



FINNISH METEOROLOGICAL INSTITUTE



ACS AEC
ASSOCIATION OF CARIBBEAN STATES
ASOCIACION DE ESTADOS DEL CARIBE
ASSOCIATION DES ETATS DE LA CARAIBE

PROJECT DOCUMENT
for
Institutional Cooperation Instrument
of the Ministry for Foreign Affairs of Finland

STRENGTHENING HYDROMETEOROLOGICAL OPERATIONS AND
SERVICES IN THE CARIBBEAN SIDS
(SHOCS)

Submitted by
Association of Caribbean States (ACS)
In Cooperation With
Finnish Meteorological Institute (FMI)

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TABLE OF CONTENTS

1. BACKGROUND AND JUSTIFICATION	4
1.1 BACKGROUND	4
1.2 WHY THIS PROJECT IS NEEDED	4
1.3 PARTNER ORGANISATION NEEDS, OBJECTIVES AND STRATEGIES	6
1.3.1 <i>Finnish Meteorological Institute</i>	6
1.3.2 <i>Association of Caribbean States</i>	6
1.3.3 <i>Project Beneficiaries and Stakeholders</i>	7
2. THE OBJECTIVE OF THE COOPERATION	8
3. THE EXPECTED RESULTS AND ACTIVITIES	9
3.1 EXPECTED RESULTS	9
3.2 MAIN ACTIVITIES	10
3.2.1 <i>Result 1: Completed feasibility assessment on the Caribbean SIDS with recommendations and action plan for concrete steps of development</i>	10
3.2.2 <i>Result 2: Improved capacity of the staff of ACS, NMHSs and the Civil Protection agencies in the ACS member states on MHEWS, DRR and QMS</i>	12
4. THE APPROACH ON CAPACITY BUILDING	14
5. THE PROPOSED ACTIVITIES' RELATION TO THE OTHER ACTIVITIES OF THE PARTNER AGENCY	15
6. TIME SCHEDULE	16
7. SUSTAINABILITY AND PERCEIVED RISKS	16
8. PROJECT ORGANISATION	17
8.1 PROJECT BOARD	17
8.2 PROJECT STAFF	17
9. PROJECT BUDGET	20
9.1 TOTAL PROJECT BUDGET	20
9.2 BUDGET OVERVIEW	20
9.2 BUDGET PER ACTIVITY	21
10. OTHER ISSUES	21
10.1 CROSS-CUTTING THEMES.....	21
10.1.1 <i>Equal Participation of Women and Girls</i>	22
10.1.2 <i>Environmental Sustainability</i>	22
APPENDICES	23
ANNEX 1: ACS OVERVIEW	23
ANNEX 2: STRATEGIC OBJECTIVES OF THE ACS COMMITTEE ON NATURAL DISASTERS	23
ANNEX 3: LOGICAL FRAMEWORK MATRIX.....	23
ANNEX 4: PROJECT BUDGET.....	23
ANNEX 5: DESCRIPTION OF THE OKA MULTIPLIER.....	23
ANNEX 6: DRAFT MOU	23
ANNEX 7: PROJECT KEY PERSONNEL CVs	23
ANNEX 8: GENDER, SEXUALITY AND IMPLICATIONS FOR HIV/AIDS IN THE CARIBBEAN: A REVIEW OF LITERATURE AND PROGRAMMES (UNIFEM, 2006).....	23



LIST OF ABBREVIATIONS

ACS	<i>Association of Caribbean States</i>
AEMET	<i>Agencia Estatal de Meteorologia (NMHS Spain)</i>
CDEMA	<i>Caribbean Disaster Emergency Management Agency</i>
CMO	<i>Caribbean Meteorological Organisation</i>
DRR	<i>Disaster Risk Reduction</i>
FMI	<i>Finnish Meteorological Institute</i>
MSC	<i>Meteorological Service of Canada</i>
MFA	<i>Ministry for Foreign Affairs of Finland</i>
MHEWS	<i>Multi-Hazard Early Warning System</i>
NMHS	<i>National Meteorological and Hydrological Service</i>
NOAA	<i>National Oceanic and Atmospheric Administration (NMHS USA)</i>
NWP	<i>Numerical Weather Prediction</i>
SIDS	<i>Small Island Developing State</i>
WMO	<i>World Meteorological Organisation</i>



1. BACKGROUND AND JUSTIFICATION

1.1 Background

National Meteorological and Hydrological Services (NMHSs) have a vital impact on the national economy and safety by providing data and products to be benefited e.g. in transportation, farming, shipping, production of hydropower and other types of renewable energy, air quality monitoring and to mitigate impacts of natural disasters. This has been recognised by the Finnish Government which has previously supported capacity building projects in the field of meteorology through the FMI with great success. Finnish meteorological instruments and expertise have been in use in several Caribbean countries since the 1990's.

The Small Island Developing States (SIDS) Caribbean Project in 2001-2004 was funded by the Government of Finland and coordinated by WMO with the aim to provide tools for better planning of sustainable development in the Caribbean region. The focus was on the strengthening of the NMHSs so that they would be able to provide information needed for planning purposes at national and international levels, and to make the respective countries capable of fulfilling international commitments. Overall, the Finnish Meteorological Institute (FMI) has during the last two decades participated in development projects in more than 80 countries all over the world.

The Finnish Government has identified the promotion of sustainable development with a special emphasis on issues relating to the environment as one of its key objectives for the Finnish Development Policy adopted in 2007. The Ministry for Foreign Affairs of Finland (MFA) has acknowledged this opportunity to continue activities in the Caribbean with a needs assessment and feasibility study project in the Caribbean Small Island Developing States (SIDS). To promote the onset of the project presented in this document, FMI and ACS have so far hosted two coordination meetings¹ and thereby established a planning process for cooperation between other non-Caribbean NMHSs, international and regional organisations contributing to capacity building in the region.

1.2 Why This Project is needed

Statistics on natural disasters in North and Central America and the Caribbean indicate that the majority of events, casualties and economic losses are related to meteorological-

¹ The first meeting was organized as a side event on 28th April 2009 in connection with the 15th Session of the Regional Association RAIV of the World Meteorological Organization (WMO) in Nassau Bahamas; the second meeting was organized in San Jose, Costa Rica just after the WMO training workshop and coordination meeting on the Development of Multi Hazard Early Warning Systems (MHEWS) in Central America and the Caribbean, 22-26 March 2010



hydrological- and climate-related hazards and associated effects². The on-going climate change is expected to make the societies even more vulnerable to hydro-meteorological extreme phenomena, such as strong winds, coastal marine conditions, tropical cyclones, heavy rain/ flood and heat waves.

Governments and international organisations have taken significant efforts to reduce risks of natural disasters and to mitigate their impacts globally. The World Meteorological Organisation (WMO), co-ordinating the activities of the NMHSs, has taken an active role by emphasizing the need to obtain reliable information of hazard statistics, risk assessment, strengthening of multi-hazard early warning systems (MHEWS) driven by user requirements, strengthening partnerships between NMHSs and civil protection organizations as well improving the dissemination of information to the general public.

The most recent workshop organized by WMO in March 2010 in Costa Rica, with wide representation from the Greater Caribbean states' NMHSs, Civil Protection Agencies and related regional organizations, concluded that

“Despite of the efforts so far, many challenges remain on legislative, financial, institutional, technical and operational aspects at national to local levels to ensure that early warning systems are implemented as an integral part of disaster risk reduction strategies in all countries. Capacity building would be required in all components of the MHEWS and preparedness process; e.g. in hazard detection, monitoring and forecasting; incorporation of risk information in emergency planning and warnings; delivery of authoritative warnings and in emergency planning and preparedness”³.

This project “Strengthening Hydro-meteorological Operations and Services in the Caribbean SIDS” will in part contribute to these efforts.

In addition to the MHEWS and DRR the project will address the world wide need for quality certification of aviation meteorological services. The certification becomes mandatory for aviation service providers in all countries within a few years, but not all NMHSs can afford the cost for consultation and training for implementation of the Quality Management System. With the certification the NMHSs will also attain a more sustainable position as an authoritative service provider of other hydro-meteorological services including early warnings for extreme conditions.

² EMDAT - The OFDA/CRED International Disaster Database - www.em-dat.net. Université Catholique de Louvain - Brussels – Belgium

³ WMO, 2010: Final report: Training Workshop on Multi-Hazard Early Warning Systems with focus on Institutional Partnerships and Coordination March 22-25, 2010 Radisson Europa Hotel and Conference Center San José, Costa Rica; http://www.wmo.int/pages/prog/drr/events/MHEWSCostaRica/index_en.html



1.3 Partner Organisation Needs, Objectives and Strategies

1.3.1 Finnish Meteorological Institute

The two partners of the project are the Association of Caribbean States (ACS) and the Finnish Meteorological Institute (FMI). The FMI is the NMHS of Finland under the Ministry of Transport and Communications of the republic of Finland. It is a research and service agency and ranked among the top weather services in the world. FMI utilises modern technology in collection of data, analysing the weather information and production of services. The key expertise of the FMI are in the fields of research (weather radar, satellite, observation networks, NWP, aviation, commercial services), applications of meteorology (automated productions systems), public awareness (FMI's website is the fifth well-known and used web resource in Finland), international cooperation and administration.

FMI has wide experience in development cooperation in the Caribbean. The previous project SIDS Caribbean was implemented in 2001-2004 and as a follow up in 2005-2006 a SmartMet system was delivered to Trinidad & Tobago and Jamaica as a pilot project. FMI acts as the support organization providing the project coordinator and other expertise to support the project management and implementation.

1.3.2 Association of Caribbean States

The Association of Caribbean States (ACS) was established 1994 with the aim of promoting consultation, cooperation and concerted action among all the countries of the Caribbean, comprising 25 Member States and three Associate Members.

The objectives of the ACS are to strengthen the regional co-operation and integration process, with a view to creating an enhanced economic space in the region; preserving the environmental integrity of the Caribbean Sea; and promoting the sustainable development of the Greater Caribbean. ACS participated in the previous Caribbean SIDS project in 2001-2004 as a member of the supervisory board. ACS and the Finnish Development policy share similar interests. Besides the commonality of interests between ACS and the Finnish Development Policy, ACS is the only regional organization with complete coverage in the Greater Caribbean which will allow wider attendance in the common meetings, coordination and sharing information amongst similar projects in the region. The organisation profile of ACS and its strategic goals with respect to natural disasters are outlined in Appendices 1 and 2, respectively. The focal areas of ACS are trade, transport, sustainable tourism and mitigation of the impacts natural disasters, conducted through special topical committees. These functions are all strongly linked with the provision of weather and climate services and the provision of early warnings on natural disasters.

The likely implications of climate change with the possibility of intensification of hurricanes, sea level rise, increase of torrential rains and concurrently the increase in vulnerability of the Caribbean societies, as outlined in the international assessments sited above, have set higher requirements and urgency on the enhancement for strategic preparedness to mitigate impacts of natural disasters. To enhance ACS's capacity with



respect to disaster risk reduction the Executive Director of ACS suggested the preparation of this project during his visit to Finland and FMI in 2009.

1.3.3 Project Beneficiaries and Stakeholders

Country	ACS member MHEWS workshop	CMO	CDEMA	SIDS - Caribbean 2001-2004	Feasibility study QMS workshop
Antigua & Barbuda	•	•	•	•	•
Bahamas	•		•	•	•
Barbados	•	•	•	•	•
Belize	•	•	•		•
Colombia	•				
Costa Rica	•				
Cuba	•			•	•
Dominica	•	•	•	•	•
Dominican Republic	•			•	•
El Salvador	•				
Grenada	•	•	•	•	•
Guatemala	•				
Guyana	•	•	•	•	•
Haiti	•		•	•	•
Honduras	•				
Jamaica	•	•	•	•	•
Mexico	•				
Nicaragua	•				
Panama	•				
St. Kitts & Nevis	•	•	•	•	•
St. Lucia	•	•	•	•	•
St. Vincent & the Grenadines	•	•	•	•	•
Suriname	•		•		•
Trinidad & Tobago	•	•	•	•	•
Venezuela	•				

Table 1. ACS member states included in the project and supported to participate in the planned MHEWS workshop, memberships in regional organisations CMO and CDEMA and participation in the previous SIDS Caribbean Project. SIDSs with special focus are indicated in the right column.



The primary project beneficiaries are the NMHSs and the Civil Protection Agencies of the ASC member states in the Greater Caribbean. Representatives of all of the 25 member states can take part in the capacity building activities. The 25 countries are:

Antigua & Barbuda, Bahamas, Barbados, Belize, Cuba, Colombia, Costa Rica, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, St. Kitts & Nevis, St. Lucia, St. Vincent & The Grenadines, Suriname, Trinidad & Tobago and Venezuela.

Sixteen of the member states are Small Island Developing States and will be given a special focus in the project (Table 1). The 16 countries are:

Antigua & Barbuda, Bahamas, Barbados, Belize, Cuba, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, St. Kitts & Nevis, St. Lucia, St. Vincent & The Grenadines, Suriname and Trinidad & Tobago.

Firstly (1), the NMHSs, Civil Protection and other relevant agencies from these states will be included to participate in an extensive *feasibility study*. Secondly (2) a training workshop will be organised to aeronautical meteorological service providers of the SIDS to build a roadmap towards qualifying the services according to an international quality standard.

Other project stakeholders (in addition to MFA; FMI and ACS) include the international and regional organisation in the Caribbean, namely the WMO secretariat and the WMO Regional Association IV, the Caribbean Meteorological Organisation (CMO), the Caribbean Disaster Emergency Management Agency (CDEMA); the NMSs from outside the Caribbean contributing to capacity building in the region and others as required. Close contact and cooperation in joint activities will be maintained with these organisations both at national and regional levels.

2. THE OBJECTIVE OF THE COOPERATION

The overall objective of the project is that

The Caribbean societies are better prepared for the adverse effects of natural disasters and harmful impacts of climate change .

Indicators:

- decrease in the number of casualties and economic losses due to natural hazards in the Greater Caribbean region
- investments on early warning systems and rescue preparedness
- established authority of NMHSs and civil protection agencies as contributors to Disaster Risk Reduction (DRR)



Sources of verification:

- national reports, official hazard statistics and reports
- media, releases, conference reports
- number of new projects and workshops
- total funding for capacity building in the region

The purpose of the project is, as follows:

Enhanced capacity of ACS on the strategic planning of the entire process of Disaster Risk Reduction, and enhanced capacity of the NMHSs and DRR agencies to provide services and preparedness against natural hazards.

Indicators and sources of verification are :

Indicators:

- ACS has updated strategic plans for the Greater Caribbean on mitigating impacts of natural hazards and harmful impacts of climate change
- Increased capacity of NMHSs to provide services and products used by livelihoods that are sensitive to weather and/or climate variability and extremes
- roadmaps for NMHSs to certify aeronautical services according to ISO9000

Sources of verification:

- Policy statements of ACS
- annual reports of NMHSs
- degree of certification of NMHSs' according to a QMS in aeronautical services in the Caribbean SIDS

3. THE EXPECTED RESULTS AND ACTIVITIES

3.1 Expected Results

Project activities will be implemented to produce two broad results:

Result 1 : Completed feasibility study assessment on the Caribbean SIDS with recommendations and an action plan for concrete steps of development

Indicators (-) and sources of verification (?) for this result are

- Detailed work plan adopted by stakeholders
 - o minutes and work plan documents
- Positive feedback from the beneficiary agencies
 - o number of SIDS contacts established, visit evaluation reports
- Conclusions and recommendations adopted by project beneficiaries and stakeholders as a basis for further actions
 - o final report, final meeting recommendations



Result 2: Improved capacity of the staff of ACS, NMHSs and the Civil Protection agencies in the ACS memberstates on MHEWS, DRR and QMS

Indicators (-) and sources of verification (?) for this result are

- Success of project meetings
 - o meeting reports, number and coverage of potential attendees
- Success of the MHEWS training workshop
 - o workshop report, evaluation and feedback from attendees
- Success of the Training workshop on Quality Management Systems on aviation weather services
 - o activity reports, number completed roadmaps, final conclusions, evaluation and feedback from attendees
- More than 30% of the workshop participants are female
 - o participant lists
- Final recommendations and implementation project plans adopted ACS, the beneficiaries and the stakeholders
 - o final report, ACS strategy, regional development strategies and action plans.

3.2 Main Activities

The following activities and inputs have been specified to obtain the results.

3.2.1 Result 1: Completed feasibility assessment on the Caribbean SIDS with recommendations and action plan for concrete steps of development

Activity 1.1 Feasibility study preparation with a planning meeting

The *feasibility study* will identify specific capacity building opportunities and needs related to the Caribbean SIDS hydro-meteorological services, early warning systems and the entire DRR process nationally and regionally. The study will focus on assessing the methods and provision of services, risks related to natural disasters, production and dissemination of multi-hazard early warnings and the state of observation networks. Attention will be also given on governance and on cooperation between agencies and the ministries involved in DRR and operations of MHEWSs. The assessment will take into account the variety of climate, geophysical, economical and cultural situations as found in the Caribbean Islands whilst also seeking commonalities that could benefit in building an efficient infrastructure for services in the Caribbean as a region. Gender issues will be taken into account in the feasibility study planning and execution. The assessment of capacity building needs and opportunities will be gender specific.



Planning meeting with relevant stakeholders will be organised to prepare the methods of the feasibility assessment.

- A consultant will be sub-contracted to guide the planning process especially with respect to DRR related matters and to ensure that sensitive cross-cutting themes, such as social minority and gender related matters and interests of the project stakeholders are appropriately addressed in the work plan.
- The preparation including collection and organisation of the existing data and literature, preparation of the logistics and schedule of the mission and establishing contacts with the relevant agencies in the beneficiary countries
- Establishing contacts with representatives at key agencies in the SIDSs

Inputs:

- One FMI expert: 1 overseas mission for 5-7 days
- Planning meeting with stakeholders and a consultant at ACS for max. 5 days

Activity 1.2 Feasibility study missions, SIDS Caribbean

- Missions to (max) 16 Caribbean SIDS, with meetings, discussions and interviews with representatives of the relevant government ministries, directors and experts of the NMHSs and government agencies responsible for civil protection.
- During the visits to the individual NMHSs of SIDS, seminars and training sessions will be organized in addition to the interviews and collection of information.

Inputs:

- 1 FMI expert: 3-4 overseas missions, each 2-3 weeks
- 1 FMI & 1 ACS expert: 20 regional missions to Caribbean SIDS/3-4d each/ 80 d total
- interviews, meetings, collection of data

Activity 1.3 Feasibility study report publication

- The main deliverable of the project will be an extensive report to summarise the present situation, findings from the discussions during the missions and to propose and prioritise future actions for capacity building.
- The high priority needs will be formulated as implementation project proposals with tentative budgets and time plans. An assessment will be made to co-ordinate proposed activities with different donor agencies

Inputs:

- 1 FMI expert: contribution to feasibility study report (meteorology related) (included in other activities)
- 2 ACS expert: contribution to feasibility study report (DRR related)/ 30d total



- preparation of implementation project plans
- review of project plans by stakeholders
- project meetings with stakeholders

3.2.2 Result 2: Improved capacity of the staff of ACS, NMHSs and the Civil Protection agencies in the ACS member states on MHEWS, DRR and QMS

Activity 2.1 Project meetings, final project closure

Project meetings include meetings with the project board, project group and stakeholders. The purpose of the meetings is also to discuss, plan, follow-up of project activities and to seek guidance for continuous optimal orientation. The sequence of meetings focuses on planning, initiation (kick-off), follow-up and reviewing obtained results (project closure). The locations and timing and method of communication for the events will be determined during the course of the project. Teleconferencing methods are applied as much as possible and appropriate. The organisations invited to coordination meetings will be: WMO Secretariat, the WMO regional office, Regional Association (RA IV) of WMO, the Caribbean Meteorological Organization (CMO), the Caribbean Disaster emergency management Agency (CDEMA) and the contributing NMSs in the region, namely, NOAA (USA), MSC (Canada), AEMET (Spain) and MeteoFrance.

- Project board meetings every half year/ 4 meetings
- Project team meetings during scheduled planning/follow-up session (see other activities) and workshops/ tentatively 6 meetings
- The project final closure meeting is organised as stand-alone meeting with wide attendance from the participating Caribbean SIDSs.
- Meeting facilities and physical attendance is arranged for project initiation (kick-off) and closure. The kick-off meeting will be connected to the feasibility study planning meeting (see activity 1.1). The project board and team meetings are arranged in conjunction with the training workshops and as teleconferences to optimise the use of time and resources.

Inputs:

- meeting for final project closure (max 5 days): 3 FMI experts overseas mission/ 7 days, 3 ACS experts (regional travels)/7days, 1 participant/16 SIDSs/7 days
- ACS administrative assistance to organise project meetings (invitations, reservations, registration, cost of facilities etc.)
- maintenance fees for teleconferencing services, miscellaneous costs of meeting facilities, techniques etc.

Activity 2.2 Training workshop on Multi-Hazard Early Warning Systems (MHEWS) and processes to support Disaster Risk Reduction



- Participation from the ACS member states of the Greater Caribbean will be supported in a regional workshop organized in cooperation with WMO other stakeholders. The topic of the workshop will include developing a regional plan to increase capacities on Multi-Hazard Early Warning systems and cross institutional cooperation in Disaster Risk Reduction
- Invitations will be sent to NMHSs and civil protection agencies encouraging the participation of female experts in the workshops

Inputs:

- support to 1-2 experts from 25 Caribbean ACS members for regional travel, accommodation and allowances for 5 days
- 2 FMI experts: 1 overseas travel/7d
- 4 ACS experts: 1 regional travel/7d
- ACS administrative assistance (invitations, reservations, registration, etc.)

Activity 2.3 Preparatory work for the QMS workshops

- two inter-linked workshops are prepared: (1) introduction to ICAO requirements and (2) building a roadmap for each NMHS to reach the requirements and to prepare audition

Inputs: preparatory work by 3 FMI experts /5d

Activity 2.4 1st QMS workshop on building a roadmap to the ICAO requirements

- an interactive, problem-based training will be organised to introduce the concept of a QMS to the participants, present different QMS solutions and give hands-on training on a roadmap aimed at the implementation of a QMS in the participating NMHSs
- Group discussions and case studies will be used as the basis for building capacity
- Preparation of assignment for the interim period concluding with the 2nd QMS workshop.

Inputs:

- 3 FMI experts: work and 1 overseas travel/ 7 days
- ACS administrative assistance: invitations, registration, reservations, etc.
- misc. meeting costs

Activity 2.5 Evaluation of the documentation prepared by participating NMHSs and online assistance to NMHSs

- evaluation is carried out remotely by exchanging documents, and sharing online assistance towards preparation of the final versions



Inputs: work by 3 FMI experts remotely /5 days

Activity 2.6 2nd QMS workshop, review of assignments and conclusions

- review of submitted assignments by participants
- finalising the suggested procedures
- discussion on the problems faced during implementation of a QMS
- revision on the progress made, issues raised on outcomes of the QMS training and assignments
- group discussions on final steps towards a maintained and certified QMS
- discussion on the role of ACS in sustaining the outcomes and drawing up a strategy and road map to support the aviation weather sector
- evaluation is carried out remotely by exchanging documents, and sharing online assistance towards preparation of the final versions

Inputs:

- 3 FMI experts: work and 1 overseas travel/10 days
- 16 Caribbean SIDS trainees: 1 regional travel/10 days
- ACS administrative assistance: invitations, registration, reservations, etc.
- misc. meeting costs

4. THE APPROACH ON CAPACITY BUILDING

The major part of the project deals with human and technical capacity development. The activities outlined above include on the job training (“learning by doing”) and workshop-type events. The on the job training will include collaboration between FMI and ACS experts. In practise, true and identified needs by ACS and the Caribbean SIDS NMHSs will be addressed in cooperation with FMI experts during FMI visits to the region.

The approach is to involve ACS experts in all levels of the project implementation so that FMI and ACS experts work closely together; having thus a shared responsibility to reach jointly the agreed results of the project. A major part of the capacity building will concentrate on practical hands-on training to support and reinforce the transfer and adaptation of existing know-how. The hands-on training activities will not comprise of presentations or actions made by Finnish experts but will focus on problem-solving through collaboration between participants and experts. Main part of activities is devoted on concrete, real-life use of calibration systems and development of operational manuals to raise the capacity of the participants.

Opportunities will be provided for contact between FMI and ACS and NMHSs experts to be maintained after the project finalisation to support the development after the project. All the documentations, guidance, training materials and operational manuals will be stored and disseminated via special website and made available to all involved experts and stakeholders. This website enables also interactive exchange of information and



ideas. The FMI currently operates a Moodle Learning Management System for international operations at the address: <http://knowledge.fmi.fi>. This virtual learning environment will be used as a virtual classroom between the FMI experts and participants connections. This joint platform will be kept alive after the project as a common resource for the participants.

5. THE PROPOSED ACTIVITIES' RELATION TO THE OTHER ACTIVITIES OF THE PARTNER AGENCY

To implement the project activities, it is estimated that a total at least 250 working days for the three staff members from ACS would be made available by ACS during the two year project; the work of the DRR expert would consist of 150 working days, secretarial work for meeting and travel arrangements 50 days and work of the DRR assistant 50 days. The ACS is fully prepared and able to contribute to the activities of this project with the needed resources. It is not foreseen that this project would inhibit the normal operations of ACS.

The participation from the Caribbean SIDS NMHSs, will require that one person per SIDS will take part in the project activities contributing to 20 working days per year. The participants will be the meteorological professionals of their countries' governmental agencies. The NMHSs will be able to contribute these resources for the project activities given that activities are announced and planned well ahead and avoid hurricane seasons when most NMHS staff is occupied with operational duties.

The project will enhance the capacity of ACS to develop its regional strategy on DRR in cooperation with other stakeholders. The expected changes brought on by this project will also be visible through the increased demand of the services produced by the NMHSs of Caribbean SIDSs. The strategic significance of NMHSs in the Caribbean is expected to increase through increased effectiveness and visibility of the hydro-meteorological and MHEWS services in support of various weather sensitive livelihoods and DRR. The NMHS's aviation weather services will have developed a systematic quality management system for their operations resulting in more reliable aviation weather forecasts.

Active countries investing in capacity building of the meteorological infrastructure in the Caribbean are especially USA, Canada, France, Spain and UK. These activities are in many aspects coordinated by WMO and especially its regional association RA IV and the CMO. Recently (March 22-25, 2010 in Costa Rica) WMO organised a 5 days training workshop and coordination meeting for which nearly all Greater Caribbean states and the relevant region organisations participated. As a follow-up of this workshop, a regional multi-donor project for capacity building of the hydro-meteorological services and MHEWS will be developed. The present project has established a close cooperation with WMO and a representative from WMO will be invited as a member of the project board.



6. TIME SCHEDULE

The project is expected to begin in August-September of 2010 with the planning for the feasibility study, a MHEWS workshop and preparation of the aviation weather QMS workshop. A table summarising the approximate timing of activities and tasks is shown below. The preparation of the feasibility study review, project final report and arranging the final project closure meeting will extend the project to the first half of 2012. The exact timing of the activity components was possible at an accuracy of a quarterly year at this stage. Due to the hurricane season between approximately June and October, the possibility to continue the feasibility survey in late 2011 and early 2012 is reserved.

Result/Activity	Year 2010		Year 2011				Year 2012	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Result 1: Completed feasibility study assessment on the Caribbean SIDS with recommendations and an action plan for concrete steps of development								
Activity 1.1 Feasibility study preparation with a planning meeting								
Activity 1.2 Feasibility study missions, SIDS Caribbean								
Activity 1.3 Feasibility study report publication								
Result 2: Improved capacity of the staff of ACS, NMHSs and the Civil Protection agencies in the ACS member states on MHEWS, DRR and QMS								
Activity 2.1 Project meetings, final project closure								
Activity 2.2 Training workshop on Multi-Hazard Early Warning Systems (MHEWS) and processes to support Disaster Risk Reduction								
Activity 2.3 Preparatory work for the QMS workshops								
Activity 2.4 1st QMS workshop on building a roadmap to the ICAO requirements								
Activity 2.5 Evaluation of the documentation prepared by participating NMHSs and online assistance to NMHSs								
Activity 2.6 2nd QMS workshop, review of assignments and conclusions								

7. SUSTAINABILITY AND PERCEIVED RISKS

A great deal of attention has been given to address issues that will support the sustainable development in the Greater Caribbean. The activities are planned to be in line with the development plans of the regional organisations, the NMHSs and needs of the societies.

Utilisation of the project results can be implemented by ACS with the financial and human resources foreseen to be available for the coming years.

The improved capacity as a result of this project will form a basis for future ACS strategies and will enhance its capacity to better and more efficiently service different sectors of the Caribbean societies. Technical and human capacity building will be targeted to relevant levels of the organisation to promote sustainability. Also, individuals will be selected to act as trainers within ACS in the topics of the project in the future. Opportunities will be provided for contacts between FMI and ACS experts to be maintained after the project finalisation to support the development after the project.



The most important risks in this project are related to the natural environment and include:

- Hurricanes, heavy rain, major flooding and other natural disasters could affect the ability of ACS and the NMHSs to keep staff focused on this project and/or impact the actual functioning of ACS. Potential consequences for the project could be serious and seen as potential. Hurricane season will be taken into account when planning the activities of the project.
- Organisational changes in ACS could potentially slow down project implementation if key staff is taken off the project. While potential consequences could be grave, there is no evidence to suggest that this would be a large risk at the time of project implementation.

8. PROJECT ORGANISATION

8.1 Project Board

The project will be coordinated by the project manager and supervised by the project board consisting with tentative representation from partner and stakeholder organisations as follows:

- FMI head of Consulting Services Unit: Mr. Harri Pietarila
- FMI Project Manager: Dr. Martti Heikinheimo
- ACS Secretary General: Mr. Luis Andrade Falla
- Representative from CMO (tbd)
- Representative from WMO (tbd)

FMI will be responsible for

- overall coordination of project planning, implementation and reporting
- coordination of project activities related to capacity assessment of NMSs in the beneficiary countries (SIDSs)
- managing the project budget
- managing contacts between stakeholders, partners and beneficiaries

ACS will be responsible for

- coordination of project activities related to disaster risk reduction
- practical arrangements of the project related meetings and workshops (excluding the WMO workshop on EWSs)
- practical arrangements of the feasibility study visits to the SIDS countries: travel logistics, meeting arrangements, accommodation

8.2 Project Staff

A project group will be established consisting of key experts from both agencies to be responsible for certain activity areas. The following experts have been appointed for this project from the FMI:



- Project Manager: Dr. Martti Heikinheimo
 - Dr. Heikinheimo has extensive experience as a director of several FMI departments (1996-2007, including research groups, weather observations department and the weather service operations) and as a project coordinator and consultant of internal and international development projects, especially related to operational meteorology. Dr. Heikinheimo holds a PhD in meteorology from University of Guelph, Canada and from University of Helsinki.
- Responsibilities*
 - Coordination of allocated resources for the project
 - Coordination of project activities between stakeholders of project members and beneficiaries
 - Participation in the feasibility study and visits to the beneficiary (SIDSs) countries
 - Coordination of planning for meetings and workshops
 - Compilation of reports to stakeholders
- Key Expert: Mr. Heikki Juntti

Mr. Juntti is the Head of Unit of the Weather and Safety Centre of FMI. Heikki is a key expert in management, aviation meteorology and quality management systems. Lead Auditor qualification.

Responsibilities
 - Planning of QMS training
 - Quality management and ISO9001:2008 standard
 - Evaluation of QMS and the progress of the participating countries during the project.
- Key Expert: Mr. Alberto Blanco Sequeiros

Mr. Blanco is the Chief Meteorologist of the Aviation and Military Weather Service, Rovaniemi, Northern Finland. Mr. Blanco has extensive experience in the implementation of Quality Management Systems and also from aviation. He has special competence for verification of aeronautical weather services forecasts. Lead Auditor qualification.

Responsibilities
 - Exercises during training
 - Measuring the quality
 - Audit training
 - Follow up the progress of the participating countries
- Key Expert: Ms. Riikka Pietilä

Ms. Pietilä is a Meteorologist of the Aviation and Military Weather Service in Rovaniemi, Northern Finland. Ms. Pietilä has experience about internal audits. She is experienced on competence developing of forecasters in aviation meteorology.

Lead Auditor qualification.

Responsibilities
 - Exercises during training
 - Competence requirements of aeronautical forecasters
 - Audit training

The following experts have been appointed from ACS:



- Mr. Luis Fernando Andrade Falla
Ambassador, Secretary General of the Association of Caribbean States
Responsibilities
 - directing and coordinating project activities within ACS
 - member of the project board
 - coordination the project with FMI and project stakeholders

- Key Expert: Mr. Eduardo Jose Gonzalez Angulo
Responsibilities
 - coordinate with stakeholders and beneficiaries concerning the DRR related activities of the project
 - carry out feasibility assessment on the capacities of the SIDS to communicate early warning information between NMSs, civil protection agencies and the general public
 - participate on the DRR related common events of the project
 - contribute to the preparation of the project reports

- Key Expert: Research assistant Salome Buglass
Responsibilities
 - Assist Mr. Eduardo on DRR related tasks of the project

- Key Expert: Secretary: Sandra Fonseca
Responsibilities
 - practical arrangements of project related meetings and workshops (info, registrations, accommodation and travel logistics)
 - practical arrangements of the visits to the SIDS countries during the feasibility study (travel arrangements and arranging meetings with local contacts)



9. PROJECT BUDGET

9.1 Total Project Budget

TOTAL PROJECT BUDGET					
		days	costs per day (average)	total costs	%
A Capacity building costs					
A1. Assignment fees, Finnish gvmt experts					
	work in Finland	30	738,5 €	22 154,9 €	
	work in region	174	738,5 €	128 498,3 €	
	A1. Subtotal	204		150 653,2 €	30,7 of total
A2. Travel costs					
		units	costs per unit		
	FMI experts FIN-Caribbean	17	1 600,0 €	27 200,0 €	
	FMI experts Caribbean	20	500,0 €	10 000,0 €	
	partner experts	93	500,0 €	46 500,0 €	
	A2. Subtotal	110		83 700,0 €	17,1 of total
A3. Accommodation					
	FMI Experts	153	153,5 €	23 490,0 €	
	A3. Subtotal	153		23 490,0 €	4,8 of total
A4. Travel allowances					
	FMI Experts	172	61,6 €	10 596,0 €	
	ACS & NMHS Experts UN Per Diem	547	269,4 €	147 345,0 €	
	A4. Subtotal	719		157 941,0 €	32,2 of total
A5. Work assignments subcontracted to region (max 10% of total)					
				20 000,0 €	4,1 of total
Subtotal A (at least 70% of total costs)				435 784,2 €	88,9 of total
B. Administrative technical costs in partner country				22 600,0 €	4,6 of total
C. Fixed Assets				0,0 €	0,0 of total
D. Contingency costs (5 - 10%)				31 615,8 €	6,5 of total
Total (excl. VAT*)				490 000,0 €	

9.2 Budget Overview

The Project Budget is close to the maximum allowed for ICI projects. Due to the expected wide participation from the Greater Caribbean countries, the training workshops consist of nearly one half of the project budget.

Training workshops are considered as a powerful tool for capacity building. Therefore a full coverage of participation within the Greater Caribbean is sought by counting the travel costs and allowances for at least one participant from each the 25 ACS member states. To promote gender equality, participation of women to take part in the meetings and workshops will be encouraged. The most economic way to organise the workshops will be sought. In the budget shown at present the per diem rates for the participating countries were not available at the time of submission of the document. Thus, a standard UN rate for the per diems was used instead. The per diem rates will be revised, after negotiations with WMO, to find the most economic way to handle the allowances. In the organisation of large regional workshops, the Project shall seek opportunities to pool resources with international organisations such as WMO to lower workshop costs. If successful, the budget will allow for even wider support for participation in the workshops from the Caribbean countries.



The budget includes subcontracting within the Activity 1.1 to perform consultation for the preparation of the methods and implementation of the Caribbean SIDS feasibility study assessment. The consultant will be used in cooperation with WMO and other stakeholders in order to coordinate with other ongoing/planned feasibility assessments in the Greater Caribbean region. The consultant will be selected from the region and the consultancy fee will include all expenses of the consultant's work. A separate Terms of Reference for the work of the consultant will be drafted and signed by FMI and the consultant.

9.2 Budget per Activity

Activity	Cost
Activity 1.1 Feasibility study preparation with a planning meeting	30 811 €
Activity 1.2 Feasibility study missions, SIDS Caribbean	125 675 €
Activity 1.3 Feasibility study report publication	12 519 €
Activity 2.1 Project meetings, final project closure	53 478 €
Activity 2.2 Training workshop on Multi-Hazard Early Warning Systems (MHEWS) and processes to support Disaster Risk Reduction	65 625 €
Activity 2.3 Preparatory work for the QMS workshops	9 129 €
Activity 2.4 1st QMS workshop on building a roadmap to the ICAO requirements	61 449 €
Activity 2.5 Evaluation of the documentation prepared by participating NMHSs and online assistance to NMHSs	9 129 €
Activity 2.6 2nd QMS workshop, review of assignments and conclusions	90 569 €
TOTAL	458 384 €
Contingency	31 616 €
	490 000 €

10. OTHER ISSUES

10.1 Cross-cutting Themes

Of the different cross-cutting themes gender equality, governance and protection of the environment are considered most important with respect to the present project. As an example, one practical way to promote gender equality will be to include statements in the invitations to 'select as much as possible equal number of men and women as participants in the workshops and meetings'.

Cross cutting themes will be taken into consideration during all activities of the project. A consultant will be sub-contracted to guide the planning process especially with respect to



DRR related matters and to ensure that sensitive themes, such as governance, gender related matters and interests of the project stakeholders are appropriately addressed in the work plan. During the feasibility study there will be meetings with representatives from the SIDS' national governments and service agencies related to MHEWS and disaster risk reduction. These themes will be included in the meeting agendas following recommendations and policies set by MFA.

10.1.1 Equal Participation of Women and Girls

An UNIFEM and IDRC review on Gender, Sexuality and Implications for HIV/AIDS in the Caribbean (2006, see Annex 8) states the following: "Through these and later studies it was established that a number of dimensions of Caribbean sexual relations were common, and were intricately tied to

- i. the female-centred and -headed household; elaborated by R.T. Smith in the 1950s as "the matrifocal" family, in which men are marginal, but considered necessary for procreation as well as for economic support for children and mother;
- ii. informal polygny - socially accepted arrangements that allow men in a co-residential union or marriage to maintain extra-marital or "outside" relations;
- iii. "keeping" relations, which later became redefined as "visiting relations," and
- iv. homosexual relations - male and female same-sex relations

The patterns established around sexuality since the 1940s appear to have been quite stable to the end of the twentieth century, and to continue to inform Caribbean gendered and sexual life in scholarship, ideas, and practice in the postcolonial era".

The Caribbean societies are thus more conservative compared to the Nordic countries and there remains much to do still within gender equality in long traditions of male dominance female participation in the working life. This project will promote equal rights for participation in all of its activities and will call for women's participation in workshops and highlight gender inequalities within the NMHSs if such are present in p roject reporting.

10.1.2 Environmental Sustainability

The project is directed towards improved hydro-meteorological services in the Caribbean region. Through improved services in weather forecasts, warnings, aviation weather forecasts, climate services, observations and public awareness the project will contribute towards improved actions to combat adverse effects of climate change and raise the issue in the SIDS countries through the NMHSs. The project will contribute positively in disaster risk reduction efforts in the Caribbean related to natural hazards. The project activities promote environmental sustainability and do not in any way have negative environmental impacts. Carbon emissions from air travel will be compensated according to FMI Green Office standards.



APPENDICES

Annex 1: ACS Overview

Annex 2: Strategic Objectives of the ACS Committee on Natural Disasters

Annex 3: Logical Framework Matrix

Annex 4: Project Budget

Annex 5: Description of the OKA multiplier

Annex 6: Draft MoU

Annex 7: Project Key Personnel CVs

Annex 8: Gender, Sexuality and Implications for HIV/AIDS in the Caribbean: A Review of Literature and Programmes (UNIFEM, 2006)