeline.
4. The report follows the structure of the Technical Proposal as concerns the *Approach, Methodology and Workplan* (Part 4) to provide a clear list of 1) Strengths to be recognized and further reinforced, 2) Areas to be improved; 3) Challenges to be met as highlighted during the actual implementation.
5. It also provides a rapid review of the process, which is believed to highlight through narrative reporting the underlying conditions of the current success of the project, but also the limitations as concerns the timeline.
6. The report does not provide detailed progress information on the implementation of the Project, which is due in the Interim Report. However, although slightly delayed from the original schedule, all deliverables are being duly produced. WP1 has been achieved, WP2 activities 1 and 2 completed, and 3 on-going and some activities of WP3 initiated. Also, the Technical Team has increased the number of consultations initially planned to reflect a need from Institutions to be consulted repeatedly and kept informed.
7. Finally, UN-Habitat has successfully implemented a cost-sharing strategy to respond to the limited resourced of the project, including the resources put upfront for the preparatory phase to the Project i.e. risk assessments, assessment missions, reconstruction programming.

NOTE ON PROGRESS AND INITIAL FINDINGS

8. The activities undertaken under WP1 and WP2 largely confirmed the scope of the project, and consensus has been built among partners on the need for such project, implemented in 4 consecutive phases, through an initial consensus-building phase, the diagnostic and recommendations, the design and validation of norms and guidelines.
9. Despite the delay, mostly due to a conflicting overall National Agenda, Working Package 1 (WP1...) was successfully completed. In effect, as a result of a large number of bilateral or collective consultations and the deployment of expertise on Architecture, Engineering, Governance, Law, Geo-matic, the main objectives of WP1 [i.e. to create consensus through consultations, validating the project through a launching workshop and ToRs for expected products] were achieved. The WS1 was a major milestone to ensure institutional ownership and leadership of the MINED. It successfully launched the process with the committed participation of the Vice-Minister of Education and the chairmanship of the Permanent Secretary of MINED, the participation of focal points from the Institutions, Cooperation, NGOs and Private Sector. WP2 activities 2.1 and 2.2 are also completed (as this Inception Report is submitted with delay) on a participatory manner, and WP2.3 (*Drafting of the Diagnostic, i.e. recommendations*) on-going. Some of the activities of WP3 have also been initiated, i.e. the zoning of the country against its risk profile.
10. It should be noted that, although the present Inception Report is submitted with delay, the implementation of the project has continued effectively and strategies have been put in place to cope to the extent of possible with the reduced timeline (Ref. *Relevance of the Approach: Workplan, and Rapid Review of the Process*) and resources provided. In fact, throughout implementation the project has been commended by the MINED, MOPH and INGC/MAE as a serious and technically sound process (Ref. Progress meeting with MOPH, MINED and INGC/MAE-separately- in March 2013), which is set to deliver all expected results with a good ownership from the partners. The main strengths recognized to this project in its Phase 1 and 2 are, on the one hand, the continued participation of interested parties. Partners now share the understanding of the problem (a major limitation before WP1) and the common objective of improving on all aspects that contribute to make schools safer from natural hazards and, in general, poor construction. On the other hand, the project has digested a large amount of relevant information, through sound methodological instruments (Desk review; interviews and focal/focus groups; field assessments). The information collected is now ready for the analysis and the production of the diagnostic and its recommendations. Matrixes for the recommendations have been

prepared and agreed with partners and will now be populated with the large amount of information collected and analyzed. Finally, the Technical Team has been reinforced with additional human resources and expertise and is now ready to produce the diagnostic.

11. The WP1 has uncovered a number of key aspects, some of which not entirely consensual in the initial phase of the project, but have progressively reached a level of common understanding among partners, to be further explained in the diagnostic. Among the key-findings, the following are now fairly agreed with the partners and represent the common ground on which the diagnostic is prepared and the recommendations will be elaborated:

- **There is a large exposure** (Cfr. Working risk assessment and initial zoning) **of School Buildings in Mozambique to at four recurrent hazards in Mozambique, i.e. floods, earthquakes, cyclones and droughts.** Larger exposure is a direct consequence of the increase in number of buildings (Conventional, Community, Mixed type) since 1970. However, the steep curve of public school construction in different decades, and especially since 2005, might suggest that the acceleration in the pace of construction implied a lesser quality in construction. Larger exposure and higher vulnerability intersect here.
- In fact, **School Buildings –being those conventional, non-conventional or mixed- are proven by and large highly vulnerable to natural hazards, i.e. Cyclones and Floods,** as confirmed in all recent occurrences;
- As more and more schools are constructed, **no adequate disaster-resistant regulation in the Country has ever been introduced** to ensure critical buildings such as schools are protected vis-à-vis natural hazards. Existing regulations are outdated (Mostly colonial times regulations) and are not adequate to the local context (maps of Portugal applied);
- The **need is therefore largely shared to review existing norms, and establish an improved body of Norms and Regulations** (Building Code) for Disaster-Resistant School Buildings;
- **There is now sufficient evidence in the Country to establish a clear technical pathology, but also a number of good practices in the country.** As this inception report is written, more than 300 classrooms have been assessed in Maputo, Gaza, Sofala, Zambezia, Nampula and Tete by UN-Habitat and UEM-FAPF;

- Importantly, however, **the extent of the school buildings vulnerability assessed by UN-Habitat and UEM-FAPF throughout the country cannot be only explained with the lack of disaster-dedicated normative tools and the fragility of the normative and legal environment.**
- Rather, the impact of Cyclones and strong-winds in 2012 and floods in 2013, demonstrated that **such a great vulnerability depends on *failures of the overall construction system***, at all levels, including the institutional, normative, technical, legal and implementation levels;
- As a consequence, a **“traditional” disaster-resistant building code revision and improvement project alone could only a technical response to a larger context.** In other terms, for improved norms to be applicable, and chances of enforcement augmented, there is need in Mozambique for a comprehensive revision of the overall system and the establishment of guidelines for School Safety;
- Although this was no news for practitioners, **there is now a consensus on that the project offers a pioneering a single institutional/technical platform with the aim of establishing causes-effects tree** and will propose recommendations in each of the levels contributing to school safer construction;
- **The extent of the challenge is recognized by all partners, especially as concerns the institutional coordination and coherence;** the enforcement capacities of the improved norms to be designed; the harmonization of practices the capacity for execution of the improved school design by provincial, district and local builders;
- The main challenge for the Technical Team, the TCG and the Focal Points will be to elaborate recommendations on all following areas:
 - Institutional coordination, cooperation and harmonization
 - Adapted legal environment, regulations and norms, resistant to disasters in at least Floods and Cyclones
 - Administrative, Project and Contract Management effectiveness
 - Capacity of private sector reinforced, i.e. local builders
 - Efficient/effective technical/legal oversight and quality of materials
 - Preparedness, response and improved reconstruction protocol and measures

- Importantly, at the WS1 there was consensus in that a positive interplay in all of the above areas will contribute to safer buildings and, therefore to Child Safety in schools. Today, the Safety of the Child is somehow at the bottom of a pyramid in which shortcomings in each one of the abovementioned areas. The Guidelines and improved norms should aim above all to invert the pyramid to put Child Safety on top of a positive interplay among these areas.

12. Overall, the building environment of schools is proving a very sensitive area. For instance, the risk assessment of schools conducted by UN-Habitat prior to the Safer School project with other funds, continued with cost-sharing during WP1 and now submitted as an advanced draft, highlighted a number of sensitive areas. During the WS1, some spirited interventions singled the lack of quality on conventional buildings by the MINED. This has been a recurrent topic throughout the field assessments and consultations. However, in order to avoid all attention to be drawn on the shortcomings of conventional schools constructed through the FASE project, it was decided at WS1 not to present a formal Risk Assessment, but rather to build a common language on Exposure + Vulnerability = Risk or Impact. The equation was successfully illustrated at WS1 and created impact and consensus. The diagnosis will be rather the opportunity to illustrate the shortcomings of that specific programme among others and within the larger context of institutional, technical and capacity areas for improvement.

13. In terms of international experience, the Malagasy experience has proven very relevant. The participation in WS1 of the Malagasy expert of the *Fond d'Investissement pour le Developpement* (FID) in charge of Cyclone-Resistant norms and public-building construction was a major added-value to the process. After possible areas were identified to transform Vulnerability into Resilience in Mozambique the Malagasy expert mentioned that 100% of schools built in Madagascar with anti-cyclone norms, and properly overseen, were not affected by a Cyclone since 2011. This created a positive impact at WS1 and enthusiasm for a similar process in Mozambique.

14. Additional information on initial findings is included in the attachments.

RELEVANCE OF THE TECHNICAL APPROACH

APPROACH (REF. PART4- DESCRIPTION OF APPROACH, METHODOLOGY, AND WORKPLAN FOR ASSIGNMENT)

15. The approach approved included 3 mutually reinforcing components i.e. Participatory Consultative Process for Consensus Building; In-depth national to local diagnostic and recommendations; design of guidelines and norms.
16. From the earliest stage of implementation of the *Safer Schools Project–Developing Guidelines on School Safety and Resilient School Building Code*, **the implementing partners have been able to confirm the relevance of the undertaking for Mozambique and, in general, the approach chosen.**
17. More specifically, **the approach proved successfully in the following:**

- a. ***Acting as a platform for consensus-building for all partners*** (Institutions as well as Civil Society and Private Sector) to reflect both political and technical perspectives through a *Technical Consultative Group*, formally appointed *Focal Points*; Apart from MOPH, MINED, MAE-INGC, also INAM, INNOQ, consultants (engineers and architects), builders, NGOs and civil society associations are involved.
- b. ***Ensuring the participation in the outputs of all partners***, through Meetings of the TCG, interviews, questionnaires, technical meetings on a regular basis, exchange of documents and official Workshops;
- c. ***Building consensus on the need to insert improved technical solutions for disaster-resistance within a construction environment revised as a whole.***

18. It should be noted that this was also possible ***through the long and time-demanding preparatory work done before the start of the actual project.*** In effect, the technical proposal was elaborated in a continuum with the assistance provided to the Ministry of Education (MINED), the Ministry of Public Works (MOPH) and the National Institute for Disaster Management of the Ministry of State Administration (INGC/MAE) seeking immediate solutions for the vulnerability of schools to strong-winds and cyclones. Right after the first steps of the inception of the project started in August 2011 a series of Cyclones and tropical storms affected more than 1000 classrooms. Joint missions were undertaken to assess the situation and prepare Working School Risk Assessments, to be updated overtime with increased consensus. This led the two partnering technical partners

and the national institutions to agree on the extreme vulnerability of the conventional classrooms assessed, ***although not yet on the leading causes***. This resulted on:

- a. ***Time and resources saved for the Safer School Project and the WB, as the building of trust among partners was initiated before the actual project, and technical preparatory work is also relevant for WP1-3.*** UN-Habitat and the UEM-FAPF accompanied the 2012 (and 2013) post-disaster process to provide technical guidance with views to a possible improved reconstruction. Although reconstruction was not materialized¹, the process of assisting MINED, INGC-MAE and MOPH between Feb. and Jul. 2012 would prove of paramount importance during the actual implementation of the *Safer School project*, only started in July 2012. Technical legitimacy was recognized and mutual trust was built, saving precious time on a tight project timeline.
- b. ***Agreement of partners on that the system of construction should be reviewed as a whole and recommendations made to its improvement,*** further to introducing disaster-resistant measures. Failing this, the introduction of norms resistant to disasters could not be effective as undermined by poor execution, lack of capacity to enforce norms, and so on. This would require a mid to longer-term approach, thus confirming the need for a *Safer School project*;

19. This complexity was reflected in the approach of the Technical Proposal, which insisted on the need for consensus on every step of the process, i.e. outputs and recommendations to be based on consensual evidence raised through a participatory process and an in-depth diagnosis of the construction environment in all key areas.

20. **The approach could be improved as concerns:**

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| <ol style="list-style-type: none">a. <i>Including a component on communication from National to Local Level,</i> such as a Progress Bulletin, to inform the Council of Ministries of the Progresses being made and, at the local level, that National Institutions (i.e. MINED) are taking corrective measures; Given the timeline and resources available, the team will have to stretch and provide simple progress reports to the Institutions, for them to share accordingly.b. <i>Reinforcing the project Team.</i> The need to assess the construction system and make recommendations for its improvement as a pre-condition to make norms relevant and |
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¹ Nonetheless, in 2013 the MINED has included a budget for improved reconstruction in the National Budget, and allowed for up to 30% additional costs for improved disaster-resistant construction. This is an indicator of success of the process.

applicable, extended the scope of the project and the work implied for to the technical implementing partners. As more and more information is uncovered it appears that the original ToR as well as the Methodological approach contained in the Technical Proposal are technically sound and well reflected the reality of the country. Nonetheless, they also implied a different timeline and additional resources. The latter have been addressed through cost-sharing (up to 150,000USD by UN-Habitat) and by seeking partnerships (UNDP).

21. **The key-challenges for the continued relevance of the Approach are:**

- a. ***To ensure partners keep a clear focus on School improved construction resistant to disasters, and expectations are contained within the boundaries of this scope.***
- b. To ensure that ***the political pressure from the highest level of the Government on Institutions to minimize the impacts on schools, is met with quick-wins and more information sharing.*** The *Safer Schools Project* is currently at the centre of much attention. In the recent Floods (Gaza, Zambezia January-March 2013) a number of schools were flooded and partially destroyed or made unusable, which renewed the interest for this project.

METHODOLOGY (REF. PART4- DESCRIPTION OF APPROACH, METHODOLOGY, AND WORKPLAN FOR ASSIGNMENT)

22. The methodology was organized around 4 entangled Working Packages. As this inception report is written WP1 is completed and WP2 undergoing. The methodology has proven overall well designed and in line with international similar experience (i.e. Madagascar).

23. The implementation has proved the methodology adopted sound and no major changes are requested. **This has namely proven effective in the following:**

- a. Well designed consensus-building instruments, managed through a patient but continued process of consultation with the institutions through formal Workshops, TCG group and meetings, formally appointed focal points, formal Director meetings on a regular basis. The interplay of these instruments achieved the overall objective of WP1, which is acknowledging the problem, agreeing on the methodology proposed by the project and launching the process with a strong ownership by the MINED, MOPH and INGC

- b. A large amount of relevant information collected (over 300 classrooms assessed, 100 pages of document review and interviews, over 40 meetings held at national, provincial, district and local levels etc.).
- c. UN-Habitat has gathered additional resources from other donors, to also advance on WP3 as concerns technical design, thus to satisfy the requirement from the MINED for immediate assistance.
- d. UN-Habitat has recruited additional resources to complete the Technical Team, including GIS specialist, governance specialists, legal assistant and advisers and additional Architects.

- 24. The proposed methodology implied the deployment of expertise on Architecture, Engineering, Governance, Law, Geo-matic, with presence on the ground and pre-established legitimacy, to achieve the WP1, initiating WP2 activities (2.1 and 2.2 completed), and drafting the diagnostic and recommendations (WP2.3 on-going).
- 25. Some activities originally planned for WP3 (zoning of the country against its risk profile) have already been initiated as they were wrongly designed to follow WP2.
- 26. Also, the original ToR of the project, and the approved WP1 and WP2 foresaw a conservative number of consultations as compared to the actual needs. UN-Habitat and the UEM-FAPF doubled the number of formal, informal, institutional and technical consultations throughout WP1 and WP2, to which the already mentioned pre-Safer School project consultations should be added.
- 27. Finally, all methodological instruments developed by UN-Habitat and UEM-FAPF were validated and adopted with the Focal Points. They are proving effective to the collection of information, review of existing documentation, interviews and field assessments.
- 28. Substance-wise, a limitation is observed on what concerns local material improved Schools Construction. UN-Habitat has already designed disaster-resistant community schools, largely assessed its relevance in the field, and trained local builders to these options. Nonetheless, MINED and INGC do not yet seem convinced on the need of including support material for the Communities, as a transitional option while a more conventional schools is built. This work of advocacy continues, based on demonstration in the field with UN-Habitat co-funds, and should be eventually featured in the *Guidelines for Safer Schools*.
- 29. Also, Cyclones and Floods present the highest impact/return rate and should be therefore prioritized with the current capacities of the project. It is also true, however, that since all the work of matrixes, regulation analysis and revision will be done by the time WP3 will be

delivered, adding Norms for Earthquakes (high in impact and low in recurrence) and provisions for Droughts (low on impact on the building, but easily featured into norms) will not be a challenge, and could be an addendum.

30. **The methodology should be strengthened as follows:**

- a. Focus the deliverables on Cyclone and Flood resistant norms, as priority items for this project, based on the historic recurrences and impact
- b. Organize a 2 days Technical Workshop to ensure focus and participation of all focal points for the drafting of the recommendations, with the participation of one International Expert to provide experience from similar experiences abroad

31. **Key-challenges are:**

- a. To ensure that ***the overall scope and extent of the project is narrowed down to the essentials*** i.e. the production of disaster-resistant norms adapted to the current context, and possible improved overall framework suggested through the Diagnostic
- b. To convince partners of the need to focus on the most recurring Hazards, based on a pondered matrix of hazard return and impact, i.e. Floods and Cyclones. However INGC insisted that norms for Earthquakes are also included

32. Overall, the Methodology does not need major readjustment, but it would greatly benefit from additional resources over additional months.

Box 1. Update of the Context, (Cfr. Technical Proposal – pp. 29-37)

- Natural Hazard Profile*
- Obviously, the Natural Hazard Profile did not evolve. However, the Floods reminded to the institutions, public opinion and partners that two hazards frequently cause disasters of a major impact, i.e. Cyclones; Floods
 - This is a major fact as often the attention to a given Hazard is proved to augment only in connection with the actual events. In other terms ***flood-proof schooling proved an urgent priority in terms of norms, along with cyclones;***
- Disaster impacts & latest events*
- In January to March 2013, floods affected Gaza and Zambezia, affecting 250,000, destroying infrastructure (Roads, dykes etc.) and also making unusable a number of schools for a long period.
 - These severe events reminded the need to provide for adaptive measures in floodable areas. Elevated schools should be built to this end, and this was recognized in consultations with technicians from MINED and INGC.
 - Importantly, the elevated school of Maniquenique, Gaza, built by UN-Habitat to serve as safe-haven was used during the floods and proved effective.
- Impact on public buildings, especially schools*
- The presentation of the Malagasy expert at WS1, insisted on that 100% of schools built after 2011 with anti-cyclonic norms, were not affected by recent cyclones. This created a good impact on participants, eager to see a similar process happening in Mozambique. However, the Malagasy presentation did not highlight that all public construction of schools in Madagascar is governed by one ministerial entity,, coordinated with local authorities and the Min. of Education, which increases oversight and efficiency.
 - In fact, preliminary findings confirm that such a great vulnerability cannot exclusively depend on the lack of disaster-resistant norms. It rather largely depends on malfunctioning of the overall construction system. Findings of post-disaster assessments in Gaza, Zambezia and Maputo (over 57 schools surveyed in 2012) suggested shortcomings to be found at all levels such as not adequate regulatory framework and standards, insufficient oversight and poor capacity to enforce existing rules; inadequacy of design/conception and materials per risk area and building techniques; Diversity of actors designing and building schools (The State; NGOs; Private sector; Churches, communities etc.); construction practices etc.
 - What remains to be done (and is the essence of the current project), is to establish a pyramid of causes and effects, to propose changes in each key-area, and then develop adequate regulation in this framework. As this inception report is written, more than 300 classrooms have been assessed in Maputo, Gaza, Sofala, Zambezia, Nampula and Tete by UN-Habitat, which has now enough evidence to establish a technical pathology. The diagnostic will ensure the different causes of such pathology are identified in each level, and recommendations adopted jointly.

WORKPLAN (REF. PART4- DESCRIPTION OF APPROACH, METHODOLOGY, AND WORKPLAN FOR ASSIGNMENT)

33. Of all components of the Technical Proposal the timeline has proven the most challenging area. Although the succession of entangled WPs has proven relevant, the time allocated for their implementation is not sufficient, largely given the interplay of 5 adverse facts (Ref. Rapid Process Review):

- A conflicting important national agenda, i.e. the Congress of the ruling Party at National Level in September; the reshuffle in the Government; other Ministerial events
- The 2013 floods (end of January in the Limpopo river basin) affected some activities of the project and further slowed the process, since the country entered an emergency situation and several governmental and non-governmental organizations were involved in the response and early recovery process. UN-Habitat is the Shelter Cluster Co-Leader in the Country and was called to support the response. The MINED-DPLAC CEE, the INGC and the MOPH were among the most involved institutions in the floods response.
- The need to respect the pace of consultations and availability of the main institutional partners, that cannot be dictated by the implementing partners and could not be sufficiently provided for in the original workplan;
- The turnover in the Team as well as the limited resources provided;
- A general underestimation of the time needed to deliver all products with the limited resources provided. This was partly due to the need to respond to the request of the WB to achieve the project in 12 months, but also under the consideration that a shorter project period would have a larger impact on the context;

34. At WS1 the Technical Team guided the workshop to achieve the consensual acknowledgment of the problem, the preliminary risk analysis, and the possible strategies to achieve a safer school building environment through the project. It ensured the validation of the TCG, the ToR of the Diagnostic and the project components. Nonetheless, doubts were raised as per the feasibility of the workplan, from November to June 2013, given the large areas covered by the project.

35. **The strength of original workplan was:**

- a. A tight workplan designed to ensure impact to the benefit of national institutions called upon providing mitigation measures for school urgently, under the public opinion and high level political pressure;
- b. To ensure limited resources were optimized in a limited amount of time

36. At this stage, **corrective measures in the workplan should be:**

- a. Requesting and obtaining from the WB the extension of the timeline to reflect events occurred, until February 2014 for the final outputs;
- b. Repositioning milestones through the workplan as suggested in the attached revised workplan;
- c. Refocusing deliverables around priority areas, thus to reduce the extent of materials to be produced and delivered;
- d. Further reinforcing the human resources for this project, thus to improve speed of the delivery
- e. Ensuring tighter participation and availability of the UEM-FAPF in the key areas of analysis
- f. Providing intermediate quick-wins products to support the MINED, and for the INGC to communicate on progresses (i.e. Technical Designs; Bulletins of Information

37. **The main challenges in this strategy of readjustments are:**

- a. Satisfying the need of Institutions vis-à-vis increasing political and public opinion pressure for visible results, before the next rainy season, therefore by November 2013;
- b. Avoiding intermediate products divert attention and resources from the main deliverables
- c. Readjusting the timeline to the 2013 agenda of institutions

SUMMARY OF STRENGTHS, CHALLENGES AND AREAS OF IMPROVEMENT IN THE APPROACH, METHODOLOGY AND WORKPLAN

	Strengths	Areas for improvement	Challenges
<i>Overall assignment</i>	<p>a. Long and time-demanding preparatory work <u>before</u> the start of the actual project benefited greatly WP1 and WP2</p> <p>b. consensus on the need to base disaster-resistant normalization on the revision of the whole fragile construction system</p> <p>c. UN-Habitat has successfully cost-shared much of the work until now</p> <p>d. UN-Habitat and the UEM-FAPF have successfully mobilized consensus</p>	<p>a. Provide more resources for the process</p>	<p>a. Resources put upfront by UN-Habitat</p> <p>b. Limited resources and time vis-à-vis a highly political and vast area of analysis and recommendations</p> <p>c. System of payment by the WB greatly challenges the delivery of the work, on the shoulders of the organization</p>
<i>Approach</i>	<p>a. Acting as a platform for consensus-building for all partners</p> <p>b. Ensuring the participation in the</p>	<p>a. Including a component on communication.</p> <p>b. Reinforcing the project Team.</p>	<p>a. Ensure partners keep a clear focus on School improved construction resistant to disasters, and expectations are contained within the</p>

	<p>outputs of all partners</p> <p>c. Building consensus on improved technical solutions within a revised construction environment revised</p>		<p>boundaries of this scope.</p> <p>b. To ensure that the political pressure from the highest level of the Government on Institutions to minimize the impacts on schools, is met with quick-wins and more information sharing.</p>
<i>Methodology</i>	<p>a. Well designed consensus-building instruments</p> <p>b. A large amount of relevant information collected</p> <p>c. Additional resources gathered by UN-Habitat from other donors.</p> <p>d. Additional expertise recruited by UN-Habitat to complete the Technical Team</p>	<p>a. Focus the deliverables on Cyclone and Flood resistant norms</p> <p>b. Organize a 2 days Technical Workshop to ensure focus and participation of all focal points with the participation of one International Expert</p>	<p>a. Ensure the overall scope and extent of the project is narrowed down to the essential</p> <p>b. Convince partners of the need to focus on the most recurring Hazards, i.e. Floods and Cyclones.</p>
<i>Workplan</i>	<p>a. A tight workplan designed to ensure rapid impact and ease public opinion and political pressure;</p> <p>b. To ensure limited resources are optimized in a limited amount of time</p>	<p>a. Obtaining the extension of the timeline until February 2014</p> <p>b. Refocusing deliverables around priority areas</p> <p>c. Further reinforcing the human resources</p> <p>d. Ensuring more present</p>	<p>a. Satisfying the need of urgent results vis-à-vis increasing political and public opinion pressure</p> <p>b. Avoiding intermediate products to divert attention and resources from the main deliverable</p> <p>c. Readjusting the</p>

		participation of the UEM-FAPF e. Providing intermediate quick-wins, i.e. communication tools	timeline to the 2013 agenda of institutions
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RAPID REVIEW OF THE PROCESS

38. A rapid narrative of the process will help the donor understanding the rationale behind the adjustment requested, as well as appreciating the successful implementation to date, supported by the annexed material.

39. The work implemented until now benefited from the existing level of legitimacy of UN-Habitat and UEM-FAPF, the proactive support of WB in Mozambique and, above all, the progressive commitment of the Clients. Also, importantly, the preparatory work before the actual project started was key to the present level of legitimacy and trust among the partners. This is described below, which also highlights major causes of delay.

- i. The Safer School's Project originated in Aug. 2011 when the WB approached UN-Habitat to prospect the interest and capacity of the organization to work in a project linked to the review and reformulation of the building process of school infrastructures in Mozambique, at the request of the INGC. Two initial meetings were organized between the World Bank and UN-Habitat to discuss the general scope of the project and to define the involvement of the UEM-FAPF, as project coordinator together with UN-Habitat.
- ii. In September 2011, UN-Habitat and the UEM-FAPF started working closely together to produce conceptual notes and establish the main guidelines and goals of the project. By December 2011, a clear view of the project had been established jointly by the two organizations: a comprehensive review of the technical and practical norms of the school building process in Mozambique, followed by an implementation of the reviewed norms, which included capacity building through training of technicians, capitalization and documentation and the establishment of a platform of collaboration with the private sector. Yet, the adjustment of the project funding resulted in a second elaboration of the Safer School's project pre-proposal before the end of 2011, this time without the implementation and capacity building process - i.e. focusing on the analysis and review of the construction procedures and norms.
- iii. With the actual ToR, received on Feb. 20th, UN-Habitat started preparing a technical proposal and organized a series of meetings to present and

involve important partners such as UNICEF, UNDP and relevant NGOs. Parallel to this process, the World Bank proposed to UN-Habitat to also accompany support a damage assessment of schools, possibly leading to reconstruction with improved standards. From March 2012, UN-Habitat and the UEM-FAPF, accompanied the institutions in damage assessment and programme design, with its own resources through a large cost-sharing from other projects.

- iv. This work, however, was an opportunity for UN-Habitat to reinforce its links with important governmental actors involved in the school building process. This work is an essential piece of preparation of the actual *Safer School project* as it allowed for building mutual trust and to refine the methodological approach. This progressively evolved to include legal, institutional and technical aspects of the school's infrastructure building process. Also, important technical material, blueprints and technical drawings were produced, which will be useful in a later stage.
- v. The presentation of the first results of the joint assessment mission, in March 16th and a long series of meetings afterwards did not materialize in improved reconstruction, but allowed to reinforce this relation and fine-tuned the approach. The process of mobilization of key partners

continued through the organization of weekly technical meetings from February to May 2012. These took place on Thursdays and involved the crucial governmental actors with a stake (i.e., MAE/INGC, MOPG and MINED), as well as the World Bank. The weekly meetings were an essential step to involve relevant actors in the project and to consolidate consensus among them. Furthermore, the exchange of information was important to consolidate the project's technical proposal, which was submitted May 15th and presented to the World Bank two days later. The proposal and contract was approved by June 21st, and the first - and only to date - payment, which has been sustaining the development of the project until its current phase, was made in July 17th (€15,000).

- vi. Following the project's official approval, additional meetings were organized to present the final technical proposal to the MAE/INGC and a letter was to be sent by the Minister of MAE to MINED and MOPH. The letter (to the knowledge of the Technical Partners) was eventually not sent by MAE. Happily, and after the major Congress of the Frelimo Party in September 2012, the participation of the newly appointed Minister of Education to a simulation in Sofala, and the visit of the Executive Director of UN-Habitat in October

2012, ensured the buy-in of these Ministries in the process.

- vii. Throughout Aug and Sept 2012, the focus shifted to the preparation of the 1st Technical Meeting, the next step of mobilization and consolidation of the group of partners involved in the Safer School's. The preparation for the Technical Meeting involved a series of bilateral consultations and the development of the ToR for the Technical Consultative Group (TCG, former TRG) and for the Diagnostic phase of the project. The First Technical Meeting was held in September 20th at the UEM-FAPF and fourteen partner organizations attended the event. The first formal consultation of all partners provided the ground for organizing the 1st Workshop (WS1) to launch the project.
- viii. Three major factors had to be factored in the organization of the WS1: 1) the celebration of the 10th Frelimo Party Congress, which dates were confirmed in Sept. and eventually held end of Sept. This left vacuum before the event as many interlocutors were involved in the preparation of such event, to one or another extent, and right after. 2) The Minister of Education changed in Oct. 2012, rescinding some of the awareness work done by Directors. Happily, the new Minister participated in the INGC simulation and got immediate awareness of the need for this project. 3) Conflicting agendas in October of the INGC (simulation, happily turned in one more consensus activity), MINED (national meeting) and MOPH.
- ix. Having agreed on Nov. 14 the WS1 date, the preparation implied meetings with MAE/INGC, MINED and MOPH: one in Sept 23rd and the other in Oct 25th. UN-Habitat also organized a series of key technical bilateral meetings between October 11th and 30th with many of the relevant partners: the Directorate of Buildings of the MOPH, the INAM, the INGC, INNOQ, the UEM's School of Engineering and the Mozambican Builder's Association. The WB was also closely involved through preparatory meetings. These platforms validated the ToR of the TCG (Attached) and the final workshop agenda with the partners. Finally, official presentations of the project were made for the directors of the MOPH in Oct. 11th and, a key piece of the work, to the Permanent Secretary of Education on Nov. 12th.
- x. The WS1 was successfully held on Nov. 14th and gathered 78 representatives of 30 partner organizations, including seven ministries, four national technical institutes, five associations and several international organizations and NGOs, representative from Madagascar. WS1 launched the project and, with the validation of the ToR of both the TRG and the Diagnostic, UN-Habitat started the process of formalization of the partner's TRG focal

points and the consolidation of the diagnostic's methodology.

- xi. The data-gathering for the diagnostic at the field level through institutional consultations started in 2013. The first series of interviews were held from January 21st to February 20th 2013, with the goal of better grasping the ways in which the main stakeholders intervene in the school construction process in Mozambique. The partners consulted during this period were the MINED, the MOPH, the Mozambican Association of Consulting Companies, the INNOQ, the INAM, the Mozambican Builder's Association and the National Directorate of Geology. Parallel to this, a comprehensive desk review of normative documents linked to the construction sector was initiated. Nevertheless, UN-Habitat was not yet able to interview one the most relevant partner of the project, the INGC, due to the emergency situation faced by the country since the beginning of 2013 caused by the raining season and the floods. The flood's emergency situation has also prevented UN-Habitat of successfully consulting other Governmental Institutions and NGOs involved in the process.

- xii. The information collected through the above described activities are currently being organized and analyzed for the diagnostic, in which the main obstacle and potentials of the school construction process in Mozambique will be presented, together with technical and global recommendation of how to improve the process. A review was presented to partners during the 2nd Technical Meeting of the TCG held on February 21st in the UN-Habitat office. Attended by all but the INGC and the MINED, engaged in flood response. The progress was later presented (March) to Directors of MOPH, MINED and INGC, which all commended the work, but requested a bulletin is prepared to inform the Council of Ministers and the local level
- xiii. Finally, it is important to mention that UN-Habitat has undergone from Sept. 2012 to Dec. 2012 a major turnover in Staff, both substantive and administrative. This has eventually led to the establishment of a more coherent, committed and larger Team, with additional capacities such as GIS specialist, governance specialists and 4 additional Architects. Nonetheless, the turnover has affected the speed of deliver.

PROVISIONAL CONCLUSIONS

40. Taking into account the complexity of the school construction sector and the several stakeholders involved in the process, **mobilizing and creating consensus among partners has been an important achievement.** Of course, the publication of the result of the diagnostic and its recommendations will require additional consensus-building, and at times are likely to be challenging. But the successful implementation of WP1 is presently held on high consideration from institutions, and should be a fertile ground for WP3 and WP4.
41. Nonetheless, **the different constraints thoroughly described above have definitely impacted on the original workplan.** This should be ideally revised, and Institutions provided with sufficient information and communication tools to communicate on progresses and initiate corrective construction measures.
42. Content-wise, although the 2013 floods were among the causes of delay, they also provided the opportunity of thoroughly assessing recently damaged school's infrastructures in the Limpopo river basin, and reviving the attention to this major hazard and its adaptive measures. **Two major hazards should be prioritized within the scope and capacity of this project, i.e. Floods and Cyclones**
43. All of the project's implementation until the present phase has been delivered through only one payment by the WB (€15,000). In addition, UN-Habitat has also resorted to cost-sharing with other projects, such as the DIPECHO III, Spain, One-UN fund, and others to the amount of approximately additional 150,000US\$ both in staff and operations. **Overall, the resources provided for the overall project are limited compared to the extent of the work to be done in Mozambique for the norms to be applicable in the context of a fragile construction system.**
44. The WP2 and part of WP3 are currently being delivered and a large amount of relevant primary and secondary source' information analyzed. **Apart from a slight delay in the original workplan, to be reflected on a more realistic timeline and an extension of the project, the project is well on-going and partners committed.**

ANNEXES

ANNEX A. Matrix of Additional Modifications Suggested

ANNEX B. Proposed revised Work Schedule

ANNEX C. Time-lined Summary of Activities

ANNEX D. List of Attachments

ANNEX E. Risk Assessment

ANNEX A. Matrix of Additional Modifications Suggested

1 Scope of Work Original TOR	2 Approved Methodology (Technical Proposal Approved)	Expected Deliverables	Additional Suggested Modifications at the Inception Report Stage
<p>1. Launch the Project through a national workshop with the goal of sensitizing stakeholders and identifying priority areas of intervention.</p>	<p>No changes</p>	<p>Report of the 1st Workshop: the national workshop will require the consensus of the involved stakeholders on the existence of the problem and the need to begin the review process; it has to include recommendation for the ToR of the Diagnostic Study and the Technical Reference Group, as well as the identification of similar international experiences.</p>	<p>No modification suggested on the content. WS1 implemented and report available</p> <p>Main issues delayed the implementation of Workshop 1, as follows:</p> <ul style="list-style-type: none"> - A conflicting important national agenda, i.e. the Congress of the ruling Party at National Level; - Superposition of important Agendas of INGC/MAE (Simulation of Disasters SIMEX) and MINED (National Meeting of Provincial Education Directors) - The need to respect the pace of consultations and availability of the main institutional partners, that cannot be dictated by the implementing partners and could not be sufficiently provided for in the original workplan; - The turnover in the Team as well as the limited resources provided; <p>Implemented mitigation measures:</p> <p>It was decided to organize the workshop in a more suitable period (November), thus to allow complete attention from all stakeholders and reasonable amount of time for consultations</p>

			<p>(September/October)</p> <p>The workshop was successfully conducted, with the participation of all stakeholders. Consultations proved effective.</p>
<p>2. Develop and update school risk assessment aiming at identifying representative regions where prospective new and existing schools will require hazard-resilient features.</p>	<p>In the technical proposal the schools risk assessment must be prepared to be presented and discussed at the 1st Workshop. It will base on recent post-disaster damage assessment findings and this will present the preliminary evidence from the ground and from desk reviews and show the structural weakness of the construction process.</p>	<p>1. Inception Report: it will include main initial findings and propose any review to technical approach and time schedule.</p>	<p>It was suggested and agreed with the DRM/WB focal point, to slightly reorient the content of the Risk Assessment prior to the National Workshop in order to avoid a polarization of the actors before consensus was created;</p> <p>The draft of risk assessment was finalized afterwards, when the main issues were agreed with the stakeholders.</p> <p>Nonetheless this activity was largely financed by UN-Habitat through cost-sharing and the document should be still completed with the assessment of additional schools (to be completed by 8 April). It is therefore requested to leave this document as an open working document, to be completed with realtime flood assessment considerations.</p> <p>Inception report presently submitted, with delays as explained in the report. i.e. 2013 floods (end of January in the Limpopo river basin) affected some activities of the project and further slowed the process. UN-Habitat is the Shelter Cluster Co-Leader in the Country and was called to support the response.</p>
<p>3. Review of the existing norms in order to assess the status of the current building codes as they apply</p>	<p>As agreed in the technical Proposal all these areas are gathered in one Diagnostic,</p>	<p>Diagnostic Study Report with will include preliminary recommendations in all areas</p>	<p>No modification is suggested in terms of contents</p> <p>All norms, for all hazards are being evaluated and gaps analyzed.</p> <p>However given the 1) Recurrence Period and 2) Impact 3) Exposure, it is suggested to largely focus on Cyclone and Flood</p>

to school buildings and identify needs, gaps, and bring recommendations for improvements.

4. Review of existing community school building practices with the goal of identifying needs, gaps and recommendations for improvements

5. Assess the regulatory and institutional arrangements pertaining to school building planning and implementation and to school safety in general, taking into account most common hazards; assess main related processes (budgeting, design, construction, maintenance) and identify needs, gaps

currently being drafted:

1. Institutional settings and governance
2. Legal and Normative Environment
3. Current Technical Features
4. Implementing practices
5. Disaster Risk Reduction and Early Reconstruction

relevant norms and practices when it comes to design of norms

Matrixes are being filled with relevant analyzed information in WP2, and the diagnostic is being prepared.

It is suggested to include this component within the Diagnostic Study

<p>and bring recommendations.</p>			
<p>6. Draft the outline of Guidelines of School Safety and resilient school building codes based on main findings of previous activities intended to be the supporting document of a second national workshop.</p>	<p>No changes</p>	<p>2. First Interim Report on Guidelines on School Safety and resilient school building codes: it will provide a summary of the main findings and proposals around topics such as (i) school risk assessment, (ii) Review of existing norms, (iii) Review of existing community building practices and (iv) regulatory and institutional arrangement.</p>	<p>No changes, except alignment with suggested revised timeline</p> <p>Possibly, assess the possibility of organizing an additional interim Workshop to present the results of the Diagnostic, prior to the final workshop.</p>
<p>7. Organize a consensus building national workshop gathering main stakeholders identified during consultant's activity, where recommendations will be gathered for the draft of the Guidelines on School Safety and resilient school building codes.</p>	<p>No changes</p>		

<p>8. Draft the Guidelines on School Safety and resilient school building codes through a three stages process: (i) preparation of report (Second Interim Report) after the workshop with main recommendations and proposition of Table of Contents, to be approved by the Bank, INGC and others; (ii) prepare and submit draft based on approved documents and including Bank recommendations; (iii) production of final document with incorporation of the Bank's comments.</p>	<p>No changes</p>	<p>3. Second Interim Report on Guidelines on School Safety and resilient school building codes: it will contain suggestions and recommendations from the workshop as well as the Consultant's position towards each of them; it will also include a proposal of the overall structure and organization of the final document (including Table of Contents and List of Annexes). To be delivered 1 month after the workshop.</p> <p>4. Draft Guidelines on School Safety and resilient school building codes: it will include the draft guidelines according to the structure and organization of the final document approved by the Bank in the Second Interim Report. To be delivered 2 months after the receipt of Bank's acceptance of the latter.</p> <p>5. Guidelines on School Safety and resilient school building codes: final technical report integrating comments provided on the draft and containing all information and data required by TOR to achieve consultancy's objective.</p> <p>6. Completion Report: description in simple form of all the consultancy process, providing detailed information on contractual issues, deliverables, dates and summary of lessons learnt.</p>	<p>No changes</p>
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ANNEX B. Proposed revised Work Schedule

1. Original Work Schedule														
N°	Activity ¹	Months ²												
		1	2	3	4	5	6	7	8	9	10	11	12	n
0	Management													
	Reporting/Outputs			IR			OTP1/ R1			R2	OTP2 draft		OTP2/ CR	
WP1	Inception and launch													
	WP1.1 Mobilizing key-stakeholders in School Construction and Safety													
	WP1.2 Developing the WS1 inception support package													
	WP1.3 Organization of the WS1			WS1										
WP2	Diagnostic and recommendations													
	WP2.1 Finalizing the protocol of the study/diagnostic													
	WP2.2 Gathering data at desk and field level and consultations													
	WP2.3 Drafting of the Diagnostic, i.e. recommendations													
WP3	Draft outlines													
	WP3.1 Draft table of contents for School Safety													
	WP3.2 Drafting the outlines directly related to norms and codes													
WP4	Validation and finalization													
	WP4.1 Submitting the draft outlines at the WS2													
	WP4.2 Finalizing and submitting the documents.													
5	Consultation milestones and WS			WS1			TRG1		TRG2		WS2			

2. Proposed Revised Work Schedule

N°	Activity ¹	Months ²																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	n
0	Management																			
	Reporting/Outputs							IR		OTP1 R1			R2			OTP2 Draft		OTP2 CR		
WP1	Inception and launch																			
	WP1.1 Mobilizing key-stakeholders in School Construction and Safety																			
	WP1.2 Developing the WS1 inception support package																			
	WP1.3 Organization of the WS1					WS1														
WP2	Diagnostic and recommendations																			
	WP2.1 Finalizing the protocol of the study/diagnostic																			
	WP2.2 Gathering data at desk and field level and consultations																			
	WP2.3 Drafting of the Diagnostic, i.e. recommendations																			
WP3	Draft outlines																			
	WP3.1 Draft table of contents for School Safety																			
	WP3.2 Drafting the outlines directly related to norms and codes																			
WP4	Validation and finalization																			
	WP4.1 Submitting the draft outlines at the WS2																			
	WP4.2 Finalizing and submitting the documents.																			
5	Consultation milestones and WS			TRG1		WS1			TRG2		TRG3			TRG4			WS2			

ANNEX C. Timeline Summary of Activities

Date	Activity
2011	
PHASE 1 Stakeholder Mobilization and Project Release WP1	August 1 st meeting between UN-Habitat and World Bank to prospect interest and capacity of UN-Habitat to work with the issue of construction of school Participants: Roberto White, Silva Magaia and Pasquale Capizzi
	August 2 nd meeting with the World Bank for the purpose of deciding the scope of the project and the involvement of a representative national co-ordinator for Architecture and Physical Planning from Eduardo Mondlane University (UEM-FAPF) – in partnership with UN-Habitat.
	September Project Confirmation
	September – December Conceptual Notes for definition of type/details of the project
	October Meeting with the Faculty of Architecture and Physical Planning – exchange of information and beginning of the work with UEM-FAPF Staff (Mr Lauro) Participants: Luis Lage, Silva Magaia, Mathias Spaliviero, Fernando Ferreiro, Pasquale Capizzi, Carlos Trindade.
	November 21st Meeting with UEM-FAPF

November	Meeting with UEM-FAPF
November	Meeting with group of donors – construction group represented by Mr Ralf Orlick.
December	Joint preparation of the first pre-project proposal with UEM-FAPF, initially most complete and comprehensive: including the diagnostics of the c implementation of these standards (training and employee training, capitalization, documentation and establishing collaboration platform with th
December	Budget adjustment: from U\$ 600.000 to U\$ 300.000, and then to U\$ 200.000
December	2nd Pre-technical proposal limiting the project to the assessment of the current situation and the provision of global and technical recomme standards and norms.
2012	
January February	- Preparation of Terms of Reference and adaptation of pre-proposals to the World Bank formats.
January March	- Series of preparatory meetings with UNICEF, UNDP and other NGO partners
January	3rd meeting with the World Bank in order to extend the involvement of UN-Habitat and include the same in the missions of the schools survey

		in 2012 in the reconstruction process.
January March	-	Un-Habitat follows the World Bank during three missions to provide technical assistance during assessment of damages. It was an opportunity to engage with MAE-INGC, the MOPH and specially MINED, opening new doors for discussion of legal, institutional and technical aspects of the school building process.
February 20th		Terms of Reference Received
March 16th		Presentation of the preliminary results of the assessment mission , with partners reinforcing the need to review the process and practice of progressively opening the doors to the Safer Schools Project.
February May	-	Technical meetings held weekly on Thursdays with key partners (World Bank, INGC, MOPH, MINED), allowing UN-Habitat to demonstrate progress concerning the school construction sector and to consolidate consensus over the need of reviewing building codes and procedures.
May 15th		Submission of finalized technical proposal
May 17th		Presentation of the proposal to the World Bank
		Daily meetings with UEM-FAPF
May 28th June 1st	-	UN-Habitat presents the Safer School's project at the Capacity building Seminar for Coordinators and Provincial Technicians of the Program of Accelerated Construction of School's Infrastructure (PCA), organized by the MINED in the Boane District, Maputo Province.

June 21st	Official beginning of the project (Contract)
July 17th	First payment received from the World Bank: 15000 Euros, only amount received to date, requiring extensive cost-sharing on the part of UN-Habitat to keep project implementation on schedule.
July 17th	Meeting with the World Bank in the UN-Habitat office.
July 18th	Presentation of the project to INGC; approval of the implementation phases of the project, followed by decision to involve Permanent Secretary of MINED and MOPH through sending letter of mobilization by MAE.
July 19th	General meeting with the technical team
	Presentation of the project to the MINED-DPLAC
September	Preparation of documents and agenda for the 1st Technical Meeting and Workshop through various bilateral meetings; primarily focus on drafting of the terms of references of the Technical Advisory Group (GTC) and the Diagnostic, and the agenda of the 1 st Workshop of the Project.
September 20th	1st Technical Meeting, held in the auditorium of UEM-FAPF in order to consolidate the consensus on the project and continue the preparation of the 1 st Workshop of the project. Representatives from 14 partner institutions attended: - 5 Ministries (MINED, MOPH, MAE, MICOA, MCT)

	<ul style="list-style-type: none"> - 2 National Institutes (INNOQ, INAM) - 2 Faculties of Eduardo Mondlane University (Architecture e Engineering) - 3 UN Agencies (UN-Habitat, PNUD, UNICEF) - The Mozambican Federation of Contractors (FME) - The World Bank
September 23rd	Meeting with representatives of the MINED, MOPH and MAE-INGC
October 11th	UN-Habitat introduced the Safer Schools Project for the Directors of the MOPH.
October 11th	Technical Meeting with INAM
October 12th	Technical Meeting with INGC
October 15th	Meeting between Mr. Joan Clos, Executive Director of UN-Habitat, and the Deputy Minister of MOPH, during which the latter stated that the Safer Schools Project is a priority for both directorates of the MOPH (Direcção Nacional de Edifícios and Direcção Nacional de Materiais de Construção).
October 15th	Technical Meeting with INNOQ

	October 22nd	Meeting with Engineering Faculty of UEM
	October 24th	Meeting with MOPH-DNE
	October 25th	Meeting with Mozambican Builders Federation (FME)
	October 25th	Collective meeting with directors of MOPH, MINED and INGC.
	October 30th	Meeting with MINED
	October	Meeting between the new Minister of the MINED and the MAE Minister during the simulation of INGC, where both parties reaffirmed their interest in the Safer Schools project.
	October November	<ul style="list-style-type: none"> - Final preparations for the 1st Workshop: - Finalization of Terms of Reference for the Diagnostics and GTC; - Validation of final agenda with partners - Preparation of presentations, including participation of expert coming from Madagascar; - Organization of event logistics

	November 5th	Meeting to present the workshop to MINED-DPLAC CEE
	November 12th	Institutional presentation of the project to the Permanent Secretary of MINED
	November 14th	<p>1st Workshop of Safer Schools Project. 78 Representatives from 30 Partner institutions attended:</p> <ul style="list-style-type: none"> - 7 Ministries (MINED, MOPH, MAE, MICOA, MFINANÇAS, MCT, MISAU) - 4 National Institute (INAM, INNOQ, DNG, ING) - 3 UN Agencies (UN-Habitat, PNUD, UNICEF), - The World Bank - 4 Faculties of UEM (Architecture, Engineering, Law e Social Sciences) - 5 Civil Associations (FME, AEMC, OEM, Engineering Laboratory, Associations of Architects) - 3 NGOs (World Vision, CCM, Save the Children) - Other International Organizations and Donors (Plan international, DFID, FID, FASE)
2013		
	January	<ul style="list-style-type: none"> - Formalization of Institutional Focal Points for GTC; - Consolidate the methodology of diagnostics: interview form, matrix, reading file.

PHASE 2
Diagnostic
Study

WP2

January

Early review of technical and legal norms, institutional reports and documents, and development of the first analyzes of the current situation.

January 24th

1st round of institutional consultation for the Diagnostics – **MINED**

January 25th

1st round of institutional consultation for the Diagnostics – **AEMC**

January 25th

1st round of institutional consultation for the Diagnostics – **MOPH**

January 30th

Institutional presentation of the project to **DNG**

January 31st

1st round of institutional consultation for the Diagnostics – **INNOQ**

January 31st

1st round of institutional consultation for the Diagnostics – **INAM**

February 5th

1st round of institutional consultation for the Diagnostics – **FME**

February

1st stage of survey field schools (Gaza Province)

February

Consultation/interview with the Malagasy expert about Madagascar's experience in a similar building code review process.

	February 20th	1 st round of institutional consultation for the Diagnostics – DNG
	February 21st	<p>2° Technical Meeting – Un-Habitat office. Review of first round of interviews and presentation of the methodology to be used for diagnostics – matrix of harmonization and institutional governance, matrix for revision or elaboration of norms, matrix of project cycle with the rules and actors, matrix of problems/flaws identified in school building. The focal points of eight partners institutions were present:</p> <ul style="list-style-type: none"> - 1 Ministries (MOPH) - 3 National Institutes (DNG, INAM, INNOQ) - 2 Faculties of UEM (FAPF and Law) - UN-Habitat - FME
	February 25th March 2nd	– 2 ^a Stage of survey field schools (Gaza Province) – the flood situation prevailing in the country represented an opportunity to assess the damage on schools and identify vulnerabilities to be improved.
	March 07th	<p>Technical Meeting between UEM-FAPF and UN-Habitat. Review of the diagnostic phase and inclusion of contributions from others institutions in the following:</p> <ul style="list-style-type: none"> - Matrix of harmonization and institutional governance - Matrix of Implementing school project - Review of the form for field data collection

		- Matrix for categorization of the hazards exposition in Mozambique.
	March 08th	Meeting with Fews Net for presentation of the project and articulation to request hazard's <i>shapefiles</i> maps, which are produced by the institution in partnership with INGC.
	March 15th	Coordination meeting with the Order of Engineers of Mozambique (Ordem dos Engenheiros de Moçambique)
	March 18th	Meeting with the Directors of MINED-DPLAC CEE and of the MOPH-DNE for presenting and reviewing the progress of the project to date, the preliminary outputs of the diagnostic phase and for coordinating the following steps. The Director of MAE-INGC was unable to attend the meeting due to last minute activities associated with the flood emergency situation in the country.
	March 21st	Meeting with Director of MAE-INGC for presenting and reviewing the progress of the project to date, the preliminary outputs of the diagnostic phase and for coordinating the following steps.
Current phase		<p>Analysis and writing of the diagnostic and recommendations</p> <p>Zoning</p> <p>2nd round of interviews for double-checking</p> <p>Final field assessments</p> <p>Design of technical blueprints and details</p> <p>Preparation of WP3</p>

ANNEX D. List of Attachments

Please note that attachments listed below are not included in this file due to size issues.

I. Phase 1: Launch, Stakeholder's Mobilization and Consensus Building

1. List of Meetings to Mobilize Partners by Type of Institution

1st Technical Meeting:

2. Invitation Letter
3. PPT Presentation
4. List of Attendees/Meeting report

1st Workshop

5. Official invitation
6. PPT Presentations
7. List of Attendees/contacts
8. Meeting report/minutes
9. ToR of Diagnostic
10. ToR of the Technical Reference Group

Technical Reference Group

11. List of formally appointed focal points
12. Formal letter of focal point appointment by partner institutions

II. Phase 2: Diagnostic Study

2nd Technical Meeting

13. PPT presentation
14. List of attendees/meeting report

Meeting with MINED/DIPLAC, MOPH/DNE and INGC directors

15. PPT presentation
16. Meeting report

Data Collection***Interviews***

17. Interview Template
18. List of Interviews and bilateral meetings/consultations
19. Summaries of interviews

Document review

20. Summary files of the normative documents

Field data collection

21. School assessment files

Data Organization/Analysis

22. Draft of the hazard map overlapped with school geographical distribution

Matrices

23. Institutional harmonization and governance matrix
24. Matrix for the Review of Norms – Focused on the REGEU
25. Matrix of the types of damages to school based on assessments
26. Geographical exposition to hazards terminology matrix
27. Matrix of hazard overlapping classification
28. Matrix for the criteria definition of the hazard exposition degree



República de Moçambique
Ministério da Educação e Desenvolvimento Humano



República de Moçambique
Ministério das Obras Públicas, Habitação
e Recursos Hídricos



Instituto Nacional de Gestão de
Calamidades

Developing Guidelines on School Safety and Resilient School Building Codes in Mozambique

Lessons Learned



UN HABITAT
FOR A BETTER URBAN FUTURE



EDUARDO MONDLANE
UNIVERSITY
Faculty of Architecture
and Physical Planning



GFDRR
Global Facility for Disaster Reduction and Recovery

Title

Developing Guidelines on School Safety and Resilient School Building Codes in Mozambique - Lessons Learned

Institutional Coordination

Ministry of Education and Human Development

Institutional Partners

Ministry of Public Works, Housing and Water Resources

Ministry of State Administration and Civil Service – National Institute of Disaster Management

Implementing Partner

United Nations Human Settlements Programme (UN-Habitat)

Technical Partner

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Table of Contents

1. Background.....	1
2. Project implementation strategy and main achievements	1
3. Lessons Learned	7
3.1. Project highlights and indicators showing the project’s relevance.....	7
3.2. Project shortcomings and areas to be improved	9
3.3. Key lessons learned and recommendations for similar future projects	9
Annex 1: Agreed action plan on Resistant Schools Building in Mozambique	16

List of Figures

Figure 1: Adopted project implementation scheme.....	2
Figure 2: Phases of the project implementation	2
Figure 3: Working group’s discussions during the first project workshop – November 2012..	3
Figure 4: Cover page of the catalogue of technical measures for flood prone areas	4
Figure 5: Second project workshop – October 2013	5
Figure 6: Third project workshop – June 2014.....	5
Figure 7: Cyclone risk mapping profile according to the boundaries of administrative posts ..	6

Acronyms and Abbreviations

CEE	Construção de Equipamentos Escolares (Construction of School Equipment)
CLGC	Comités Locais de Gestão de Calamidades (Local Disaster Management Committees)
DIPLAC	Direcção de Planificação e Cooperação (National Directorate of Planning and Cooperation)
DNE	Direcção Nacional de Edificações (National Directorate of Construction)
DNG	Direcção Nacional de Geologia (National Directorate of Geology)
DRR	Disaster Risk Reduction
FAPF	Faculdade de Arquitectura e Planeamento Físico (Faculty of Architecture and Physical Planning)
GFDRR	Global Facility for Disaster Reduction and Recovery
CTG	Consultative Technical Group
INDE	Instituto Nacional de Desenvolvimento do Ensino (National Institute of Education Development)
INGC	Instituto Nacional de Gestão de Calamidades (National Institute of Disaster Management)
INNOQ	Instituto Nacional de Normalização de Qualidade (National Institute of Quality Normalisation)
MAEFP	Ministério da Administração Estatal e Função Pública (Ministry of State Administration and Civil Service)
MINEDH	Ministério da Educação e Desenvolvimento Humano (Ministry of Education and Human Development)
MOPHRH	Ministério das Obras Públicas, Habitação e Recursos Hídricos (Ministry of Public Works, Housing and Water Resources)
NGO	Non-Governmental Organisation
POEMA	Planificação, Orçamentação, Execução, Monitoria e Avaliação (Planning, Budgeting, Implementation, Monitoring and Evaluation)
UEM	Universidade Eduardo Mondlane (Eduardo Mondlane University)
UN	United Nations
UN-Habitat	United Nations Human Settlements Programme
UNICEF	United Nations Children Fund
UPCEE	Unidade Provincial de Construção de Equipamentos Escolares (Provincial Unit of Construction of School Equipment)
WB	World Bank

1. Background

Mozambique is a country threatened by several natural hazards such as floods, cyclones, drought and earthquakes. The first two types of hazard are the most frequent and cause major impact on infrastructure, services and the economy. With nine international river basins and a coastal length of approximately 2.770 km, severe floods occur regularly as a result of torrential rains during tropical cyclones and depressions that take shape in the Indian Ocean.

Human settlements are mostly concentrated along the Mozambican coast line and in floodplains due to historical, economic and social factors. Their degree of exposure to natural hazards and recurrent disasters increases the vulnerability of infrastructure, services, housing, schools and health facilities. In particular, schools are much affected by natural disasters. As an example, during the rainy season between end of 2011 and beginning of 2012 approximately 900 classrooms were totally or partially destroyed by floods and cyclones. This was confirmed by a damage assessment carried out in February and March 2012 in the provinces of Gaza, Zambézia and Maputo.

In the light of these recurring facts, different stakeholders involved in the school construction and the disaster management sectors decided to engage in a process to reduce the vulnerability of schools to natural hazards in Mozambique, with the aim to provide safer schools for the children. Therefore, in July 2012 the **Safer Schools initiative** was launched under the leadership of the Ministry of Education and Human Development (MINEDH) in partnership with the Ministry of Public Works, Housing and Water Resources (MOPHRH) and the Ministry of State Administration and Civil Service, through its National Institute of Disaster Management (INGC-MAEFP). Thanks to the financial support from the Global Facility for Disaster Reduction and Recovery (GFDRR) at the World Bank, the United Nations Program for Human Settlements (UN-Habitat) has been implementing the project with the technical assistance of the Faculty of Architecture and Physical Planning of the University Eduardo Mondlane (UEM-FAPF).

The main objective of the project was to develop disaster resilient school building codes and guidelines on school safety and to produce recommendations for their effective implementation.

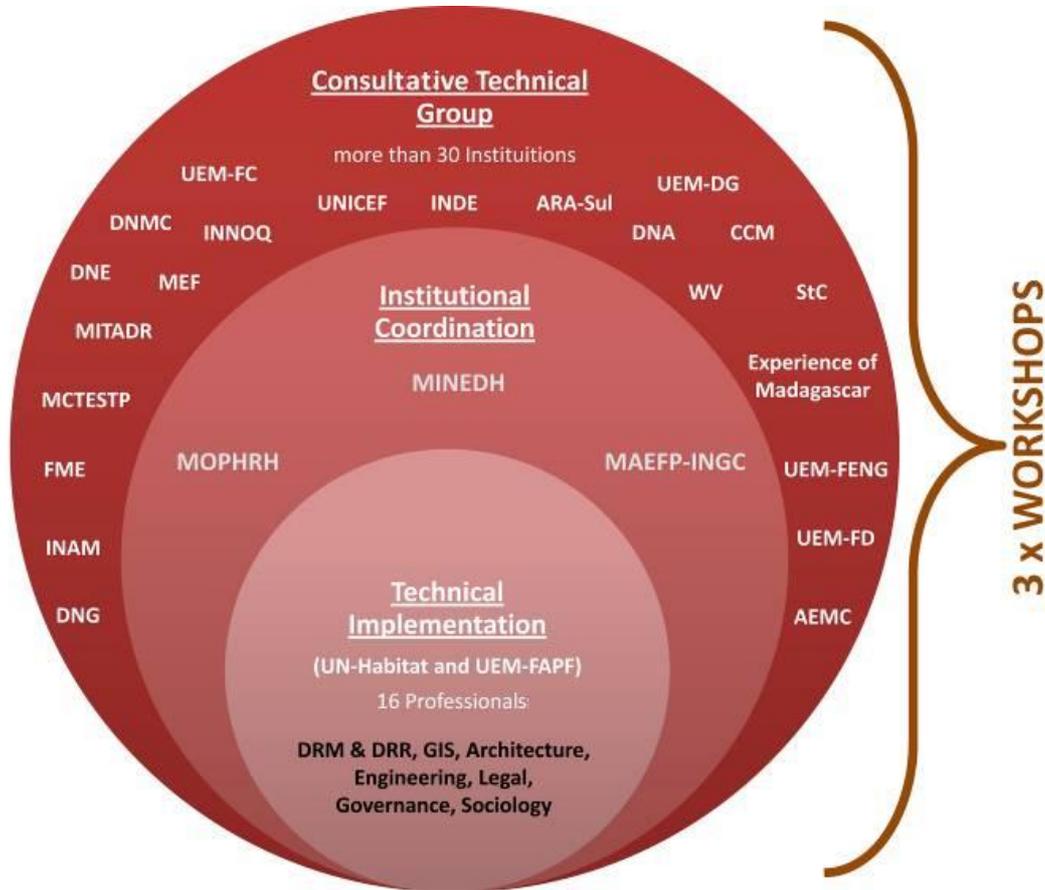
2. Project implementation strategy and main achievements

During its two and a half years of implementation, the Safer Schools initiative in Mozambique brought together different actors in the school construction sector to define, in a consensual manner, the tools and strategies to reduce disaster risk in schools and turn them more resilient to natural hazards such as cyclones, floods, earthquakes and drought. The following numbers can help dimensioning some of the project's achievements:

- 3 joint missions of MINEDH, MOPHRH, INGC, UEM-FAPF and UN-Habitat after the 2011-2012 disasters as school damage pre-assessments, as well as 4 field technical assessments of school classrooms (637 assessed in total).
- 3 Ministries working closely together during the whole project implementation; 8 meetings of the Consultative Technical Group (CTG) and several coordination and consultative meetings with the Directors of DIPLAC-CEE, INGC, DNE and other institutions, including about 20 interviews; 3 workshops with all partners (in total 37 institutions involved – see Figure 1).

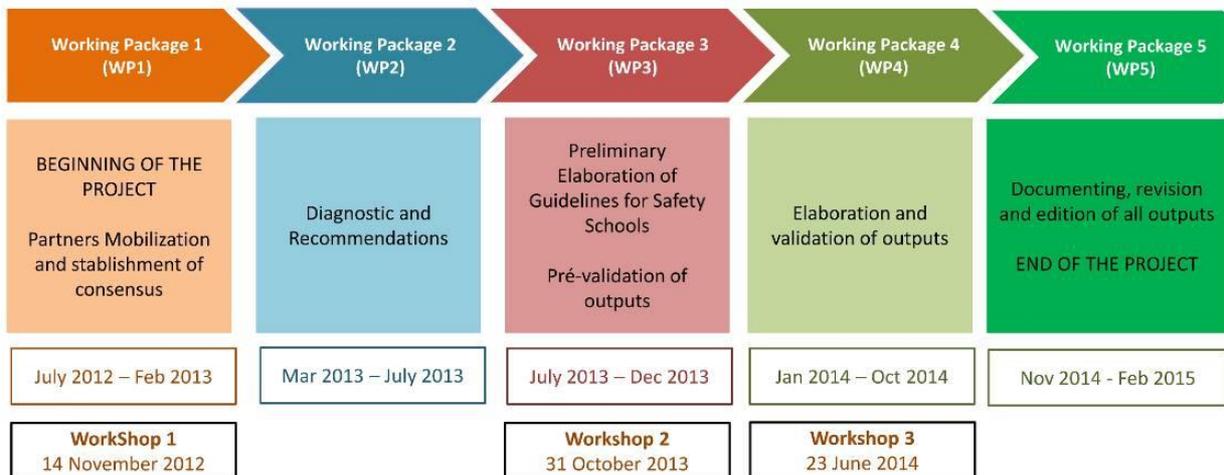
- Set of analytical matrixes prepared, including the analysis of more than 30 norms/legal regulations.
- 4 natural hazards studied (cyclones, earthquakes, floods and drought), including a related set of risk maps.

Figure 1: Adopted project implementation scheme



The project was implemented in five phases as depicted in Figure 2.

Figure 2: Phases of the project implementation



- **Phase 1 - Inception package and launching**, with the purpose of mapping all the actors involved in the school construction cycle and identify the issues related to the massive destruction of classrooms provoked by the impact of natural hazards in a consensual manner. Thus, during the first workshop which launched the Safer Schools project a **Consultative Technical Group (CTG)** was established involving technical and decision-makers from the identified institutions within central government, technical institutes, the private sector and the academia. The CTG was then divided in 4 sub-groups working respectively on technical solutions, risk mapping aspects, institutional arrangements and legal issues (see Figure 3).

In particular, the Terms of Reference were developed to carry out the diagnostic (see Phase 2). Among the main findings of the workshop was the recognition that **the classrooms' destruction was not only due to the technical weaknesses of the way they were built but also to a number of other factors** belonging to the following areas: norms and legislation; institutional and governance frameworks; construction and reconstruction practices; and disaster risk reduction and early recovery in general.

Figure 3: Working group's discussions during the first project workshop – November 2012



- **Phase 2 - Elaboration of a diagnostic of the current school construction environment in Mozambique.** At this stage, a systematic collection and organisation of data and information was carried out. In particular, interviews to individual professionals or institutions were undertaken based on easily understandable questionnaires, looking at issues such as: institutional role in the school construction process, weaknesses, opportunities, among other aspects. As a result, a **matrix showing the different institutional competences and areas of responsibility** was compiled.

During this phase, field surveys to assess the vulnerability of school buildings were carried out in 7 provinces during which 637 classrooms were visited and categorised in 3 main building typologies: conventional, local/traditional or mixed. During these surveys a set of recurrent problematic issues in the school buildings were identified, which provided strong evidence of the inadequacy of the school construction models currently applied in Mozambique when related to the existing risk profiles of the areas visited. On the other hand, best practices of school construction adapted to cyclones and floods were also identified. The assessment data were collected according to a form including: general

aspects of the school, preparedness and response characteristics to disasters, existing infrastructure, type of building materials, characterisation of damage occurred or as threat, maintenance aspects, topographical conditions of the school location, building orientation in relation to wind and sun exposure, etc. This exercise resulted in two major project products:

- a **School Risk Assessment in Mozambique** which shows the risk profile of school infrastructure in the context of 4 hazards studied; and
- a **Catalogue of Technical Measures** to improve school construction in areas prone to cyclones, floods, earthquakes and drought; the aim of this document (see cover page in Figure 4) is to support the preparation of norms and training and capacity building activities, and to provide an array of technical measures to be used for new constructions, during reconstruction or retrofitting of schools.

Figure 4: Cover page of the catalogue of technical measures for flood prone areas



Finally the legislation was reviewed and **summary sheets produced regarding the legal and technical building standards and regulations**. Based on the collected information the **diagnostic** was drafted, including **initial recommendations and the risk mapping profiles** of the various geographical areas of the country to the four types of natural hazards under consideration in the project.

- **Phase 3 - Drafting the outline of the Guidelines on School Safety and Resilient School Building Codes** through bilateral and CTG meetings based on the findings of the diagnostic. The latter and the drafted guidelines and building codes were presented, discussed and pre-validated with all the project stakeholders during the 2nd project workshop. The workshop was attended by the Hon. Minister of Education and the Deputy Minister of Public Works and Housing, as well as high level representatives of other government institutions, the private sector, the civil society, technical partners, the academia and the UN (see Figure 5). Among the main workshop’s recommendations was

the idea of **establishing an inter-ministerial working platform** to better benefit from the capacity of the MOPHRH and **enhance institutional synergies**.

Figure 5: Second project workshop – October 2013



- **Phase 4 - Validation of the proposed guidelines and building codes**, which basically consisted in preparing an improved version of the products after consolidating the inputs received during the 2nd workshop. The following products were then presented during the 3rd and final project workshop for validation: (1) Diagnostic and recommendations; (2) School risk assessment; (3) Catalogue of technical measures; (4) Risk mapping profiles of cyclones, floods, earthquakes and drought and subsequent zoning; and (5) Road map for the legal elaboration of the Safer School Building Codes.

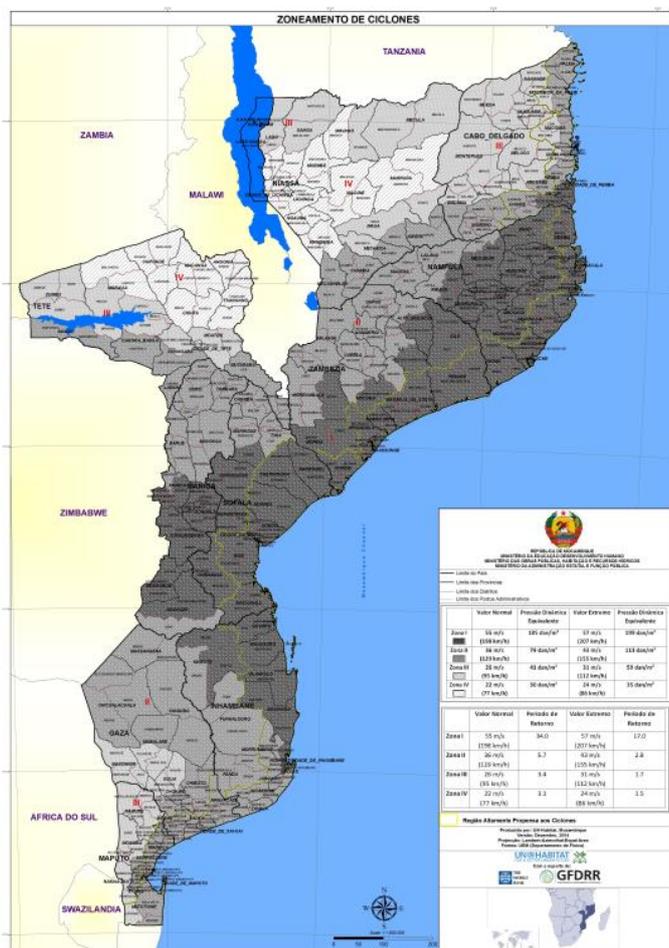
Importantly, during the 3rd workshop, **each institutional representative identified one or more recommendations derived from the diagnostic to be implemented by his/her institution in the short, medium or long term** (see Annex 1). The Deputy-Minister of Public Works and Housing, who chaired the well-attended event, commended the quality, consistency and depth of the work delivered in the project (see Figure 6).

Figure 6: Third project workshop – June 2014



The school risk assessment was adopted, while the catalogue and the risk mapping profiles and zoning were approved with comments. For the latter the need to produce maps which show the **profile of risk according to administrative boundaries** (see example in Figure 7) was stressed.

Figure 7: Cyclone risk mapping profile according to the boundaries of administrative posts



As for the impact of the catalogue of technical measures, it seems important to note that a **number of proposed construction techniques have for cyclones have already been integrated in the architectural designs of the 2015 school construction campaign**, which is a great project impact.

Regarding the legal component, two scenarios were envisaged during the workshop: (i) a longer term scenario in which the building codes of safer schools would bring greater uniformity not only for school buildings but also for other public facilities in Mozambique, such as hospitals, district administrations, etc.; (ii) a shorter term scenario, which calls for the **formulation of an Inter-Ministerial Decree including MINEDH, MOPHRH and MAEFP** (i.e. a legal instrument which is flexible and relatively quick to produce) to improve the school building system of the country, with immediate effect. The workshop's participants selected the latter option.

During the workshop, INDE presented how DRR has been integrated in the school curricula, also with the support of UNICEF.

- **Phase 5 – Documenting the implementation of the Safer Schools project in Mozambique**, including the completion, translation and edition of all its products. In particular, this entailed two major activities: (1) finalisation with more detailed information of the mapping of cyclones and strong winds in the country by involving INAM and the MOPHRH-DNE, for inclusion in the short term Ministerial Diploma; and (2) preparation of the main lessons learned from the project, which is the main purpose of this document.

3. Lessons Learned

This lesson learning exercise is meant to assess the level of understanding and appreciation of the Safer School project in Mozambique, as well as identifying some of the shortcomings.

As confirmed by the relevant Ministries and partners, the project was highly appreciated since it was participatory, technically sound and responded and adapted to the demand over time. All partners interviewed for preparing this document agreed that the added-value of the project has been the capacity, for the first time, to consistently convene a large number of concerned actors around a technical issue (disaster-resistant dimensioning) with the aim to address the much broader implications. This created the pretext for discussing the shared responsibilities on the shortcomings but also, and more importantly, to devise ways forward in the short, medium and long-term for a safer construction. Although it may seem simple now, the fact that the consulted institutions agreed on the need to find a balance between constructing schools rapidly and the safety of the buildings has been the result of a consistent process of consultations and trust-building. The willingness to join hands across Ministries to face the issue and improve results over time is a major project outcome and a good indicator of success of this initiative. Overall, despite the limited capacities against the large scope of the work, the project was recognised by the different stakeholders as relevant, aligned with the demand and conducted with the required knowledge and leadership.

3.1. *Project highlights and indicators showing the project's relevance*

- **Zoning and hazard intensity mapping (although tentative as concerns earthquakes and floods) represent a major step towards safer construction in the country.**
 - This is to be immediately used by the MOPHRH beyond the construction of schools, and by the MINEDH when building in areas prone to strong winds and cyclones.
 - The use of the wind and cyclone risk maps will start as soon as possible, along with the creation of a dedicated POEMA (the instrument for streamlined disaster-resistant construction norms) while the other maps (e.g. for earthquakes and floods) will hopefully be improved and adopted soon as well.
 - The project is the first of its kind in Mozambique as the responsible national institutions (although they having been providing data and advice to the concerned ministries) were never tasked in this way before.
 - Although vulnerability or risk maps per district existed in Mozambique (although the correct terminology has been used in an uneven way), especially those produced by INGC with the support of FewNet or others, the intensity of the natural hazard was never reflected in maps before, which is a key element for structural calculations of buildings.

- **The catalogue of normalised technical measures for school construction is a pragmatic way to disseminate and enforce the use of improved techniques in the absence of a building code.**
 - The project has, for the first time in Mozambique, undertaken the systematic analysis of recurrent construction failures, with a large basis of evidence and a valid risk assessment for the next rainy/cyclonic seasons.
 - The Faculty of Architecture and Physical Planning of the UEM will proceed with integrating elements from the project in its academic curriculum.
 - The catalogue is to be progressively adopted, and solutions disseminated and mainstreamed in biddings and monitoring processes.
 - As mentioned earlier, MINEDH has already included technical measures for making schools more resistant to strong winds already in the 2015 construction campaign.
 - Meanwhile, MOPHRH will undertake a progressive revision and adoption of the proposed technical measures.
 - Both Ministries as well as MAEFP aim at the approval of the catalogue and risk mapping by Cabinet for publication in the official gazette (Boletim da República).
 - A process of dissemination and on-the-job training is supposed to start in 2015 for the concerned private contractors involved in school construction to better understand the proposed measures, replicate them and scale-up.
 - Improved school construction using local or mixed building materials is now an idea which is better acknowledged by the national authorities, although it still needs continuous advocacy support.

- **The establishment of a platform of partners especially through the Consultative Technical Group composed of officially appointed focal points, as well as regular national workshops and bilateral interviews, has been a key success strategy for the project.**
 - Even if time demanding, the CTG platform can definitely be considered a best practice to be reproduced in similar initiatives. The Safer School project managed to ensure a large participation and consistent contributions from all concerned actors, with minimum consultancy time.
 - Focal points of the CTG were co-responsible for the project outputs, creating products that are not only more relevant, but also more likely to be adopted by the concerned institutions.

- **The progressive institutional involvement and political ownership was another signature outcome of the project.**

In the meetings several partners concurred in saying that the consistent participation of Ministers and Deputy-Ministers of Education and of Public Works & Housing, as well as the regular communications at the Cabinet level by the Minister of State Administration, indicated the genuine and strong ownership of the process by the concerned line-Ministries.

- **The thorough analysis of factors through field assessments, bilateral interviews, desk reviews, studies, consultations of national and international experts, represent the first systematic attempt to apprehend the challenges of the school construction sector in Mozambique and, therefore, a robust basis to devise improved solutions.**
 - Ministries appreciated the joint field assessments as well as the joint on-the-job construction (like in Gaza Province) of improved schools that tested the proposed solutions to be then integrated in the catalogue of technical measures.
 - The bilateral interviews, focal groups and dedicated technical working groups on architectural/technical aspects, risk mapping, institutional arrangements and legal issues were appreciated and facilitated the understanding of the challenges faced by Ministries, consultants, experts, institutions, local constructors and their associations, and the communities in school construction. This helped building the trust on the initiative among the different stakeholders.

3.2. *Project shortcomings and areas to be improved*

- ❖ Although recognising the vast amount of information required for undertaking this assignment (i.e. data on the different types of hazards, risk mapping and zoning, assessment of a large number of schools of different typology, identification of proper technical measures, review of the legislation and of the institutional set up, dimensions of the country, etc.), the difficulty to analyse all the collected data with **limited means** and the efforts made by the project team, **the process was sometimes lengthy and could have been more expedite**. The extent of the data collected and information produced somehow exceeded what was required, but also gave an unprecedented ground of evidence to be used for future programming and raising the political awareness.
- ❖ **The process was slowed down in 2013 and in 2014** due to both national political events (municipal and general elections, political-military tensions, etc.) and the occurrence of natural disasters, sometimes even coming to an apparent halt. Implementing partners recognised a shared responsibility on the accumulated delay, although it was partly beyond their control. However, when project consultations were not possible, time was used to the extent of possible to perform analytical, design and other desk work or to undertake additional field assessments.
- ❖ Due to the comprehensive, multi-faceted and inter-sectoral nature of the project, **some essential outputs were only ready at a late stage of the project**. However, some tangible deliverables were to be readily used before the end of the project. For example, while improved technical solutions against strong winds were integrated in the school construction campaign only in 2015, related pilot activities for conventional school construction have already been implemented in Gaza Province in 2013.

3.3. *Key lessons learned and recommendations for similar future projects*

- ✚ **Lesson 1: Safer schools are the product of an efficient institutional, legal, procurement, capacity and technical interplay.**

In other terms, safer school construction can only result from a functional system in which an adequate normative environment is actually enforced by capable and coordinated institutions, with both technical and administrative capacities to manage constructors possessing basic skills for the job, based on a realistic appraisal of the market and availability of technologies and materials. Only on this basis, disaster-resistant

dimensioning can make a difference. Although this appears as an obvious statement, partners use to focus on few individual aspects of school construction, while disregarding others. If safer schools have to be achieved, this must be taken into consideration and addressed in a progressive and phased manner. Some of the specific issues to be considered under this lesson learned:

- In Mozambique over 2 years of work with the project partners were required to agree on the need to tackle in a progressive and integrated way the many aspects and concurring factors of low-quality and vulnerability in the school construction, based on evidence accumulated during over 10 years by UN-Habitat.
- The merit of the Safer School project has been to use the disaster-resistant dimensioning as an entry-point to address the need for an adequate school construction as a whole. In the case of Mozambique, the quality of construction is still the main cause of much destruction from most of the recurring natural hazards. For example, evidence was provided that the poor quality of the school building features is, in many cases, the cause for partial destruction by winds of relatively low intensity.
- Meanwhile, and importantly, the project also demonstrated that school construction is seldom depending only on purely technical design aspects. The quality of school buildings in Mozambique and its lack of adequate disaster-resistant dimensioning was assessed through several field surveys and also based on accumulated knowledge and information during a number of years. However, the absolute need for unfolding the systemic causes – and therefore identifying the various areas for action – was a complex and lengthy exercise, which much delayed the implementation of the project.
- Therefore, to draw the necessary attention to disaster-dimensioning in the school construction, it was necessary to engage on a comprehensive and inter-sectoral review of the overall construction system, which looked at the root-causes of the problem in terms of: institutional/administrative set up; legal and regulatory framework, including norms and standards; technical capacity of the contractors; supervision, monitoring and evaluation mechanisms; risk profile of the different geographical areas of the country; budgetary issues; type and market availability of building materials; applied construction techniques and technologies; difficulty of guaranteeing the quality of construction in remote areas; etc.
- Ultimately, this is also affecting the effectiveness with which the responsible Ministry and concerned institutions are able to manage the virtuous school construction cycle in a context weak institutional and administrative capacity at the local level, lack of data, difficulty to comply with a demanding procurement process, etc. When good practices of safe construction were identified throughout the country, it was observed that they were always the product of a qualified local capacity in terms of architectural design, engineering and technical follow-up, under a good contract management process.
- Therefore, an important lesson learned for scaling up safer school construction is ensuring good local capacity, an effective supply chain within conducive institutional and legal frameworks and the availability of sufficient data. Obviously improvements are difficult to be realised in the different areas at the same time (e.g. need for revising existing legislation and introducing new building codes, developing local capacities, etc.), therefore it is essential to timeline change over the short, medium

and long-term in the different areas (such as technical capacity, procurement, institutional set up, legal framework, etc.) based on a proper prioritisation exercise.

- In the case of Mozambique, it was strategic to start from the angle of disaster risk reduction (DRR) as it allowed bringing up the discussions regarding the quality and capacity in school construction without hurting institutional sensitivities. This approach could be replicated in future similar projects (i.e. identify the right entry point to then address the overall systemic issue) although the time and effort needed for it should to be carefully assessed.

➤ ***1st Recommendation for future Safer Schools projects:*** *when designing the project, or during the inception phase, assess the state of the construction process in its overall systemic complexity and select the best entry point to start addressing the gaps in a progressive manner. Therefore, once the school construction system of a given country has been analysed, the following questions could be asked: how much can be realistically addressed by the project according to the available time and resources? What is the best entry point to start addressing the identified shortcomings of the system: is it through a technical (architectural, engineering) angle, a capacity building angle, the analysis of the institutional responsibilities, the review of the legal framework?*

✚ Lesson 2: Responsibilities for school construction should be matched with adequate technical capacities and an institution with an overall mandate on the issue; if this is not possible, an inter-institutional platform or alliance should be established.

- Countries that have achieved a safer construction process (Madagascar for instance) present a similar characteristic: one dedicated institution in charge of construction (being it a fund, ministry or another governmental body) has all the required technical and administrative capacities from the central to the local level to produce quality public buildings, within a conducive legal framework (i.e. disaster-resistant norms exist). If such a situation cannot be created in the short-term, an inter-ministerial task force with shared responsibilities can be a pragmatic alternative or a transitional solution.
- Specifically, this means that governmental institutions with public works responsibilities are normally empowered to deliver better construction services of public facilities than other sectors, as they have both the mandate and the capacity to monitor the observance of building codes or norms and to facilitate the process. When this is not the case, like in Mozambique in which the legal responsibility to build schools belong to MINEDH and not MOPHRH, the project demonstrated that it is possible to establish an inter-institutional alliance with an appended technical task force (in the case of the project, the CTG) to adequately advise the Ministry in charge of school construction to achieve quality results.
- Especially in a context of limited human resources and logistic capacities to act in remote areas, such inter-institutional collaboration can be of crucial importance. For instance, in Mozambique MOPHRH has been called by MINEDH to assess the school construction situation only after a disaster has occurred several times in a given location. If such collaboration could have been established beforehand, during the stages of site selection, implantation, architectural project review, construction supervision, within a context of a good local knowledge of risks in the area, probably much less schools would have been damaged by natural hazards in the past decades.
- As good practice, in Madagascar, when the local education department envisages the construction of schools in its area of jurisdiction, the National Fund established for

the purpose assesses the feasibility of the project by sending its engineers in the field. This inter-institutional cooperation seems to result in a decent quality of the construction, so that reinforcing the school buildings exposed to severe natural hazards (an exercise that requires more/different technical expertise) can be relatively easy to achieve at a later stage. Of course, the dimensioning/design of a public building according to its risk exposure right from the beginning of the construction process would be the best option, but it is not always affordable due to the costs involved. Therefore, a progressive two-step approach (good basic construction standards consistently ensured everywhere at the initial stage, and reinforcement of the building resistance to natural hazards where required at a later stage) proves also to be effective.

- As mentioned, one of the major achievements of the Safer Schools project in Mozambique has been the establishment and reinforcement of the collaboration between the different governmental and institutional bodies responsible for the school construction cycle. In the lesson-learning debriefing with the different stakeholders, the fact that the key Ministers themselves agreed on the need to cooperate through a task force and led the overall project process by attending and chairing the workshops, and by keeping Cabinet informed on the progress, was highlighted as an essential step forward produced. This inter-ministerial collaboration is now reflected in the new governmental approach.

➤ ***2nd Recommendation for future Safer School projects:*** *when required by the existing institutional set up, the establishment of an inter-sectoral working platform or mechanism should be considered as one of the main project results, which should then be institutionalised before or right after the end of the initiative.¹ Therefore, from the start of the project, it is important to ensure that focal points from the different institutions to be involved in inter-sectoral coordination/discussion mechanisms are formally appointed with clear terms of reference, and that they have authority to share data and information.*

 **Lesson 3: Access and data availability is often a challenge in many developing countries, as data might simply not exist or are difficult to be retrieved; this can be overcome through the alternative collection of basic data and the establishment of partnerships with the academic sector.**

- One of the most relevant outputs of the Safer School project in Mozambique was the creation of risk profile maps showing the intensity of the four natural hazards under consideration. According to the project document a simple risk zoning exercise of the country was required, limited to transferring existing data into the maps according to engineering and architectural needs, as it was done in Madagascar for example. However, in the case of Mozambique the data either did not exist, was not collected consistently over time or was not accessible.
- Overcoming this challenging situation required a lot of additional time and resource investment from the side of UN-Habitat, including the need to quickly identify alternatives. For example, to determine the geographical distribution of wind speeds

¹ **NB:** In the case of Mozambique, it should be noted that this major achievement is partly due to the nature and trust by the concerned institutions in the implementing partners (UN-Habitat and the Faculty of Architecture and Physical Planning at the UEM) which have been able to work effectively as the conveners of the CTG and facilitate the national workshops, as well as to the recognised capacity of the World Bank project focal point. Private consulting firms might not have the same capacity in convening sectors and Ministries.

in the country, the National Institute of Meteorology (INAM) was supposed to provide up-to-date data. This did not happen for two reasons: (i) INAM's request to pay for the data, an item which was not budgeted; (ii) more importantly, after research and continued exchanges with INAM, it appeared clearly that the most relevant data actually did not exist. Therefore, UN-Habitat established a partnership with the Eduardo Mondlane University (UEM) which did have some records of wind speeds and characteristics, and also relied on global data the peaks of wind speed over time. As a result a reasonable map was produced, now adopted by MOPHRH with the ownership of INAM.

- Mapping seismic risk was even more challenging. When contacted, the National Directorate of Geology (DNG) only shared a map dating from 1982 with no sources and which resulted to be inaccurate, after consulting with few experts. Therefore, once again, as an alternative UN-Habitat had to produce a new map showing the spatial distribution of the seismic risk in Mozambique based on research and consultations with a group of experts and engineers. However, it would be important that a research programme is set up with adequate funding for hiring the required expertise and carry out field assessment to produce a more reliable map.
- Despite the existence of scientific expertise and both academic and governmental institutions in the disciplines of meteorology, geology, seismology and hydrology, existing data are limited due to a poor data collection capacity. The use of existing global data set is uneven and often meant for short-term analysis, such as the seasonal forecast. Cooperation between government institutions and the universities should be promoted, as it is currently very limited (almost on a consultancy-basis). Many donors advocate for open access to basic data, but the efforts for data collection and organisation are sparse and the actual use of the data produced is often not monitored nor regulated.
 - ***3rd Recommendation for future Safer School projects:*** *when designing the project, there is a need for rapidly assessing the data availability and accessibility in terms of risk profile. If data is available at a cost, the latter should be budgeted. If some data is not available, an assessment should be made if the project is feasible without it. If it is not feasible, then a data collection component needs to be included and budgeted in the project design, with focus on the most pressing needs (e.g. on the more recurrent hazards), and the required expertise mobilised. In such case, the establishment of partnerships with academic/research institutions may be useful.*

✚ Lesson 4: Producing good architectural designs, engineering solutions and norms is relatively simple for school buildings; however, ensuring that the proposed designs, solutions and norms are approved, enthusiastically accepted and broadly acted upon constitutes the real added-value of a Safer Schools project.

- As the construction of public schools results from a complex series of actions involving several actors at the different levels, there are sometimes contradictions and even conflicts among them. The Safer Schools project in Mozambique represented the first occasion for all these stakeholders (see the list in Figure 1) to meet, discuss and agree on common principles and approaches. There was a change in attitude during the project implementation: from an initial open contrast between the different actors over the responsibilities for low-quality building standards, there has been an increasing willingness to accept a share of the responsibility to improve the school construction, including from local contractors/building companies. The latter showed

a keen interest in the process of normalisation (i.e. complying with norms and standards), dissemination and capacity building.

- In the case of Mozambique, where 45% of the schools are built using local materials by the communities themselves (with regional peaks up to 60%), one of the challenges has been to ensure that the responsible government institutions acknowledge the need to recognise these communities as an important partner in the school construction sector, and to capacitate them throughout the country. The tendency so far has been to marginalise them and focus only on the formal school construction which uses conventional materials. Continuous advocacy and a pragmatic approach are needed to revert this trend.

➤ ***4th Recommendation for future Safer School projects:*** *a broad and well representative platform of stakeholders needs to be established for implementing this kind of projects. The broadest the partnership, the more useful and actionable the project outputs and deliverables. Producing high quality technical outputs is not the major issue as it can be done through a simple consultative process in coordination with one or two ministries only. However, for these products to be effectively implemented they need to be prepared and discussed in close collaboration with the final users. The challenge is obviously to make this broad partnership effective and result-oriented, which can be done by working with committed and officially appointed representatives of the different stakeholders.*

➤ ***5th Recommendation for future Safer School projects:*** *ensure that the project gives due consideration to non-conventional or community school construction, which represents a large building typology in developing countries. From this perspective, there is a need to provide practical and actionable advice to government authorities especially when construction in local/traditional materials is not readily/formally accepted. In general, government institutions are weary of taking full responsibility on community school construction due to the need to respect safety standards and norms. Instead, these institutions should be encouraged to produce and widely disseminate user-friendly manuals and tools at the local level which provide basic guidance on how to improve the quality of community building techniques and construction results.²*

 **Lesson 5: The education sector and school construction are supported by a number of actors at the international, national, sub-national and local levels; understanding this complexity and creating synergies is key to advocate for and promoting a stronger dynamic towards safer schools.**

- National and local government authorities, and even communities, receive support for building school infrastructure from a variety of bilateral and multilateral donors, development banks, international NGOs, the UN, religious groups, among others. Unfortunately, different agendas, priorities, administrative mechanisms and programming may sometime contribute to rather than address the low-quality school buildings or hamper the effective mainstreaming of disaster-resistant solutions in this important construction sector.
- In the beginning, the Safer School project in Mozambique was partially affected by these issues, as it was seen as a minor contribution to the larger school construction

² **NB:** UN-Habitat produced posters, video tutorials and other simple didactic tools targeting the communities for improving school construction, and which can be used for this purpose.

agenda. Some donors side-lined the project as, according to them, more urgent issues related to basic quality construction, administration of funds and procurement mechanisms needed to be addressed, before introducing additional measures such as cyclone-resistant roofing. However, UN-Habitat provided a large amount of evidence for demonstrating the relevance of the Safer School project in Mozambique, and managed to explain how the disaster-resistant dimensioning could serve as a powerful entry point for addressing the broader quality concern.

- The lesson to be extracted here is that, for Safer School projects to be relevant, they have to be conducted in a way that is recognised and streamlined in the larger school construction agenda, and demonstrate from the very beginning their added value. For this purpose, it is important to map all on-going and related school construction activities in the country and to understand how to best integrate the safer school approach and create synergies. An effective communication and awareness raising strategy to highlight its relevance may be needed. In the case of Mozambique, adequate time was taken and steps followed to illustrate to all concerned parties the different causes/factors of poor quality construction, devise practical ways to correct the situation in the short, medium and long-term and, importantly, establish a solid platform of partners committed to the project objectives. In particular, during the project implementation, the Safer School project had to collaborate with the UNICEF-led Child Friendly School initiative, which promotes a purely pedagogic approach, the Normalisation of School Typologies project of MINEDH with the GIZ support, etc.
- Finally, from the Mozambique experience, it is observed that too often education experts tend to make key decisions not only regarding pedagogic and programmatic aspects of education, but also on purely infrastructural/construction issues. As a result, wrong-turns can sometimes be taken by donors as it is perceived that school construction falls solely under MINEDH. Although architects and engineers are contracted for designing school buildings, the ultimate decisions and discussions are led by education experts. As illustrative example, during the flood and cyclone disaster response, the national Disaster Management Technical Committee requested to the Education Sector (which belongs to the Planning Working Group) to assess the school damage, while this area of expertise clearly falls within the Infrastructure Working Group led by MOPHRH. As a result, from the data collected at the district level and communicated to the central level, it is close to impossible to understand the exact nature of the impact, the costs involved and, most importantly, the *building back better* implications. Rather than a lesson learned, this is a note of warning for future Safer School projects. This kind of projects should engage alike with specialists in education, disaster management, infrastructure design, architecture and engineering, among others.
- ***6th Recommendation for future Safer School projects:*** *ensure that an exhaustive mapping of existing projects in education with an infrastructural component is performed, synergies are created, overlapping avoided and on-going efforts promoted. In this way the project outputs will be streamlined in the broader education development effort, and visibility and effectiveness maximised.*

Annex 1: Agreed action plan on Resistant Schools Building in Mozambique

Three main areas for action were agreed upon by all the project stakeholders, which should constitute the basis for the progressive improvement of school construction in Mozambique:

- i. Immediately improve the construction of new schools (both conventional and non-conventional typologies) through the approval, dissemination, application of and on-the-job capacity-building on the normalised standard solutions for disaster-sensitive construction.
- ii. Adapting and updating the legal environment to develop a country-specific building code and a school safety national policy, based on improved inter-ministerial cooperation and institutional harmonisation.
- iii. Fine-tuning the hazard zoning maps developed by the project and relevant to the construction of schools and other public buildings based on further scientific research and data collection.

The following matrixes of recommendations in the short, medium and long term were adopted during the third and final project workshop, including the responsible institution and focal points for monitoring and follow-up.

SHORT-TERM RECOMMENDATIONS (i.e. to be implemented within one year)	Responsible Institution or Focal Point	Status
1. Preparation of more detailed maps of hazards, impacts and risks affecting schools and other public buildings.	Government, Technical Institutes, Academy, UN-Habitat	Accomplished
2. Zoning at the national level based on the intensity and occurrence of natural phenomena.	Government, Technical Institutes, Academy, UN-Habitat	Accomplished
3. Introduction of cyclones and strong winds proof techniques in the next school construction campaign, including monitoring and evaluation.	MINEDH/UPCEE	Accomplished
4. Training of trainers for developing the capacity of the staff intervening in the school construction process and providing them with adequate knowledge of improved solutions.	MOPHRH/MINEDH	On-going
5. Developing the capacities of the DPOPH, DPEC, municipalities, SDPI and SDEJT.	MOPHRH/MINEDH/INGC	On-going
6. Developing the capacity of the Local Disaster Management Committees (CLGC) and of the schools in the construction and dissemination of DRR improved techniques.	MOPHRH/MINEDH/INGC	
7. Elaborate and adopt mandatory norms for conventional schools, to be included in a catalogue with simplified technical drawings to increase understanding, to be quickly adopted through efficient legal instruments such as a Ministerial Diploma or Decree.	MINEDH/MOPHRH/UN Agencies (UN-Habitat)/NGOs	
8. Elaborate adapted models according to the hazard zones and the school building typology, including field guides and manuals.	MINEDH/MOPHRH/INGC/UN Agencies (UN-Habitat)	
9. Systematising good practices in school construction with non-conventional materials.	MOPHRH/MINEDH	
10. Elaboration of simplified norms and architectural school projects built with non-conventional materials to make them more disaster- resistant and reduce their vulnerability.	MINEDH/MOPHRH/UN Agencies (UN-Habitat)	
11. Establish teams of trainers within the framework of a partnership between MOPHRH and MINEDH for training the staff of the institutions intervening in the school construction process at the different (national, provincial and district) levels, including the private sector.	MOPHRH/MINEDH	
12. Categorisation of the different schools' typologies and production of related construction guides.	MOPHRH/MINED	
13. Explore the possibility of empowering the CLGCs to strengthen the schools before the cyclonic and rainy season and to support communities in the construction of Safer Schools.	MINED/UPCEE/INGC	
14. Promotion of the use of POEMA to manage the overall school construction process.	MINEDH/UPCEE	
15. Elaborate a specific POEMA module about DRR.	MOPHRH	On-going
16. Gradual accreditation of the technical staff involved in the school construction.	Professional Associations/MOPH	
17. Establishment of an inter-sectoral platform for school construction with special attention to DRR.	MOPHRH/MINEDH/INGC	
18. Support MINEDH activities to include DRR practices in the school curricula.	UN-Habitat and UNICEF	On-going

MEDIUM-TERM RECOMMENDATIONS (to be implemented between 1 and 3 years)	Responsible / Focal Point	Status
19. Creation of an inter-ministerial team for school construction to harmonize practices of design, oversight, training and awareness raising for Safer Schools, to be led by the MOPHRH, with the participation of at least the MINEDH and MISAU.	MOPHRH/MINEDH	
20. Adoption of improved reconstruction measures (Building Back Better) whenever schools are affected by natural hazards, through the establishment of a contingency budget.	MINEDH/MOPHRH	
21. Production of awareness raising materials about DRR in education to be disseminated nationally.	Government, Technical Institutes, Academy, UN Agencies, NGOs	
22. Continuation of the efforts for reviewing the national legislation regarding construction standards to adapt it to the reality of the country, and promote the progressive improvement of building codes based on international experiences.	MOPHRH	
23. Progressively simplify the graphic representation of school architectural projects to facilitate their interpretation by medium technicians and local builders.	MINEDH/MOPHRH/NGOs/UN Agencies (UN-Habitat and UNICEF)	
24. Legalisation of the technical recommendations (improved technical measures) for resilient school construction through a Ministerial Diploma.	MOPHRH/MINEDH	
25. Promotion of the preventive classrooms maintenance and of national retrofitting campaigns.	MINEDH/UN Agencies/NGOs	
26. Launch of a risk assessment national campaign to reach all existing school buildings (approximately 16,000) based on the checklist for Safer Schools to better estimate the vulnerability levels.	MINEDH	
27. Accreditation of national professional associations, technicians and civil construction companies and establishment of the obligation to employ only duly accredited professionals in school construction.	Government	
28. Produce and disseminate a guide to support the preparation of bidding documents for school works.	MINEDH/MOPHRH	

LONG-TERM RECOMMENDATIONS (to be implemented between 3 and 5 years)	Responsible / Focal Point	Status
29. Formulation and approval of public policies related to Safer Schools in Mozambique, encompassing the 3 pillars to reduce vulnerability to natural hazards.	MOPHRH/MINEDH	
30. Introduction of DRR in the curricula of higher and technical education institutions, particularly in the areas of architecture and engineering.	MINEDH/INDE/INGC	
31. Regulating the construction process through new building codes, with particular attention to the risks.	MOPHRH/INGC	
32. Elaboration and approval of instruments of qualification and categorisation of consultants in the construction area, project preparation and supervision of public works according to their complexity and exposure to threats.	MOPHRH	
33. Secured continuity of preventive maintenance of classrooms.	MINEDH/UPCEE/SDPI	
34. Revision of the minimal term of public buildings (prazo mínimo de garantia das obras).	MOPH	
35. Adoption of mandatory technical norms for the constructions of public buildings in risk zones.	MOPHRH/INNOQ	
36. Coordinate the initiatives of school constructions from non-state actors (NGOs, UN, etc.)	MINEDH	