MEDIUM TERM WORK PLAN

on

COOPERATION IN THE FIELD OF CLIMATE CHANGE VULNERABILITY, RISK ASSESSMENT, ADAPTATION AND MITIGATION

between

THE NEVADA GOVERNOR'S OFFICE OF ECONOMIC DEVELOPMENT

and

THE MINISTRY FOR THE ENVIRONMENT, LAND AND SEA

OF THE REPUBLIC OF ITALY

Following the Memorandum of Understanding (MoU) signed in Rome, on 17th October 2016, between the Nevada Governor's Office of Economic Development and the Ministry for the Environment, Land and Sea of the Republic of Italy, the Signatories agree to implement the following medium term Work Plan which has been prepared in light of the provisions of Article 4.(2) of the MoU.

Objectives

The objectives of the present medium term Work Plan are to identify and select activities that correspond to the general objectives of the MoU that are to:

a) strengthen and coordinate the efforts to combat global climate change and address its adverse effects;

b) support mechanisms for regional climate change impact, vulnerability and risk assessment;

c) promote clean and efficient energy, to stimulate and disseminate the economic and technological transformation to low emissions and to ensure energy security;

d) implement adaptation actions and opportunities to protect the environment and natural resources.

Description of Activities

The Work Plan aims to focus on the activities selected for the following areas of cooperation identified by the Signatories within Article 2 of the MoU and here below further detailed:

a) exchange of best practices, approaches and technologies relevant to the observation and simulation of the climate system for the assessment of changes in climate "hazards",

recognized by IPCC as including climate's average trends, extreme events, and related physical impacts. This will include sharing knowledge and competencies on:

i) opportunities and challenges from both global and regional climate modelling, as well as from statistical downscaling and bias-correction procedures;

ii) the usefulness and advantages of adopting indices and indicators representing climate extreme events, especially when these indices/indicators are tailored to synthetize information for stakeholders and other interested end-users;

iii) the best compromise between inclusiveness and sophistication of processes' representation when building models' chains enabling "cascade" climate to impact simulations, depending on the purpose and scale of the analysis;

iv) availability, and room for improvements, of harmonized data and methodologies to go from the assessment of impacts, vulnerability and risk (and related uncertainty treatment) under single climate hazard, to the integrated quantification of impacts under multiple hazards leading to multiple risks.

b) collection, analysis, and dissemination of meteorological, soils, environmental (e.g. chemical, biophysical and ecological) up to socio-economic data relevant to the observation of climate change and the measurement of its impacts on the potentially vulnerable systems/sectors, such as: water resources, health, natural ecosystems and their services, rural to urban areas, and related economic sectors like agriculture and tourism. Besides existing literature, data sources will consist of:

i) ground-based observations, thanks to participation in, or networking with, national to international efforts like e.g. long-term research ecological/hydrological/climate sites (LTER, USGS), micro-meteorological to biogeochemical monitoring initiatives (e.g. FLUXNET), as well as the development of in-house sensors/devices for eco-physiological or environmental monitoring;

ii) proximal to remote sensing, thanks to expertise on UAVs, aerial and satellite data acquisition, post-processing and analyses;

c) implement a joint program to develop a better understanding of the factors leading to, and favoring mitigation of, urban flood impacts:

i. analysis of urban flood issues, by promoting cooperation between the Desert Research Institute (DRI) and Italian research institutes taking account of situations presenting comparable conditions. Study cases concerning both pluvial and fluvial floods will be explored in Italy and Nevada (enlarging to Western U.S. and the Mediterranean basin if appropriate) by exchanging/integrating tools available at both research institutes, e.g. time series of meteo-hydrological observations and chains of climate-hydrological-hydraulic models integrated with information on the vulnerability and efficiency of urban drainage systems;

ii. promotion of workshop(s) and/or technical event(s) in Nevada and Italy with experts, other research institutions, universities, river basin authorities, hydro-meteorological services and civil protection agencies, private sector and non-governmental organizations;

d) promote collaborative studies to assess, and then project, the changes in the variability of river flow (e.g. most frequent, long and severe low discharge periods) due to climate change and other variables. This will include:

i) Exploring the combination of climate and land use change effects (e.g. due to agricultural expansion/intensification, deforestation, fires, land degradation to desertification) on the hydrological regime, or the consideration of increasing water withdrawals for energy, irrigation or domestic/drinking water requirements.

ii) The formulation, or refining, of tailored indicators on hydrological droughts' attributes (e.g. timing, duration, intensity, frequency), for easy communication of results to stakeholders and other interested end-users;

e) develop programs to address the impact of climate change and anthropic pressure on the hydrological cycle, with particular attention, but not limited, to the altered quality and availability of coastal freshwater due to salt water intrusion. The altered hydrological cycle impacts multiple uses of water (domestic, industrial, energy and agricultural) and the revenue of sectors depending on them. Developed programs will aim to:

i. foster exchange of information and materials related to water related issues, including studies, publications, expertise and programs results;

ii. promote research activities and foster exchange of knowledge including, inter alia, the realization of workshops, seminars or other meetings, on topics like the impacts of sea water intrusion or other alterations of the hydrological cycle on the water systems' quality and quantity, the water-energy-food nexus, for example by analyzing precision farming and other practices which may be useful to promote the approach of climate smart agriculture (CSA);

f) promotion and development of climate change mitigation strategies, such as the use of renewable energies, and possible trade-offs with adaptation:

i. promotion of workshop(s) and/or technical event(s) to share knowledge and start cooperation on: 1) analysis of climate change impact on hydropower generation reliability (including risk of failure during operations); 2) integration of renewable energy on the grid stability (including wind and solar forecasting and the promotion of balance between energy sources); 3) investigating geothermal renewable energy; 4) solar cooling; 5) battery storage;

ii. foster resources sharing, technical cooperation and information exchange between the public and private sector operators, research centres, universities and non-governmental organizations in renewable energy production, storage and distribution;

iii. design, development and promotion of possible joint projects and initiatives related to technology transfer between Italy and the State of Nevada and, where relevant for the interest of the Signatories, between them and Developing Countries with the aim to support the implementation of the respective Nationally Determined Contributions for the Implementation of the Paris Agreement;

g) foster resources sharing, technical cooperation and information exchange:

i. exchange of information and materials related to environment, including programs, publications, expertise and studies results between;

ii. exchange of experts, delegations visits and trainees between the Italian public and private universities and research centres and the Nevada System of Higher Education (NSHE);

h) development of capacities for regional research activities, including opportunities for improved decision modelling from climate to impacts, and quantification of uncertainty, for a more robust decision making framework and formulation of adaptation strategies. Desirable research activities will be designed and planned according to:

i. the regional/local peculiarities of the territories analyzed, in terms of interacting ecosystems, resources, and sectors to be addressed;

ii. data availability, gaps and needs for new/improved data;

iii. synergies to be activated with existing projects, programs and national to international initiatives.

i) implementation of investment strategies to promote commercialization and development of technologies to address climate, water and energy issues:

   i. promotion of private sector participation and activities to implement Public Private Partnership initiatives within the framework of the MoU;

   ii. the Signatories will identify, promote and/or develop joint project proposals to be submitted *inter alia* to multilateral and international financial institutions in order to leverage climate finance to foster development of technologies to address climate, water and energy issues including activities related to the commitments under the UNFCCC;

   iii. assess and share methodologies, data and policies related to voluntary carbon market schemes at the international, national and regional level, with a view to involve financial institutions across the banking, capital markets, institutional investment and insurance sectors.

The aforementioned activities selected within the areas of cooperation are subject to review, adjustment by the Joint Committee as specified in Article 5.(6) of the MoU.

Implementation and financial planning

As specified under Article 7 of the MoU, the Signatories will agree on the possible level of respective financial coverage for each the activities described above in the subsequent meetings of the Joint Committee.

To this aim, the Signatories will agree on a Financial Plan table to be annexed to this Work Plan in order to prioritize and select the activities that will be subject to be granted financial coverage by the Signatories according to their respective arrangements.

The Signatories have agreed to establish a mechanism, under the provisions of the respective legislations, for granting transparency of expenditures, accounting and audit

within the Guiding Principles for Bilateral Cooperation Mechanism that is approved at the first meeting of the Joint Committee in Las Vegas on 2nd March 2017 as established under Article 5.(5) of the MoU.

Entry into force

This mid-term Work Plan will come into force after signature by the Signatories.

This mid-term Work Plan is agreed and signed in Las Vegas on 2nd of March 2017.

The mid-term Work Plan will be valid for two years and will be subject to review, adjustment and amendment by the Joint Committee.

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