Socialist Republic
of VIET NAM

COOPERAZIONE
ITALIANA

VIETNAMESE - ITALIAN COOPERATION

PROJECT: "IMPROVING THE FLOOD FORECASTING AND WARNING SYSTEM IN VIET NAM - PHASE II"

PROJECT IMPLEMENTATION DOCUMENT (PID)

CONTENT

CHAPTER 1 – SCOPE OF THE DOCUMENT

Scope of this PID is to describe the main activities included in the Project "*Improving the flood forecasting and warning system in Viet Nam - Phase II*" (the Project) and to define the modalities to be adopted by the bodies involved in the implementation for the utilization of the financial, human and material resources made available by the Vietnamese and Italian sides for the Project, according to the provisions of the Memorandum of Understanding (MoU).

CHAPTER 2 – ACRONYMS AND DEFINITIONS

The acronyms and definitions used in the MoU and in this PID are listed below with their respective meanings:

Agreement	The MoU signed by the Government of the Government of the Socialist Republic of Vietnam, represented by the Ministry of Planning and Investment (MPI), and the Government of the Italian Republic, represented by the Ministry of Foreign Affairs, Directorate-General for Development Cooperation
Artigiancassa	The Italian Bank appointed by the GoI as the Italian Financing Institution to manage the soft loans
Embassy	Italian Embassy in Hanoi
FC	Financial Convention (loan agreement) signed by Artigiancassa and the MoF in order to define the soft loan terms and conditions and modalities of disbursement and repayment
FP	Financing Proposal
FSR	Feasibility Study Report
GDP	Gross Domestic Product
GoI	Government of the Italian Republic
GOP	General Operational Plan
GoV	Government of the Socialist Republic of Vietnam
HYMENET	The Hydro-meteorological and Environmental Stations Network Centre
MAECI-DGCS	Directorate-General for Development Cooperation of the Italian Ministry of Foreign Affairs and International Cooperation (Italian Cooperation)
MoF	Vietnamese Ministry of Finance
MONRE	Ministry of Natural Resources and Environment

MoU	Memorandum of Understanding
MPI	Vietnamese Ministry of Planning and Investment
NHMS	National Hydro-Meteorological Service of the SR of Vietnam
ODA	Official Development Assistance
PD	Project Director
PDO	Project Detail Outline
PID	Project Implementation Document
PIR(s)	Project Implementation Report(s)
PIS	Project Implementation Schedule
PMU	Project Management Unit
Project	Improving the Flood forecasting and warning system in Viet Nam - Phase II
TA	Technical Assistance
The Mission	The members of the Italian appraisal mission
TOR	Terms of reference
USD	Us Dollar
UTL	Development Cooperation Office of the Italian Embassy in Hanoi
VAT	Value Added Tax
VND	Vietnamese Dong

CHAPTER 3 – PROJECT ORIGINS

The latest meeting of the Joint Commission on Development Cooperation, between the Delegation of the Government of the Socialist Republic of Vietnam (GoV) and the Delegation of the Italian Republic (GoI), took place at the Ministry of Foreign Affairs in Rome on December 4th, 2009. During the meeting, inter alia, the two Delegations discussed the status of the on-going projects and the strategies and perspectives of future cooperation. The Italian side announced its decision to allocate new financial resources for the 2010-2012 Italian-Vietnamese Development Cooperation Program. Among these new resources, the Italian side committed itself to allocate up to 30 million Euros as soft loan. The two parties agreed that the aforementioned soft loan allocation shall be used to fund development cooperation projects and program in three priority sectors, jointly selected by the two Governments, namely: (i) health, water & environmental protection and, (iii) vocational training. It was also specified that the financial resources shall translate into financial commitments according to the Italian rules governing the financing of development cooperation initiatives, that is: (i) upon requests presented by GoV, (ii) after a full technical appraisal by MAECI-DGCS of each project and program and, (iii) the subsequent approval by the Italian Steering Committee for Development Cooperation.

Subsequently, On December 12th2009, the representatives of the two Governments signed in Milan the Agreement on Development Cooperation, which fully incorporated the issues discussed during the above-mentioned meeting and the reached agreements.

On May 8th 2013, the Ministry of Planning and Investment (MPI) sent to the Embassy a letter with its first official request to finance the Project out of the Italian commitment of 4 million Euro soft loan. The Project Detail Outline (PDO) was attached to the MPI letter where MPI communicated that: (i) the PDO for the Project was approved by GoV and, (ii) the required Italian Official Development Assistance (ODA) contribution was equal to US$ 5.268.000. At the exchange rate prevailing in May 2013 (1€ = 1,317 US$). In the PDO, it was also specified that the total Project cost was estimated at US$ 8.270.000. DGCS sent its staff to Viet Nam for a first advice on Project preparation. The purpose of the mission is to assess the technical, economic, financial, social and the other related aspects of the PDO represented by NHMS of MONRE, and to agree on modalities and procedures for its financing and execution and meet the official from MONRE and MPI for discussions of the relevant issues.

Currently, the NHMS assigned HYMENET to prepare and complete a feasibility study report. In October 2013 the final FSR will be presented to MONRE for approval. During October 2013 delegations went to project location for the site surveys (information infrastructure, construction, current status of hydro-meteorological

stations in the project location etc.). The draft report has been prepared and submitted to the UTL expert for completing this PID and MoU.

CHAPTER 4 - PROJECT CONTEXT, PROBLEMS TO BE ADDRESSED AND STRATEGY

4.1. Brief description of the projects and development plans of the beneficiary related to the contents of the project and the needs, the role of the project in those projects and development plans

4.1.1 Brief description the projects and development plans of the project beneficiary

The South Central Regional Hydrometeorological Centre is the direct beneficiary of the project after its completion. The centre will be assigned to put all the outcomes and products of the project into operation to serve hydro-meteorological forecasts and basic investigation. The projects and development plans for hydro-meteorological stations network in particular, and hydro-meteorological sector in general are approved in the Decision No. 16/2007/QĐ-TTg of January 29, 2007 of the Prime Minister of the Government of Viet Nam on the approval of "*The Master Plan of National Natural Resources and Environmental Monitoring Stations Network up to 2020*" and Decision No. 929/2010/QĐ-TTg dated June 2, 2010 of the Prime Minister of the Government of Viet Nam on the approval of the *Development Strategy for Hydro-Meteorological Sector up to 2020*.

The project area consists of five provinces in the South Central region of Viet Nam bordering with the Quang Ngai province to the South, Dong Nai and Ba Ria – Vung Tau provinces to the North, the East Sea to the East and the Central Highlands to the West. The natural area of the region is 26,960 km2, accounting for 8.19% of the total area of Viet Nam.

The inland territory is limited from:

Latitude: $10^{o}34'$- $14^{o}42'$

Longitude: $107^{o}24'$- $109^{o}20'$

The territory of the region also includes the Truong Sa archipelago and Phu Quy island. On the administrative side, project area covers 5 Provinces: Binh Dinh, Phu Yen, Khanh Hoa, Ninh Thuan and Binh Thuan, with population of about 5.41 million, accounting for 6.28% of the Viet Nam population. For the both national and regional economy, the project plays an important role in agriculture, industry and tourism, especially in the fields of fishery, seafood processing and tourism. The project also actively contributes to the development of the Nhon Hoi and Van Phong economic zones, Quy Nhon and Nha Trang ports; Phu Cat, Dong Tac and Cam Ranh airports, etc.

Despite its recent dynamic development, the South Central region is still underdeveloped compared to other regions in the country. Frequent natural disasters in combination with complicated topography cause very serious impacts on human life, property, civil constructions and socio-economic development in the region.

4.1.2. Situation of natural disaster and flood in Viet Nam and affect of climate change

Viet Nam is situated in southeast monsoon area, directly affected by the Asia Pacific storm system from the East Sea. Storms and monsoon winds cause the heavy rain; furthermore the complicated terrain consists of low lands and abrupt mountain slopes where the big floods regularly happened with high frequency. Most of the natural disasters in Viet Nam were related to water. With long beach, one side is high mountains the other is large delta, over 70% of Vietnamese population are subjected to affect from storm, flood, flash flood, landslide and erosion. Most of population is living in the areas with high risk of flooding. Viet Nam is also a wet rice agricultural country, the cultivated areas are Red river delta, Mekong river delta and central coastal, where there are very high risks of flooding when storms and monsoons happened. Three-forth remain area is mountainous region and plateau also being affected by flash flood.

In recent years, accompany with the global climate change, weather and other hydrological phenomena in Viet Nam are changing more complicated. Seriously disasters with abnormal forms happened in many regions in nationwide. The storms with abnormal phenomenon seemed to occur more regularly. Floods in the Central region occurred continuously with the higher violence. In the mountainous region and Red river delta were also affected from historical floods. Drought seemed to occur with higher frequency and larger scale. In the south region, besides the annually flooding cycle of Cuu Long River, drought, high tide, salinity intrusion were also increasing.

The global climate change makes the abnormal and extreme of the weather increasing and more complicated, becoming the more continuously threaten to the life and production. According to the assessment of the Committee for flood and storm control, there is over 80% population of Viet Nam directly affected from risk of natural calamities. The calamities related to the hydro-meteorology always caused serious damages to human life and materials, decreased the development of the country. In addition, the natural calamities also caused seriously damages such as homeless, delay the production, directly affected to the socio-economical development, culture, social, environment, and also affected to the security and national defense.

4.1.3 Situation of natural disaster and flood in South Central Area

For more than a decade, natural disasters have a tendency to increase, particularly in the southern central coastal provinces. Storms, floods, consecutive severe floods have caused great loss of life and property as Typhoon No. 9 (KIM) in 1983 landed in Ca Na - Tuy Phong - Binh Thuan killed and missing nearly 300 fishermen; the strong storm (Kyle), landing in 1993 in northern of Khanh Hoa - southern of Phu Yen caused heavy rain, strong winds (the most in the past 70 years), killing 113 people, causing damage to two provinces 310 billion VND. In 1998, within 34 days of that, there were 04 hurricanes landed and 01 storm directly affected to the South Central region, killing 186 people, and a loss of 670 billion VND. Terrible flash floods on the Dinh River and Phan river of Ham Tan district, Binh Thuan province on 29 - 30/07/1999 swept away hundreds of boats in Ham Tan district, killing 30 people and damaged approximately 200 billion VND; this is the largest flash floods in the past 20 years in the South Central region. In 2001, the two provinces of Binh Dinh and Phu Yen and other central coastal provinces hit by Typhoon No. 8 (LINH LINH) up to level 12 (when not ashore with winds of up to level 17), killing 24 people, and property damage of more than 500 billion VND. Most recent, floods on Cai Nha Trang river in Khanh Hoa province and Cai Phan Rang river in Ninh Thuan province from 11 to 14 November 2003 is the largest flood measured after 1975 causing serious flooding in downstream the Lu, Quao, the Cai Phan Rang rivers in Ninh Thuan Province and Cai Nha Trang river in Khanh Hoa province. Only this flood has killed 41 people, injured 24 people, more homes, crops, food, livestock, poultry, traffic works and irrigation washed; estimated total loss of about 375 billion VND. In 2009, Marine storm hit the two provinces of Phu Yen and Khanh Hoa provinces caused strong winds, floods and historical flood do tremendous damage to people and to the provinces of Binh Dinh to Ninh Thuan province hundreds of deaths damage estimated trillion VND. According to the Steering Committee for Flood and Storm of the provinces in the region from 1998 to 2010, natural disasters caused by storms and floods in 05 provinces has killed over 1,000 people the total damage is estimated at over 5,000 billion VND. Due to the influence of topography, the climate of the South Central region is strongly differentiation and unique different in each region as soon as affected by the same weather. Featured in the South Central region is the shift in the rainy season by spatial inhomogeneities as other areas. Rainy season in the provinces from Binh Dinh to Ninh Thuan starting from September and ended in December except the rainy season Binh Thuan province usually begins in the months of June and the end of November . In recent years, with the global climate change, weather and other natural disasters in the provinces in the region increasingly more complicated, do not follow the traditional rules, the rainy season tends to produce early and end late, and tropical storms landed tend to rise, floods, flood history appears more and more fierce.

In addition the development of irrigation reservoirs hydropower on the basin has a huge impact on the hydro-meteorological situation and influences the flow regime.

In addition to storms and floods almost every year also happens drought, severe water shortage, especially in the two provinces of Ninh Thuan and Binh Thuan (two of the driest areas in the country), in the dry season, droughts, storm surges, salinisations, forest wildfires are also at increased risk, cause more damage to the production, life and socio-economic development in the local area.

4.1.4 Current status of basic hydro-meteorology station Network in South Central Hydro-Meteorological centre

Network of basic hydro-meteorology stations in South Central Hydro-Meteorological Centre is 79 hydro-meteorological stations and rain gauges, including:

- 13 operating meteorological stations measuring atmospheric temperature Tk, ground temperature Tđ, humidity U, atmospheric pressure P, rain R, sunshine duration Sh, wind speed and direction W, evaporation Z, radiation B, The equipment being used is outdated such as mercury thermometers, humidity thermometer through the dry-wet meter, wind meter and rain-gauge bucket etc.

- 11 hydrological stations, in which 6 Level-I stations measured water flow (Q), water level (H), water temperature (T), rainfall (X) and suspended matter; 4 level-III stations measured water level (H), rainfall (X), water temperature (T), 1 oceanographic stations (global water level). Currently, most of stations are measured the water level by gauge line pillar.

Flow rate in the water was measured mainly by the rotor flow-meter; cable cars, boats to bring the boat back and forth cutting measurement. Generally, the instruments are outdated and precision is limited.

- 48 rain gauge points are uniformly arranged in the South Central region. Rain collected data has been made in the map of rainfall per year to meet the requirements of calculation and hydro-meteorological modeling in the South Central region as well as service planning, construction, agricultural development.

Meteorological, hydrological and rainfall stations have basically met the basic hydro-meteorological investigation, however, did not meet the fully and timely data for the hydro-meteorological forecasts.

4.1.5 Current situation of the flood forecasting and warning system in Viet Nam

Flood forecast and warning task is the duty of the National centre for hydro-meteorological forecasting, 9 Regional hydro-meteorological Centres and 54 provincial hydro-meteorological centres belong to the National Hydro-meteorological Service of Viet Nam. The forecasting and warning reports are delivered to management agencies, the Central Committee for flood and storm control and Mass media. For monitoring and forecasting activities, the provincial hydro-meteorological forecasting centres

collect monitoring data from the meteorological, hydrological and rainfall stations across the country and other sources through wireless communication system and phone.

At present, the Hydro-meteorological stations network consists of 172 meteorological stations (17 newly built stations from the Italian ODA project – Phase I); 22 upper-air stations (in which 5 Doppler weather radars); 248 hydrological stations (42 newly built stations from the Italian ODA project - Phase I), 18 oceanographic observation stations (1 newly built station from the Italian ODA project - Phase I); 393 independent rain-gauge points and 15 automatic rain-gauge stations built in the Italian ODA project - Phase I. Besides the meteorological, hydrological and rain-gauge stations in the Mid Central Hydro-Meteorological Centre built in the project: "*Improving the Flood Forecasting and Warning System in Viet Nam - Phase I"* have been invested the modern technology, the observing technology in the remains stations in other regional hydro-meteorological centres are mainly manual. The observed data is transmitted from observing stations to the Hydro-Meteorological Centres through specialized intranet (mainly using Public Telephone line). Obviously, the number of meteorological, hydrological and rain-gauge stations is small and the stations are scattered; the observing equipment and technology are underdeveloped that not approaching the technical and scientific advances in the region and the world. Regarding to the Hydro-meteorological forecasts, at present, the forecast time is still short (12-24 hours) with low accuracy (70-80%); slow and untimely warning that can not meet the diversified requirements of socio-economic development and modernization of the country.

The flood forecasting and warning tasks in river systems have an important role in the flood mitigation and prevention, reduce the damages caused by them. The implementing project for strengthening the flood forecasting and warning capacity is very necessary. In addition, the project will also give the capabilities for connecting to the similar implemented and being implemented projects in order to unify the management of forecasting and warning information in nationwide.

CHAPTER 5 - OBJECTIVES, MAJOR OUTCOMES AND ACTIVITIES OF THE PROJECT

5.1 Project objectives

5.1.1 Long-term objectives

Contributing to the reduction of material damage and human losses caused by recurrent natural disasters occurring in the coastal areas of Vietnam

5.1.2. Short-term objectives

Improving the flood forecasting systems and the early warning capacity in five provinces in the South-Central region of Vietnam (respectively Binh Dinh, Phu Yen, Khanh Hoa, Ninh Thuan and Binh Thuan) through greater capacity to collect, transmit and process hydro-meteorological data as well as a greater capacity to respond quickly to emergencies.

5.2 Major Outcomes of Project

The Project: "*Improving the Flood Forecasting and Warning System in Vietnam - Phase II*" will invest in South Central region is the successor to and promote the achievements of the project "*Improving the Flood Forecasting and Warning System in Vietnam - Phase I*" implemented in the Middle Central region. The two projects phases will be located in two geographical areas of similar nature; moreover the staff can strongly benefit from the practical experiences acquires in the process of implementation of ODA project - Phase I.

The success as well as practical lessons derived from the implementation of ODA Project - Phase I will play an important role in the development and implementation of the project: "*Improving the Flood Forecasting and Warning System in Vietnam - Phase II*" which will bring better efficiency. Products of ODA project - Phase II include:

a) Meteorological, hydrological, oceanographic monitoring network in the South Central region is invested, upgraded and renewed of equipment and technology to automate the monitoring and transmitting real-time data from stations on the provincial, regional and national hydro-meteorological forecasting centres;

b) Technology acquisition and processing of information is set in the control centres at provincial, regional and central levels;

c) Flood forecasting and flood warning technology is completed and modernized.

d) The forecast and warning reports are fully and timely provided to the management agencies at different levels.

e) The staff working in hydro-meteorological sector will be trained to be capable of mastering advanced technology. Improve the qualifications of working staff in the forecasting centres.

5.3. Major activities of project

- Renewing the observation equipment and technology in the manner of automatic model for the current meteorological, hydrological and rain-gauge stations in the location of the project.

- Newly establishing the meteorological, hydrological, oceanograhic observation stations planned to 2010 and rain - gauge stations planned to the 2010-2015 period according to the Decision No. 16/2007/QĐ-TTg, of January 29, 2007 of Prime Minister of Government of Vietnam on the approval of "*The Master Plan of National Environmental and Natural Resources Monitoring Stations Network to the year 2020*" (the rain-gauge stations planned to 2010 are preparing implemented in other project using domestic source fund).

- Investing the infrastructures construction, equipment and technological supplying for the 4 provincial hydro-meteorological centres including: Binh Dinh, Phu Yen, Ninh Thuan and Binh Thuan; and the South Central Hydro-Meteorological Regional Centre to manage, gather the observing information from the stations network;

- Providing the forecasting model in order to strengthen the flood forecasting and warning capacity and disseminating information to the concerned agencies;

- Training for operational staff through the training and technological transfer programs.

- Maintenance: It is necessary to maintain the network for 2 years, during this time, providing a training and practice to improve the capabilities of Regional Centre's staff for maintenance.

CHAPTER 6 – PROJECT EXECUTION MODALITIES

6.1 Components, items of the project

As detailed at the following Chapter 7, the total Project cost is estimated at €4,000,000 (about 59%) to be financed through the Soft Loan and VND 66,739,417,000 (about 41%) to be financed through Vietnamese funds. The Project is articulated into the components and items as following.

6.1.1 Supplying the equipment and technologies

- Supplying, installing the equipment for 114 automatic hydro-meteorological stations, including:

+ 13 meteorological stations measuring 6 parameters: wind direction, wind speed, temperature, humidity, pressure, rain;

+ 17 hydrological stations measuring the water level, rainfall;

+ 83 independent rain-gauge stations;

+ 01 oceanograhic station measuring wind direction, wind speed, temperature, humidity, pressure, rain, radiation, visibility, water level, wave characteristics parameters;

- Supply and installation of equipment for n. 4 centres for receiving data and forecasting results to provide warning at ***Provincial level***; 1 centre at ***Regional level*** and installation the equipment in 3 centres at ***National level*** for the National hydro-meteorological Forecasting Centre, Hydro-Meteorological and Environmental Stations Network Centre and Centre for Hydro-Meteorological information Technology.

- Performing the project engineering, equipment maintenance; managing the whole system; designing and developing the flood forecasting and warning software; training activities. Technical work and equipment maintenance including routine maintenance, correction, repair or replacement of equipment, materials and components damaged; operating the system in the first two years includes maintaining operation of automatic stations for automatically monitoring data from stations that are transmitted to the centres to ensure timely and accurately; design and develop forecasting models, flood warnings include warranty and upgrades the forecasting software and ensuring the effective management data for hydro-meteorological forecasts; training and technical support for staff of the Centres.

6.1.2 Information Technology and data transmission

ODA Project - Phase I has made very good use of communication methods from remote automatic monitoring stations to Central Provinces by GPRS / GSM and UHF Radio. Provincial, regional and national centres are connecting to each other via WAN (Wide Area Network) into a unified information network through modern telecommunications facilities installed at the central station and with sufficient confidence in any situation. Communications system are based on ADSL technology-based Internet TCP/IP is commonly applied today.

As the communication system for ODA project - Phase I has been proved successful, the same communication structure will be implemented in the present project phase, as follows:

- There are currently 4 server computers in **National hydro-meteorological forecasting centre**: Database server, FTP server, Application server, Web server and other servers running hydro-meteorological applications, analysis and forecasting products, high-resolution satellite cloud images for hydro-meteorological forecasts.

- FTP server allows PCs to connect from the workstation to automatically upload and download data and information data to the FTP server. After the FTP server has collected data and information from hydro-meteorological stations will switch to the Application server to run forecasting models.

- The Application server runs the hydro-meteorological forecasting models, and the results are automatically stored in the database through the Database server.

- Web server has a function to display on the Internet the information collected, processed and shared. The server system in the Centre will be upgraded to meet the maximum ability to run application hydro-meteorological models will be equipped in the ODA project - Phase II.

- **Regional Centre** will automatically download the Application server data via the IP address of the FTP server of the National Centre for information on data processing, storage and display of data or hydro-meteorological information in a nationwide. The function of server systems in regional and national centres in terms of communication, processing, storage and run models is equivalent.

- In **Provincial centres**, the project will develop automatically download and upload data program via the ADSL line to access the IP address of the FTP server and also get the data and information collected and processed. The data from these stations will be automatically transferred directly from own communication systems of the provider to the Provincial centres (and has since been transferred to the National centre via Internet)

- The PC in the provinces can also access the forecasting, flood information from the National Centre and regional centres through the automatic download and upload information transmission based on Internet access to the FTP server, Web server in the regional and national Centres.

In addition, to ensure the requirements of good management and data sharing, besides the control centre is located at the provincial and regional hydro-meteorological centres, high speed computer systems are also equipped in the Hydro-Meteorological and Environmental Stations Network Centre to serve the management system and at the Centre for Hydro-Meteorological information Technology under the National Hydro-Meteorological Service to serve the acquisition and sharing of data. That computer systems will be equipped in terms of configuration and function are equivalent to that of the Regional control centre.

6.1.3 Forecasting Technology

The hydro-meteorological forecasting models must be consistent with regional climate, river systems, topography and environmental conditions, to ensure the success and effectiveness of the project.

To improve forecasting and early warning of floods, the following software should be developed:

1) Meteorological, Hydrological and Data mining database software, display and data management (Decision Support System (DSS) for the region;

2) Numerical model rainfall forecasts for the area; Adding, whereas possible, a modelling that combines data received from radar and observation network for rainfall forecast ;

3) Construction methods of flood forecasting and flood warning for the South Central Basin;

4) Strengthening the forecast capability of Regional Centre with dedicated software applications

5) Constructing the Website at regional centres.

6 Equipping the software of data synchronization for existing stations, including automatic rain gauge stations installed in 2013;

6.1.4 Training and technology transfer

The project will provide automatic instrumentation systems, forecasting systems, flood warning and modern communications in order to allow managers and technical staff to operate effectively. Training of technology transfer (management, efficient operation and exploitation of the project) is required. The training will be conducted in both domestic and overseas, as follows:

a) Overseas training:

Organize 2 training courses for managers and technical staff including 1 class for managers (staff departments, the Institute under the Ministry of Natural Resources and Leaders of National Hydro-Meteorological Service) and other for technical staff (technical staff of the South Central hydro-meteorological Regional Centre and the technical staff of other relevant units of the National Hydro-Meteorological Service). Each class will be composed by 10 people, the training time of 10 days.

b) Domestic training:

- 1 class in the National Hydro-Meteorological Service for managers and technical staff of units of National Hydro-Meteorological Service with an estimate number of 15 people, 6 days training period, on (a) Equipments; (b) Information Technology and data transmission; (c) Forecasting technologies; (d) Maintenance; (e) Management at National level

- 1 class for technical staff of specialized offices in South Central hydro-meteorological Regional Centre with an estimated population of 20 people, 6 days training period, on (a) Equipments; (b) Information Technology and data transmission; (c) Forecasting technologies; (d) Maintenance; (e) Management at Regional and Provincial level;

- 4 classes organized in Provincial hydro-meteorological centres for forecasters and monitoring staff in provincial centres and stations located in project area. The number of each class has 10 people, 6 days training period, on Equipments;

- 5 classes for Maintenance training in South Central hydro-meteorological Regional Centre, with an estimated population of 15 people, 6 days training period, to updating on technologies (equipments, software and modelling) and maintenance practice.

c) Training and public propaganda:

The overall objective of the project to strengthen the capacity of forecasting, flood warning in the South Central region, therefore besides equipped with automatic monitoring equipment, information system and software program for forecast. Not only, equip the knowledge to improve the capacity of managing, operating, maintaining and repairing staff but also to train and promote for public community to understanding the nature and effect brought by the project. Therefore, so besides equipped with automatic monitoring equipment, information systems and software programs for the forecast, the project also equipped with the knowledge to improve the capacity of staff management, operation, maintenance and repair of systems, training needs and promote community understanding of the nature and effect brought about by the project. Therefore to take training, guidance and communities to understand and use information effectively forecasting, flood warning for production, living conditions and actively prevent and reduce disaster risk, improve the efficiency of the management of community-based disaster risk.

Plan of Training and public propaganda: organize 5 training classes for technical staff from local disaster prevention agencies in five provinces in the South Central area. The training contents are: dissemination of knowledge about the weather, hydrology; guidance of using the warning information, flood forecasting reports to raise awareness alert, actively prevent floods in the community. The number of each class about 50 people, 2 days training period.

6.1.5 Maintenance

The purpose is to assure the overall system performance as initially guaranteed by the Bidder, in terms of system reliability, accuracy of data recorded, transmitted and received, adjusting of installed software and forecast modelling packages.

The maintenance should last for two years from the date of completion of equipment installation:

- *Ordinary maintenance*: made directly or through branch offices or a local company trained to perform an efficient maintenance for each part of the system every 6 (six) months, in order to ensure regular operation of the entire system;

- *Extraordinary maintenance*: this will be performed on broken equipment, hardware and software which may affect to the operation of the whole systems;

- *Remote maintenance*: a diagnosis made by combination between (a) remote control of each part of the system and (b) experiences in the field of maintenance, can preview problems (battery low level, data deviations, forecast corrective) and solve in time.

6.1.6 Constructions

Infrastructures in the South Central Hydro-meteorological Regional Centre and provincial hydro-meteorological centres are fully equipped; operation houses in the hydro-meteorological stations are also available. The project will only construct new stations planned in the Decision No. 16/2007/QĐ-TTg and supplementary infrastructures for installing the equipment. Specifically, the project will build some new stations:

- *For meteorological stations:* n.2 meteorological stations will be newly built are: Phu My and Song Cau.

- *For hydrological stations:* n.3 hydrological stations will be newly built are Nha Trang, Song Hinh and Tan Minh.

- *For rain-gauge stations:*

As planned in Decision No. 16/2007/QĐ-TTg, the South Central region has 112 rainfall stations, in addition to the stations have been invested in the sub-project "*Development of network of stations, rainfall, salinity served for hydro-meteorological forecasts 2010 - 2012*" under the component Project 1 of the Project "*Modernization of forecast technology and the hydrological meteorological observation network, period 2010 - 2012*" 57 rain-gauge stations will be invested in this project.

Of the total 57 stations planned to invest, there are current 37 residential rain-gauge points (have been not invested by any other projects), however they often placed in residential house and equipment is primitive (barrel rain-gauge).

The rainfall stations just build fences and lead the way to install equipment without constructing of the station.

- *For the oceanographic stations: one station* will be newly built in Cam Ranh area

- *To lead absolute altitude for hydrological and* ocean *oceanographic stations:*

For newly build hydrological and oceanographic stations the absolute altitude have been lead from national high altitude to the high pitch of station and the position of water level sensor

For current stations in basic investigation network (already have national high altitude) the have been lead from station's high altitude to the measurement work (position of water level sensor).

The construction expenditure will be borne by counterpart fund. Some of related expenditure contents of the project such as advisory and management activities will also be used the counterpart fund.

6.2 Contracts and relevant sources of financing

The subdivision of the Project into components and the definition of the contracts to be awarded under each component has been conceived for a smooth Project implementation and taking into account the following:

- The available costs of the various Project activities are estimated and the actual costs will be known only after the completion of the bidding and the definition of the contracts.
- The purpose to reach, as far as possible, the full utilization of the Soft Loan.
- The purpose to make use, at the maximum possible extent, of the capacities of the local contractors and suppliers of goods and services.
- The necessity to utilize the capacity and experience of foreign contractors and suppliers of goods and services where more technically complex issues are involved and the locally available capacity and experience do not sufficiently guarantee the proper execution.

6.2.1 Project Components

The Project is articulated into the following components:

Component A, which includes all the activities related to the **Equipment of stations and Control Centres** including final design, equipment and software providing and installation, start up, training and maintenance. All the activities will be carried out through a single contract (Contract A). Contract A will be totally financed through the Soft Loan except the costs for the VAT on each invoice, that will be financed through Vietnamese funds.

Component B, which includes all the activities related to **Construction, Equipment and other relating contents** (The cost for hiring storage, transporting the equipment from Nha Trang to Hanoi for calibration and backward, and from Nha Trang to 4 provinces; communication, travelling, etc.). The activities will be carried out through several contracts (will be defined when the FS report is approved by MONRE). All these contracts will be entirely financed through Vietnamese counterpart funds.

The Contracting Party for all the above-mentioned contracts and procurement actions will be the PMU on behalf of the Project Owner.

Project Implementation Structure and Management

A. Joint Steering Committee (JSC) tasks, responsibilities and composition.

A JSC shall be constituted as a high-level consultative and decision making body for the Project and composed by:

- representatives of MPI, MoF, and the NHMS (on behalf of MONRE) for the Vietnamese side;
- representatives of the Italian Embassy and of MAECI-DGCS for the Italian side.

The representative of the NHMS (on behalf of MONRE) chairs the JSC. The Chairperson, upon request of one of the members, convenes the meetings of the JSC in the key moments of the Project; at least one meeting of the JSC shall be held per year. During the JSC meetings, corrective measures can be taken and/or proposed for subsequent implementation. All JSC decisions shall be taken unanimously. In case of proposed measures that will imply modifications to the Agreement and/or to its Annexes. The JSC has the task and responsibility to supervise the Project's activities. In particular it will:

- Carry out all expediting activities aimed at avoiding delays in Project implementation.
- Approve the bidding documents for contracts to be financed trough the Soft Loan prior to the launching of the tenders whenever the bidding documents imply an allocation of funds among the various contracts (founded by the counterpart funds) that is different from the allocations foreseen in this PID. The approval by the JSC of the bidding documents will represent also an approval of the possibly revised allocation.
- Approve the proposal for contract award relevant to contracts to be financed through the Soft Loan prior to their submission to MAECI-DGCS for no-objection whenever the contract implies an allocation of funds among the various activities, which is different from the allocation foreseen in this PID and/or from the revised allocation consequent to the bidding documents. The approval by the JSC of the proposal for contract award will represent also an approval of the revised allocation.
- Endorse any recommendation for variation of the contract to be financed through the Soft Loan proposed by the PMU PD (Project Director) prior to its submission to MAECI-DGCS for no-objection whenever the variation implies an allocation of funds among the various activities, which is different from the allocation foreseen in this PID. The approval by the JSC of the proposal for contract variation will represent also an approval of the revised allocation.
- Organize and supervise the monitoring of the Project through surveys and through examination and approval of Project Implementation Reports (PIR).

For the decisions of the JSC it is not required a formal meeting but only the approval by each member of the JSC separately, subsequently formalized by a minute signed by the members.

B. Project Management Unit (PMU) tasks, responsibilities, composition and funding

In order to facilitate an effective implementation of the Project, a PMU will be established for assisting the NHMS, legally and financially responsible for Soft Loan funds management according to Vietnamese Law, in implementing and monitoring the Project activities. The PMU, whose Project Director (PD) and staff is to be designated by NHMS and agreed by MAECI-DGCS soon after coming into force of the present Agreement, will consist of an operational core of Vietnamese experts appointed by NHMS that can be supported by Italian Experts (IE), appointed by MAECI-DGCS and/or by the personnel of the Cooperation Office of the Italian Embassy in Hanoi. Also Vietnamese supporting staff will be part of the PMU, including staff with good knowledge of the English language. The PD and the PMU staff will remain in operation for the duration of the Project. The Vietnamese side shall finance, out of the Project funds (indicated at Item V of Table 5 at Chapter 7), all the costs relevant to:(i) the assignment of the PD and of the Vietnamese core staff, (ii) the assignment of the Vietnamese supporting staff, (iii) the PMU office and, (iv) the office furniture, equipment, utilities and consumable items. The PMU office will be located at NHMS headquarter or hiring an office in Ha Noi. Its main tasks and responsibilities are as follows:

- to liaise with MAECI-DGCS and Artigiancassa as well as with the UTL;
- to prepare, at the beginning of the Project the General Operational Plan (GOP) of the Project and submit it to the JSC. Any variation to GOP proposed by the PMU will be sent to the JSC for approval. GPO and variations shall be submitted to MAECI-DGCS for approval;
- to prepare directly or through local or Italian Consultant (individuals or firms) technical documents and bidding documents for international and local tenders;
- to prepare TOR and bidding documents for the Project
- to participate in the tender Evaluation Committees;
- to forward bidding documents to MAECI-DGCS for bid advertising on Italian newspaper;
- to forward bidding documents, together with an explicative report, to MAECI-DGCS in order to obtain the “no-objection” to the launching of the bids;

- to submit the proposal for contract award relevant to contracts to be financed trough the Soft Loan to MAECI-DGCS for no-objection;

- to verify (directly or through consultants - individuals or firms - the quality of buildings, equipment and training activities compared to bidding and contract documents (plans, drawings, projects, contracts etc.) and inform the JSC about results of supervision through the periodical PIRs or, in case of problems that require urgent action, through an immediate specific report;

- to prepare six-month and yearly Project technical and financial Implementation Reports (PIRs) to be sent to JSC;

- to monitor and evaluate Project progress, taking all necessary actions needed to ensure a smooth implementation;

- to provide, in the very first stages of Project implementation, training session on Project procurement procedures and Project management to all PMUs staff.

C. Project Director (PD) tasks and responsibilities.

At the start-up of the Project, a PD (Head of the PMU) shall be nominated by NHMS, among professionals with experience in project management and fluency in English. The PD has the task and responsibility to grant an effective and efficient Project implementation. Inter alia, he will have the following task and responsibilities:

- To directly execute, coordinate or facilitate/support all the activities needed to implement the Project, according to the MoU and this PID (technical and administrative activities);

- To guarantee functional liaisons with the relevant local and Italian authorities;

- To sign, on behalf of the NHMS, all contracts and purchase order relevant to the Project;

- To direct, supervise and coordinate all contract management activities;

- To formally accept goods, services and works and approve the payment of the invoices from the contractors.

- To assist and monitor the preparation of bidding documents;

- To coordinate the preparation of the semi-annual PIRs and their transmission to JSC and MAECI-DGCS;

- To monitor the activities and their progress and promptly intervene in order to avoid problems, delays and mistakes;

- To guarantee the normal functioning of PMU and the compliance with its tasks and responsibilities as established in this PID and in the MoU.

- To guarantee the correct use of funds and other resources and the correctness of the accounting and reporting activities;

- To ensure the day-by-day liaison between the PMU, the Italian Experts (IEs) - if any - and all other persons or institutions involved in the Project;

- To cooperate with the IE and other consultants in all their activities, providing information, facilitating meetings with all bodies involved in the Project etc.;

D. PMU supporting staff

Among the support personnel in the PMU there shall be a bilingual Vietnamese - English translator, an English speaking accountant or secretary/translator with basic accounting skills and a driver. This personnel shall be appointed and assigned to the PMU for all the duration of the Project. This staff will support the daily duties of the PD, of the Vietnamese experts assigned by NHMS, of Vietnamese expert, and the IE assigned by MAE–DGCS (if any) and of other consultants, in all the secretarial, translation and accountancy activities related to the Project.

E. Support to PMU by MAECI-DGCS

The MAECI-DGCS will designate, in agreement with the JSC, Italian Experts to provide specific technical support to the PMU (normally on a temporary and case-by-case basis). For the same task and for the coordination between the PMU and the UTL, the MAECI-DGCS may also assign Vietnamese Experts (normally on a temporary and case-by-case basis).

Il MAECI/DGCS potrà assegnare, d'accordo con il JSC e ove vi siano fondi disponibili, Esperti Italiani (EI) per fornire supporto tecnico specifico alla PMU. L'UTL attraverso il suo personale potrà svolgere compiti analoghi e gestire il coordinamento tra la PMU ed il MAECI/DGCS.

Specific technical assistance may be provided through the above-mentioned Experts in various disciplines, according to Project needs. IEs' missions will be requested by the PD to the UTL. The UTL and MAECI-DGCS, as well, according to Projects needs, may activate the IEs' missions (communicating it to the PD). The IE can support the PMU in carrying out planned activities, as well as, in monitoring and evaluating the quality of supplies, services and other activities carried out by the Contractors. Among the possible tasks of the IE there are the following:

- Equipment list and specifications final revision.

- Functional assessment, preliminary functional design and preliminary (architectural) design for civil works (including ancillary plants) related to priority departments: Emergency, ICU etc.

- Assistance to PMU, for preparation of TOR.

- Assistance to PMU in the preparation of bidding documents and during the site visits by the bidders.

- Participate as observers to bid evaluation process.

The MAECI-DGCS will have the right to send Italian and/or Vietnamese Experts to participate as observers to the works of the Evaluation Committees, relevant to bidding for contracts to be financed out of the Soft Loan proceeds.

The Italian side will finance the costs relevant to the assignment of the above-mentioned Italian and Vietnamese Experts with additional grant funds.

CHAPTER 7 – PROJECT ESTIMATED COSTS

The Project cost estimate is in Table 1 here below. For each items, the following is indicated in the table: (i) the relevant activity, according to what is specified in Chapter 5, (ii) the Component of which the item is part, according to the previous Chapter 6; and, (iii) the Contract through which the item will be purchased, according to the same Chapter 6.

Table 1: Cost Estimation for Implementing the Project

I. Cost estimation (ODA capital source):

No.	Content	Unit	Qty.	Price (EURO)	Total price (EURO)
I	**Specialized Equipment and Mobile Survey Unit**				**3,500,000**
1	*Equipment in the stations (Hydro- Meteorological data receiving system)*				*2,318,800*
1,1	Meteorological station	Station	13	32,100	417,300
1,2	Hydrological station	Station	17	22,000	374,000
1,3	Rain-gauge station	Station	83	17,500	1,452,500
1,4	Oceano-graphical Observing Station	Station	1	75,000	75,000
2	*Equipment installed in the Centers*				*331,200*
2,1	Regional flood forecasting center (data communication system and control center)	Center	1	100,000	100,000
2,2	Provincial flood forecasting center (data communication system and control center)	Center	4	25,000	100,000
2,3	The National Flood Warning and Forecasting Centers	Center	3	43,733	131,200
3	*Mobile survey unit*		*1*	*30,000*	*30,000*
4	*Models and software*		*1*		*348,000*
	Hydro-Meteorological database; website, software for visualization and data management in local as well as central		1	123,000	123,000

4.1	hydro-meteorological management agencies				
4.2	Models and software for numerical weather forecasts in South central area and 5 province belong to South central area		1	110,000	110,000
4.3	Flood forecasting and warning software (Modules for rain calculations, hydrological models, hydraulic models etc.,)		1	115,000	115,000
5	*System operation and spare parts for the first two years*		*2*	*236,000*	*472,000*
II	**Other cost**				**500,000**
1	Project Engineering		1	130,000	130,000
2	Training and Technological Transfer		1	200,000	200,000
3	Commissioning and system installation		1	120,000	120,000
4	Communication cost for 2 years		2	25,000	50,000
	Total (I+II)				**4,000,000**

II. Cost estimation (counterpart funds):

No.	Content	Unit	Quant.	Total price (1000 VND)
I	**Construction cost**			**35,219,475**
1	Newly built the Phu My Meteorological Station	Station	1	4,838,590
2	Newly built the Song Cau Meteorological Station	Station	1	5,220,669
3	Newly built the Ninh Hai Oceano-graphical Station	Station	1	4,387,722
4	Newly built the Song Hinh Hydrological Station	Station	1	3,050,120
5	Newly built the Dien Phu Hydrological Station	Station	1	4,567,582
6	Newly built the Song Tan Lap Hydrological Station	Station	1	5,021,777
7	Construction the auxiliary works for installing the equipment and protection fence in meteorological, hydrological and rain-gauge stations	Station	108	8,133,015

II	**Compensation and land clearance costs**			**1,500,000**
III	**Project management cost**			**2,160,259**
IV	**Consultant cost**			**6,613,916**
1	Site survey for construction and installation the equipment			382,000
2	Procedures for land allocation for newly built hydro-meteorological stations, specialized works and technical infrastructure			81,000
3	Preparation the investment project			417,421
4	To evaluate and assess the effectiveness of the project			62,111
5	The cost for levelling absolute elevation for meteorological, hydrological, oceano- graphical stations.	Station	31	1,359,468
6	Topographic survey of newly built meteorological, hydrological and oceano- graphic stations	Station	6	600,000
7	Geological survey of newly built meteorological, hydrological and oceano- graphic stations	Station	6	1,200,000
8	Design of construction drawings			781,872
9	Review design of construction drawings			70,891
10	Verification of project cost estimates			68,778
11	Appraisal the equipment price			97,300
12	Prepare bidding documents, evaluation of tenders for construction			114,392
13	Prepare bidding documents, evaluation of tenders procurement of specialized equipment (in English)			128,008
14	Construction Supervision			903,898
15	Specialized Equipment Installation Supervision			346,777
V	**Other cost**			**15,437,419**
1	Insurance works			140,878
2	Project Audit			356,606
3	Review and approve the settlement			233,231
4	Cost for applying the construction permission			210,000
5	Fee of review the investment project			19,104
6	Review design of construction drawings			12,679

7	Verification of project cost estimates			23,521
8	Appraisal the construction bidding result			15,000
9	Mine and bomb clearance	Station	6	600,000
10	Anti-termite for construction works	Station	6	900,000
11	VAT tax (10% equipment and service from ODA capital source)			9,730,000
12	Translate the project document into foreign language	Project	1	50,000
13	Take care and protect the station in the project implementation period (2years from completing installation specialized equipment till the end of equipment insurance)	Station	114	3,146,400
VI	**Contingency cost**			**4,614,348**
	Total cost (I+II+III+IV+V+VI)			**66,739,417**

Total cost of the project: 4,000,000 Euro and 66,739,417 VND

Table 1 has been prepared on the basis of the cost estimates elaborated by the Consultant, according to the following assumption:

- The Project taken into consideration has the configuration delineated in Chapter 5 above.
- With the available amount of the Soft Loan, it is possible to finance all the net-of-VAT price of Contract A.

CHAPTER 8 – PROJECT IMPLEMENTATION SCHEDULE

Project implementation is expected to last in 5 years. The Project Implementation Schedule (PIS) in Attachment 1 has been prepared during formulation and has to be considered only tentative; nevertheless the total implementation period has to be considered correct. The beginning of the implementation period (start up of the Project) will be the date of the entering into force of the MoU. In order to complete the Project in the shortest possible time, it is advisable that, before start-up, in addition to the activities aimed at having the soft loan funds available, some preparation activities can take place, in particular those relevant to the preparation of bidding documents.

It should be noted that the PIS in Attachment 1 has been prepared taking into consideration only those activities that have high importance for the overall duration of the Project. For instance, the supply of equipment for the operation and maintenance of the new utilities has not been taken into consideration.

The PIS in Attachment 1 will be updated and completed with all the Project activities, by the PD, according to actual events and Project needs during implementation. The updated PIS will be submitted by the PD to the JSC every six months of activities. The first revised PIS will be submitted within one month from Project start-up.

CHAPTER 9 – PROCUREMENT PROCEDURES

1) *Generalities*

All procurement procedures under this Agreement will be conducted under the responsibility of the Vietnamese authorities. The Contract shall be signed between the PD and the Contractor. Each Contractor shall designate a Contractor Representative (CR) who shall coordinate the Contractor activities and represent the Contractor with the PMU for all contract obligations.

The procurement procedures to be used have been established taking into account: (i) the Law on Tendering approved by the National Assembly of the Socialist Republic of Vietnam on 26th November 2013 and entered into force on 1st July 2014, (ii) the Decree No.63/2014/ND-CP, issued by GoV on 26 June 2014, guiding the bidding law and the selection of construction contractors under the construction law and, (iii) the procurement principles and procedures adopted by the Italian Cooperation. According to Article 3.3 of the above-mentioned Law on Tendering, wherever the present Agreement and/or PID specify conditions for procurement different from those in the Law on Tendering, the conditions of this Agreement/PID apply.

The procurement for the various activities will be carried out according to different procedures depending on the expected source/sources of financing. In particular, if the contract has to be financed, totally or partially, out of the Soft Loan proceeds, the procedures to be adopted are those of the Vietnamese Law on Tendering but with the additional prescriptions stipulated in the Agreement and in this PID, including the "Eligibility criteria, ethical clauses, contract general principles" listed in Annex 2 to the Agreement. The prescriptions of the Agreement will prevail upon the prescriptions of the Vietnamese law. If the contract or the purchasing has to be totally financed with Vietnamese funds, the procedures to be adopted are those of the Vietnamese Law on Tendering.

The procurement procedures to be adopted for each Component, Contract and purchasing mentioned in Article 4 above, are detailed here below.

2) *Procurement Procedures for Component A*

Component A includes only Contract A. The basic principle governing the award of the Contract is competitive tendering. The purpose is twofold:

- to ensure the transparency of operations; and
- to obtain the desired quality of goods, services and works at the best possible price.

The applicable regulations oblige DGCS to guarantee the widest possible participation, on equal terms, in tender procedures and contracts financed by itself.

In order for the Contract A to be eligible for financing out of the Soft Loan and to receive the no-objection by the DGCS, it must be awarded according to the procedures described here below.

A. The procurement activity must be conducted in order to, together with the other contracts under Component B to be financed out of the proceeds of the Soft Loan, cumulatively allow for the compliance of the minimum percentage of goods, services and works of Italian origin indicated in Article 7.6 of the Agreement.

B. In order to optimize the implementation of the Project, all the Project activities under Component A will be carried out under a single Engineering Procurement and Construction (EPC) contract, according to the definition in the Vietnamese law on procurement (*EPC tender package means a tender package which comprises the entire work of design, supply of equipment and materials, and construction, installation and activation*).

C. Considering that the activities under Component A require a Contractor with a mix of capacities and experiences, the bidding documents will be prepared in a way to allow the participation of a group of companies and/or companies that can show evidence of the necessary mix of capacities.

D. Participation will be allowed only to: (i) Italian companies, (ii) joint ventures among Italian companies and, (iii) joint ventures among Italian and Vietnamese companies where the leading company is Italian.

E. The tender will be carried out without pre-qualification; therefore will not be "restricted" to a short-list of pre-qualified companies.

F. The single envelope method of tendering shall apply. A tender shall submit his tender in one envelope including his technical and financial proposals in accordance with the requirements set out in the tender invitation documents. There shall be only be one opening of tenders.

G. The language to be used in tender invitation documents, tenders and data exchanged between the party calling for tenders and tender shall be Vietnamese and English, where the English version shall prevail.

H. The bidding documents shall specify that, during tender preparation, all the bidders must mandatorily participate to a joint site visit that will be organized at least 20 days before the bid submission date. During the site visit, the bidders may ask for clarifications. All the clarifications will be given to all the bidders.

I. After preparation of the bidding documents the PMU shall send, before the launching of the bids, copy of the said documents to MAECI-DGCS for its no-objection.

J. The bid advertising in Italy will be carried out by MAECI-DGCS at its own expenses and the PMU will send copy of the bidding documents and of the invitation for bid to UTL at least 60 days prior to the expected date of publication on the Italian newspapers. The procurement notice will be published by MAECI-DGCS on Italian newspapers, on its web site, and with any other appropriate media if it deemed necessary. The PMU, may directly arrange, at its own expenses, the publication on local newspapers in English language and, if deemed necessary, with other local media. The procurement notice must state clearly, precisely and completely: (i) what is the subject of the Contract, (ii) who is the contracting party and, (iii) all the information needed by the potential bidders to determine their capacity to fulfil the Contract in question. The procurement notice published locally by the PMU must be identical to the procurement notice published by MAECI-DGCS in Italy and must appear at the same time.

K. The time allowed for candidates to submit their applications must be sufficient to permit proper competition. The minimum deadline, for submitting bids from the date of the notice's publication on the web and on the Italian and local newspapers, is 60 days.

L. The PMU must send bidding documents to would-be Tenderers. Bidding documents can be sent out for a fixed fee that must not exceed the printing and delivery costs. The bidding documents will also be made available for inspection at the premises of PMU, of UTL and of MAECI-DGCS.

M. The bid evaluation committee may be composed and organized according to what established in the Vietnamese procurement law with the following additional prescriptions:

- All the meetings and documents of the committee must be done adopting both the Vietnamese and the English language.
- An observer or a group of observers designated by MAECI-DGCS must be allowed to participate to all the works of the evaluation committee; to this end the PMU must inform MAECI-DGCS in advance of the scheduled meetings and of the composition of the committee.

N. After completion of the bidding and bid evaluation, the PMU shall prepare a proposal for award that must include a copy of the Contract that the PMU intends to sign with the Contractor (or that has already been signed with a suspension clause which links the entering into force to the no-objection of the MAECI-DGCS).

O. In the preparation of the final version of the Contract, the PMU can include variations in respect of the budget allocations foreseen in the PID, provided that such variations: (i) are done according to the procedure specified under Chapter 13 of this

PID, and (ii) are within the limits indicated in the bidding documents and stipulated in Annex 2 to this Agreement.

P. The PMU shall submit its proposal for award to MAECI-DGCS for the necessary no-objection. Should MAECI-DGCS deem it necessary, before granting its no-objection, it may request the PMU to provide copy of all the offers received. MAECI-DGCS, after giving its no-objection on PMU proposal for award, shall notify it to the PMU. Once the PMU has received the no-objection by MAECI-DGCS on its proposal for award and has signed the Contract with the Contractor, the PMU will send the signed Contract to MAECI-DGCS through the Embassy/UTL.

Q. All authorizations/approvals by MAECI-DGCS, relevant to the procurement activities, will be limited to verify that all procedures and provisions indicated in the Agreement and in this PID have been/are being duly accomplished. The responsibility of the selection of the Contractor will remain with the PMU.

3) ***Procurement Procedures for Component B***

Component B includes several contracts: in this time the contracts are not available, but all contracts to be financed totally with Vietnamese counterpart funds.

All procurement activities under Component B will be carried out according to the Vietnamese law.

Generals

In order to achieve an homogeneous approach the bidding documents to be prepared for the awarding this PHASE II of the Italian ODA Project "Improving the flood forecasting and warning in Vietnam" should be the same used for awarding the Phase I but adequately adapted to the tasks of the PHASE II project,

Specifically the document to be used as general reference for the Phase II are the following prepared for Phase I:

- Invitation for bids;
- Instructions to be bidders
- General conditions of contract
- Sample forms

As Technical Specification for the bidding documents is to be used the document attached to the present PID .

CHAPTER 10 - REPORTING

One month before the end of each semester, the PD, with the assistance of the PIC, will prepare the PIR. All PIRs will be submitted to the JSC for appraisal and subsequent submission to MAECI-DGCS. The PRs shall include:

a) the status of each planned activity;

b) the problems encountered during implementation and proposals of solutions (recommendations);

c) the status of expenditures (when applicable).

CHAPTER 11 – SOFT LOAN DISBURSEMENT PROCEDURES

The main features of the Soft Loan disbursement procedure, which will be detailed in the FC, are summarized here below:

- After preparation of the bidding documents, the PMU shall send, before the launching of the bids, copy of the said documents to MAECI-DGCS for its no-objection.

- After completion of the bidding and bid evaluation, the PMU shall prepare a proposal for award that must include a copy of the Contract that the PMU intends to sign with the Contractor (or that has already been signed with a suspension clause which links the entering into force to the no-objection of the MAECI-DGCS).

- In the preparation of the final version of the Contract, the PMU can include variations in respect of the budget allocations foreseen in the PID, provided that such variations re done according to the procedure specified under Chapter 6 and Chapter 9 above.

- The PMU shall submit its proposal for award to MAECI-DGCS for the necessary no-objection.

- The MAECI-DGCS, after giving its no-objection on PMU proposal for award, shall notify it to the PMU.

- Once the PMU has received the no-objection by MAECI-DGCS on its proposal for award and has signed the Contract with the Contractor, the PMU will send the signed Contract to MAECI-DGCS through the Embassy/UTL.

- After having verified the compliance of the signed Contract, the MAECI-DGCS will send to the IFI the request for the insertion of the Contract in the Soft Loan.

- Upon receipt of the above request, the IFI will complete the inquiry over the Contractor (including compliance of the Contractor with anti-mafia Italian regulations). The successful result of such inquiry will cause the allocation of the Contract to the Soft Loan for financing.

- Once that each single payment becomes due according to the terms stipulated in the Contract, the Contractor will submit to the IFI a request of disbursement. The Contractor shall send, attached to this request, the full documentation that is stipulated in the Contract as due by the Contractor in order to receive the payment (hereinafter referred to as Contractual Documentation), like bank guarantees, invoices, shipping documents etc.

- Upon receipt of the request for disbursement, the IFI shall make the relevant payment to the Contractor after a successful review of the Contractual Documentation.

- According to the procedure outlined here above, the payments will be made directly by the IFI to the Contractor on presentation by the Contractor itself of the Contractual Documentation. In order to ensure that the payments will be made only after allowing the PMU to have full insurance that the relevant goods and/or services and/or works are in accordance with the Contract, in the Contract itself must be specified that, among the Contractual Documentation to be presented for each payment, the Contractor has to include also the formal Authorization of Payment by the PMU. In the Contract it must be specified the maximum time allowed for the PMU to perform its verifications (after that each payment is due and it has been requested by the Contractor) and to provide its Authorization of Payment.

- Any variation or amendment to the Contract shall receive a prior no-objection by the MAECI-DGCS.

CHAPTER 12 – PROJECT CONTROL, MONITORING AND EVALUATION

1) *Controls by the Vietnamese side*

The Vietnamese side will have full and continuous control over the Project during its implementation, since all the activities will be carried out under the responsibility of the Vietnamese authorities at central and provincial level and utilizing personnel designated by such authorities. This arrangement will ensure, the continuous monitoring of the activities and the control on procurement and on expenditures (also through the official audit system of the GoV over its bodies at central and provincial level).

2) *Controls by the Italian side*

The controls by the Italian side will concern the following aspects:

A. General control on Project implementation, aimed to ensure: (i) that results and objectives will be achieved, (ii) that implementation of the Project is smooth and, (iii) that the use of the funds provided by Italy is transparent, effective and efficient. This control will be carried out through: (i) the presence of the Italian side in the JSC, (ii) the reporting system mentioned in the previous Chapter 10, (iii) the presence as support in the PMU of personnel of the Cooperation Office of the Italian Embassy in Hanoi and/or of Italian Experts specifically fielded by MAECI-DGCS, and (iv) specific monitoring and evaluation missions of Italian Experts fielded by MAECI-DGCS.

B. Control on procurement, aimed to ensure that the relevant prescription in this Agreement are fully applied. This control, relevant to the bidding for contracts to be financed through the Soft Loan, will be carried out directly by MAECI-DGCS in its headquarters by providing its no-objection on: (i) the draft bidding documents, and (ii) the proposals for contract award. In addition, during bid evaluation, MAECI-DGCS may send one or more observers to participate to the works of the evaluation committee.

C. Financial Controls, aimed to ensure that the expenditures are within the limits and the prescription established in this Agreement and in the FC. These controls are assigned to the IFI.

D. In order to allow the MAECI-DGCS controls, the PMU will ensure, upon receipt of MAECI-DGCS prior written notice, that MAECI-DGCS personnel has access to the Project areas and to the Project technical documentation. The NHMS will retain records of all Project documentation, including the related correspondence and reports, for 10 (ten) years after the completion of the Project.

3) *Monitoring and Evaluation*

A. Joint Monitoring and Evaluation. Considering that the success of the Project is a common goal and its implementation is a common effort, whenever possible all

monitoring and evaluation activities will be jointly carried out, under the supervision of the JSC.

B. The Parties will have the right to perform at their own expenses, all the monitoring, evaluation, control and auditing activities that shall be deemed necessary in addition to those already foreseen in this Agreement.

CHAPTER 13 – BUDGET ALLOCATIONS AND VARIATIONS

All the costs indicated in the previous Chapter 7 are a first estimates done during the Project formulation. A detailed breakdown of the indicated cost estimation will be done during bidding documents preparation.

The total amount of the following items indicated in the cost estimation, can not be modified:

Equipment installed in the stations
Equipment installed in the centres
Software and Models
Other costs (maintenance excluded)
Maintenance for 2 years

In order to pursue the best utilization of funds, if possible, depending on the actual results of the procurement activities, in case the price of contract awarded is lower than that allocated by the Italian cooperation, the available amount will be used to increase the number of equipment installed in the stations.

The procedure to be followed for the reallocation is the following:

1) The PD has to prepare, when it is deemed necessary, a motivated report on the reasons and justifications of the proposed request

2) In order to be effective the reallocation must be approved by the JSC.

CHAPTER 14 – AMENDMENTS TO THE PID

The PID can be amended upon agreement of the Joint Steering Committee, through meetings or exchange of official letters.