ANNEX 2

## Project Plan for Data Rescue of Climate and Hydrological data

**Data Rescue** is the ongoing process of 1. **preserving all data at risk of being lost due to deterioration of the medium** and; 2. **digitizing current and past data into computer compatible form for easy access**. The reestablishment of the data rescue project as a high priority within WMO Programs is critically important to ensure future generations of scientists and other data users have access to all the information necessary for their studies and projects. These rescued data combined with already available data will enable authorities to have access to better projections that can be used to mitigate loss due to natural disasters and will provide increased information for economic development.

**Critical Needs: Many** of the world's climate datasets contain digital data back to the 1940´s, but few have a great volume of data before this time. The below graph (Fig. 1) depicts one dataset that could become very useful if the data before 1948 were made available and accessible.

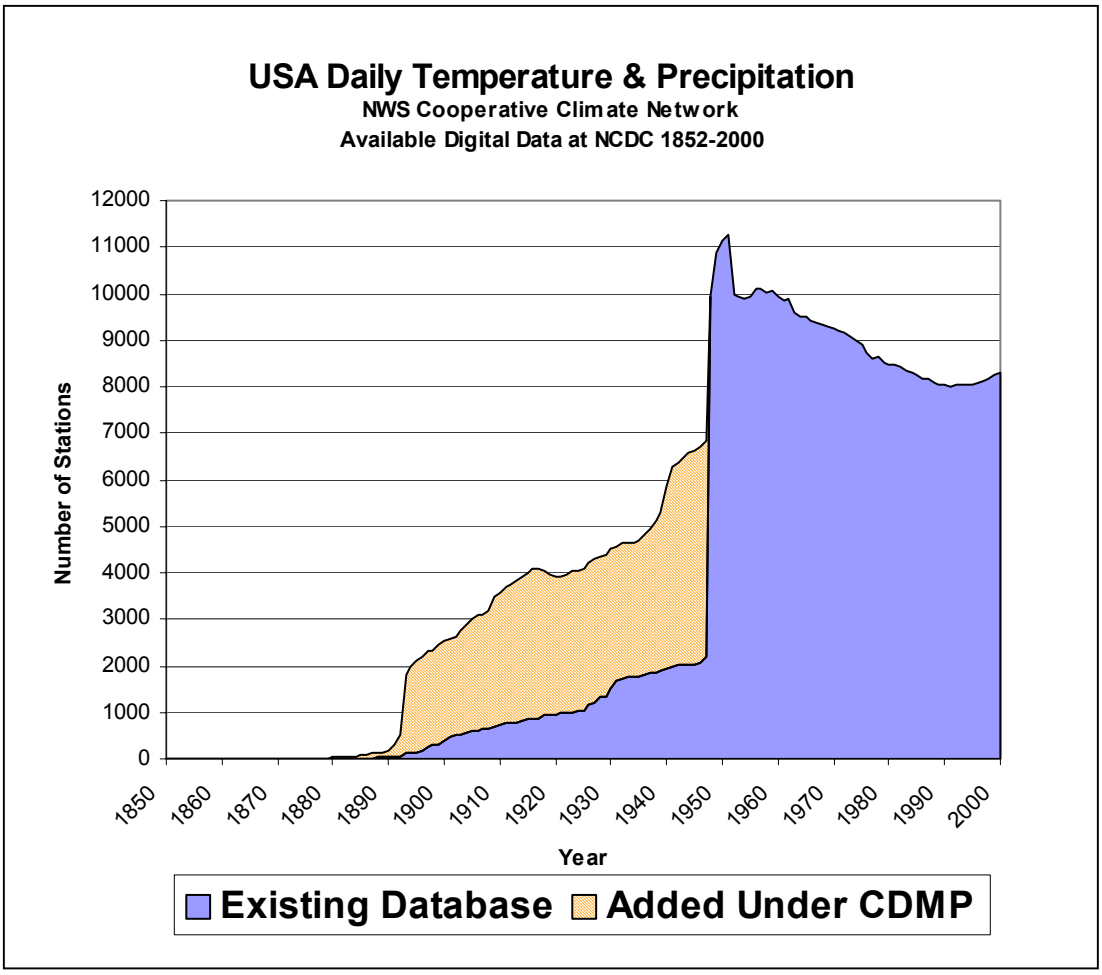


Fig. 1

It is clear that to do this the historical data that is at risk of being lost must first be preserved.

However, it cannot be stressed enough that in addition to the historical data, all current data must be made available in digital form as well.

**Goal of the project: Ensure that at least 50%of relevant data (Meteorological, climatological, hydrological) are preserved and readily accessible nationally, regionally and globally by 2010, given adequate funding is available**.

**Background of data rescue project**

The WMO Data Rescue project has a long history. WMO through the World Climate Programme began this project in 1979 through the RA I data bank project. The Belgium data rescue program later supplemented this project. The Belgium funded program assisted over 40 African Members in preserving their data through a microfilm and microfiche process. A copy of these data is now in each of the countries and in the IDRCC. This was and still is a very successful program that now needs to be completed in that the data has to be made more accessible so that it can be used.

Currently, the data rescue project has only been implemented in the meteorological/hydrological services of each country. In 1988, WMO established the ARCHISS program to retrieve and make available meteorological data from the national archives of each country. This has been and should remain in the future a complementary program to the data rescue effort.

In the mid-1990´s, technological advancements made it possible to optically scan data as a new method of preserving the data. This technology permits the data to be preserved, while also have it in computer accessible form, so it is somewhat more accessible. However, it is now recognized that these data must be moved to digital format for use in analyses and climate change studies. Optically scanning images certainly preserve the data and are a major improvement over hard copy media, but placing the data in full digital form will make it accessible to many more.

Recently, the United States has embarked on a highly successful program to rescue their data. This program uses optically scanned images that can be enhanced for digital key entry.

Thus, the project now needs to move into a new phase, one that incorporates the preservation requirement for data that is at risk of loss and one that makes the data fully accessible to the nation. Fully accessible means that the data can be accessed via computer communications or is transferable via some media like CD-ROM.

**Benefits of the Project**

This project will provide benefits to the nations, regions and global climate activities. Specifically, the nations will benefit by have complete datasets that can be used to better describe their climate and hydrological cycles, including rainfall, temperature, water usage, etc. This also will enable more complete and accurate climate change studies, provide more use of the data for sustainable development and assist the meteorological services to fulfill their missions. Full sharing of the data is desirable, but not required as part of this rescue effort, thus all data will be maintained within the country of observation.

Climate is regional and global, but it does have national consequences. Since many climate change scenarios will result in regional effects, these improved datasets will enable

regional studies to be completed that cross national boundaries. Since data is the underpinning of climatology and hydrology, complete datasets are critical to better ensure the studies on climate change, variability and natural disasters are as correct as possible.

Global datasets are important for the IPCC, GCOS, WHYCOS and other global and international programs. Data that can be incorporated into global datasets will benefit all of these programs. Data rescue is a major contribution to making these datasets more complete, which will result in improved understanding and more accurate outlooks for our national, regional and global climate. Improved understanding of the climate process can result in improved sustainable development and eventually improved life for the billions of people living on our planet.

**Linkage to other WMO projects**

The most obvious linkage with data rescue to WMO programs and projects is with the GCOS programs GSN and GUAN datasets. These datasets require completion including daily data and Meta data. (See attached graph).

In addition to GCOS, the data rescue project is closely linked to the CLICOM and CDMP efforts, in that these installed systems will be used to digitize the rescued data. In the latest IPCC report, it was strongly recommended that the datasets used for the assessments be improved and expanded to continue to reduce the uncertainty in the scenario projections.

Once these data are rescued, they will be very useful for the Climate System Monitoring projects within WMO.

**Priorities for data rescue**

A recent CCl expert group meeting established the following priorities for the Data Rescue project:

*Priority of Data*

1. High quality current data of importance nationally, regionally or globally, that enhances or completes the established databases.
2. High quality historical data of importance nationally, regionally or globally that is at risk of loss or assists in completing established databases.

*Priority of Activities*

1. Convert data to computer compatible form (digital and image format)
2. Backup databases should be established and maintained in different locations that are not susceptible to the same natural or man made disaster. This could be accomplished nationally, regionally or globally.
3. Priorities for each specific rescue process must be determined by scientific discipline such as frequency, parameter and characteristic period, etc. For example, for climatology priority by data set would likely be GSN, GUAN, Climat, Climat-temp, etc. For hydrology it would be stage, discharge, etc.

**Assessment of current situation**

The data rescue project began in 1982 with the last assessment of where the Members are in their data rescue work being completed in the mid-1980´s. This must be updated, with the output being a summary prioritized by Member as to where the most

important and most at risk data exists. The expert meeting began working on a survey that was presented to CCl for their use in determining the current status of the data.

Once this assessment is completed, progress can begin with vigor.

*Plan for achievement of goal*

This section will contain an umbrella plan for the global effort along with individual regional plans. Each Regional Association will be requested to transition these plans **into sub-regional or national plans and to assist in the prioritization of the work.**