

2011
ANNUAL REPORT



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Our Vision

Contribute to the resolution of global problems concerning the environment, health and socio-economic development by creating, coordinating and promoting scientific research and cooperation and capacity building initiatives with a particular focus on vulnerable environments and populations in developing countries.

Objective

Improve understanding of complex ecosystems (as the high altitudes), their processes and interactions with the human component and the effects of global changes on a local level, so as to contribute to sustainable development and enhanced management of natural resources.

Develop and strengthen the infrastructural systems and technological instruments (e.g. sensors, tools, integrated platforms) used for monitoring the climate and the environment within the Mediterranean Area (land and sea).





About Ev-K2-CNR

Ev-K2-CNR began as a research project in 1987 when 90-year-old explorer and geologist Prof. Ardito Desio launched a new campaign in the Himalayan and Karakorum mountains along with climber-turned-businessman, Agostino Da Polenza. Just two years later, the “Ev-K2-CNR Committee” was registered as an independent non-profit association dedicated to technological and scientific research in the Hindu Kush - Karakorum - Himalaya (HKKH) region, with a particular focus on Nepal, Pakistan and the Tibet Autonomous Region of China.

In 1990, in collaboration with the Nepal Academy of Science and Technology (NAST), Ev-K2-CNR installed the Pyramid International Laboratory-Observatory in Nepal’s Sagarmatha National Park at 5,050 m a.s.l. near the base of Mt. Everest. This facility soon became known as a unique and priceless resource for the international scientific community.

Today, all project proposed for execution at the Pyramid, or in Nepal within the framework of Ev-K2-CNR/NAST Joint High Altitude Scientific and Technological Research Project, must be approved by Bilateral Technical Committee (BTC). In 2006, the “Ev-K2-CNR” Association, governed by an Executive Committee, was established and obtained national juridical recognition.

In 2007, formalize Ev-K2-CNR’s decades long collaboration with CNR, an official External Research Unit under CNR’s Earth and Environment Department (DTA) was opened at Ev-K2-CNR headquarters and this institution is regulated by a Management Committee.

Activity

Ev-K2-CNR carries out multiple projects around the world, working through a network of international and national collaborations to ensure the highest standards of quality and optimize the impact of its results.

Ev-K2-CNR historically devoted to research in mountain environment, has recently extended its applications also in other specific ecosystems, such as the Mediterranean Sea, guaranteeing a multidisciplinary approach to understand environmental complexity and promoting resolutions to face major global and local problems, such as the impact of climate change on fragile ecosystems and the urgent need for sustainable management of the world’s precious resources like water, energy and food.

Within this framework, in the last year, Ev-K2-CNR has enlarged its range of action, devoting all together in climate and climate change impacts; environmental conservation and biodiversity safeguard; human health and human welfare for disadvantaged populations; agriculture and food security; cultural heritage safeguard; water resources management; sustainable land management of protected areas; ecotourism promotion; development of skills and technical entrepreneurial activities to support the development.

Parallel for each study, training courses for local researchers and technicians are organized and a strongly priority on building of institutional capacities in developing countries is recognized too, through the promotion of ad hoc programmes.





Ev-K2-CNR Institutional and International Recognition



WMO – GAW: upgrade of the regional GAW station Mt. Cimone to Global GAW station (31 October, 2010)

WMO – GAW upgrade of the regional GAW station ABC-Pyramid to Global GAW station (8 September, 2010)



Unfccc: admission of Ev-K2-CNR Committee as Observer Organization to the Conference of the Parties (20 December 2009)



WCRP – GEWEX: introduction of SHARE (Stations at High Altitude for Research on the Environment) stations as reference stations in the World Climate Research Programme (WCRP) Global Energy and Water Cycle Experiment (GEWEX Coordinated Energy and Water Cycle Observations Project (CEOP) Phase II Network (4 August 2009)



The United Nations General Assembly resolution (n. 64/222) on Sustainable Mountain Development – Ev-K2-CNR Committee climate change activities' mention (3 August, 2009)



WMO – GAW: recognition of the ABC-Pyramid station as contributing station in WMO Global Atmosphere Watch network (17 December 2007)



UNEP – ABC Program: appointment of Ev-K2-Cnr Committee researchers, Dr. Sandro Fuzzi and Dr. Elisa Vuillermoz, as ABC Science team Members (2007 - 2011)



UNEP: accreditation of Ev-K2-CNR Committee to the Governing Council (19 February 2007)



UNEP –ABC Program: designation of Ev-K2-CNR Committee as partner (21 October 2003)



Ev-K2-CNR President's message



Agostino Da Polenza,
Ev-K2-CNR President

The year 2011 was a very special one for us at EvK2CNR. Of course, we went ahead with our normal activities, organizing research on our long-standing topics and projects like SHARE, monitoring the atmosphere, and glacial and hydrological systems on the mountains of Himalaya and Karakorum, Ruwenzori and Bolivia. We continued our joint activities with the ISAC/SHARE Observatory on Monte Cimone, and Paolo Bonasoni, Elisa Vuillermoz and many other researchers and technicians worked hard to get the data from our stations validated and made available to the scientific world. Titi Melis oversaw the launch of our Geo-Network, an information system storing the data from our own mountain stations and those of organizations collaborating with us, as well as international projects involved in meteo-climatic observations in high-altitude regions of the planet. We pursued our work on SHARE-Paprika, our glacier project, SHARE-Stelvio and also the SHARE-Seed Bank in Nepal, in the latter, not without a range of difficulties, mainly in connection with Nepalese bureaucracy, rather than logistic ones. Share also continued to lend support to the study and monitoring of high-mountain populations with the "Breathing Himalaya" project coordinated by Annalisa Cogo. Furthermore, we could hardly fail to mention SHARE-Nano technological project, working on the development of instruments and sensors for atmospheric monitoring in collaboration with our friends of the ISAC in Bologna and our French partners of the CNRS. In addition, EvK2CNR with the CNR Department of Earth and Environment were successful in promoting and "clinching" the bid to place the NEXTDATA project among those of national interest in the PNR, and for I-AMICA to be one of the projects for the expansion of public research infrastructures in the European Convergence regions.

Moreover, 2011 saw the strengthening of our SEED project in Pakistan, with the launch of a series of concrete initiatives making the creation of the Park of Central Karakorum an increasingly real prospect. It's no easy task to maintain relations among the 36 sub-projects involved, around ten of which are scientific, while the others are more focused on socio-economic cooperation and development. However, the commitment of Raffaele Del Cima, SEED's new project manager in Islamabad, and that of our historic collaborators in Italy and Pakistan, has allowed us to overcome the intricate demands of the project's administrative auditors, and good progress is being made.

As usual, special attention was paid to the high-profile publication of EvK2CNR results and activities, not only extending the list of publications, but also securing wider press coverage, and increasing participation in conferences, meetings and promotional efforts, which together represent a good outcome for our organization. Equally important has been our success in terms of internationalization of relationships, activities and recognition.

The SHARE "method" is based on a paradigm of collaboration between the state sector, as promoter and repository of knowledge and scientific-technological know-how, also with agency functions, and the private sector as the operative driver of the dynamics of transfer and economic exploitation of the immaterial assets of research. This method is undergoing consolidation and is producing good results.

In fact, the "special" achievement of 2011 was the application of our method also in responding to the needs of our CNR friends engaged in expert studies on marine environments, when Salvo Mazzola and Ennio Marsella asked me to lend a hand in the methodological and commercial planning of a project that could aspire to becoming Italian leader in the field of marine research and the dedicated infrastructures.

The result was PARFAMAR, a constellation of projects that has successfully overcome the obstacles involved in the approval process, and which, at the end of 2011, was well on its way to dissolving the few remaining administrative snags prior to becoming an operative reality.

So, EvK2CNR's ship is finally moving seaward. To tell the truth, in the past, together with the CNR institutes and Ennio Marsella in particular, we had attempted to establish marine projects, including one in Persian Gulf.

But the report you're about to read will certainly be more comprehensive. And then, in the case of further questions, don't hesitate to ask them by contacting directly EvK2CNR and the researchers working with us, not only with scientific passion and curiosity, but also with considerable administration flair.

Karakorum International University Vice Chancellor's message



Prof. **Najma Najam**
Vice- Chancellor
Karakorum International University

Karakorum International University and EV-K2-CNR: a success story!

The collaboration between Karakorum International University (KIU) and Ev-K2-CNR has become a model for universities to follow in Pakistan. What began as an idea has expanded into multifaceted, multidimensional action research projects for the benefit of the CKNP region.

a) KIU and Ev-K2-CNR flagship collaboration: The first ever KIU PhD program has grown from 7 students in the first year to 18-19 students at present. Each one of them actively pursuing their degrees while fulfilling not just HEC quality assurance requirements but also those of their Italian and Pakistani supervisors in highly scientific and technical areas. A consortium of 7-8 Italian Universities are working in tandem with KIU/Ev-K2-CNR for a joint degree program. Experience of working in Italian laboratories, has been very effective in boosting the training of PhD students.

b) KIU CKNP Research Projects: at present scientists from all disciplines of KIU are actively involved in over 20 research projects ranging from the mountains, to agriculture, to socio-economic status etc. All these projects were processed through a joint scientific committee (Italian and Pakistani scientists who reviewed the projects for their methodology, processes and even the outcome expected). This project will go a long way in enhancing the research output as well as bring benefits to CKNP region.

c) Multiple projects: ranging from clean

water, alternate energy, farmers training, safe gemstone mining and carving, traditional wood carving, are also ongoing and the outcome will be shown in a major showcasing event later.

KIU and Ev-K2-CNR have been working very closely together under the guidance of the Steering Committee and the PIDSA, and we have shown is that even though this is a complex and multifaceted project, but we see success everyday in leaps and bounds- not in one but every are that we are working with together... and our successes are tangible and shines in our PhD's, in our publication, in our region. Congratulations to all!



Ev-K2-CNR institutional and official meetings



Ev-K2-CNR Scientific Council Meeting, Bergamo, Italy, June 10

Ev-K2-CNR Scientific Council Meeting, Bergamo, Italy,

June 10

On June 10, 2011, Ev-K2-CNR Scientific Council members met to discuss about the ongoing projects (SHARE, SEED, KT II) promoted in the framework of Ev-K2-CNR program and the activities carried out at the Pyramid International Laboratory-Observatory. Also new project as "Parfamar Constellation" was shown.



Ev-K2-CNR – NAST Bilateral Technical Committee (BTC) Meeting, Bergamo, Italy,

March 24

On March 24, 2011, BTC members met to approve the joint scientific activities to be carried out in Nepal in 2011. In total, 12 research projects were presented (4 proposed by NAST and 8 by Ev-K2-CNR). The meeting was co-chaired by Prof. Surendra Raj Kafle, NAST Vice Chancellor, and Dr. Gianni Tartari, Ev-K2-CNR.



SHARE

Solutions at High Altitude for Research on the Environment



Everest 2011 expedition

SHARE

Stations at High Altitude for Research on the Environment

SHARE (Stations at High Altitude Research on the Environment) project, promoted by Ev-K2-CNR and funded by the Ministry of Education, University and Research (MIUR) through the Italian National Research Council (CNR) and by the Lombardy region through the Lombardy Foundation for the Environment (FLA), aims to contribute to the study of climate change and its impact in mountain regions, supplying unique information to international scientific community and decision-makers on sustainable development and adaptation strategies. In particular, this project provides information on atmospheric composition and climate, glaciology and hydrology, water resources, mammal and plant biodiversity, human health and indoor pollution. Moreover, technological research, information systems and capacity building activities are also promoted.

The core of all these research studies is the maintenance and promotion of an observational network including two World Meteorological Organization – Global Atmosphere Watch (WMO-GAW) global stations and sixteen meteorological stations installed in Italy and around the world able to monitor in continuous the environment and the atmosphere. In 2011 important results have been achieved within SHARE pilot projects as shortly presented.

Wp1 - Scientific research and climate

2011 RESULTS

Wp 1.1 Atmosphere

In 2011, continuous meteorological data have been collected from all the automatic weather stations of SHARE network. In Nepal, in particular, the attention was focused on calibration activities of meteorological sensors: a “Quality Control” Automatic Weather Stations (AWS-QC) was installed and used to validate data collected by permanent stations.

The monitoring network in Pakistan has been improved thanks to the installation of the first supraglacial AWS in Concordia, on the Baltoro Glacier.

During the year, a new collaboration with the Institute of Atmospheric Pollution Research (IIA) – CNR has been activated, allowing the inclusion of Nepal Climate Observatory-Pyramid (NCO-P) in the reference sites for studying of mercury’s atmospheric pollution in the framework of

Global Mercury Observation System (GMOS) project. In October, a research team of IIA-CNR (Dr. Lynne Gratz, Dr. Giulio Esposito and Dr. Stefano Dalla Torre) installed in Pyramid the first atmospheric mercury analyzer sensor.

SHARE

abc

Stations at High Altitude for Research on the Environment

In **Nepal**, since 2006 continuous measurements of aerosol, ozone and meteorological parameters, as well as, weekly samplings of particulate matter and grab air samples, were carried out at NCO-P, the highest observatory of the United Nations Environmental Programme – Atmospheric Brown Clouds (UNEP-ABC) monitoring program and a unique source of data on atmospheric composition in the Himalayas, located near the Pyramid Laboratory at 5,079 m a.s.l.



Observatorio de Física Cosmica Chacaltaya- Bolivia

In April 2011 the 5th NCO-P calibration campaign was successfully carried out by Mr. Gian Pietro Verza (Ev-K2-CNR), Dr. Angela Marinoni (ISAC-CNR), and Dr. Antonin Broquet (LGGE-CNRS). During the mission all necessary instrument calibrations and maintenance activities have been executed. In particular, during the campaign the Differential Mobility Particle Sizer/Scanning Mobility Particler Sizer (DMPS/SMPS), used for measuring aerosol size distribution, has been restored.

In **Pakistan**, on July 2011, a new system able to monitor atmospheric composition and particularly PM10, NO2, VOC and NMHC, was installed near Urdukas AWS, at 4,000 m a.s.l. for a summer monitoring campaign. During this mission, Mr. Gian Pietro Verza trained on site Mr. Habibullah Barohi, Mr. Adnan Shafiq Rana and Mr. Furrakh Bashir, researchers and technicians of the Pakistan Meteorological Department.

In **Italy**, at "O. Vittori" Observatory (Mt. Cimone) atmospheric monitoring activity continued and regularly maintenance was carried out (<http://www.isac.cnr.it/cimone/>).

SHARE Everest 2011

Stations at High Altitude for Research on the Environment

On March 19, 2011, in the framework of SHARE EVEREST expedition, Italian climbers, Daniele Nardi, Daniele Bernasconi and the Nepalese Pema Sherpa (Pyramid technician), Pema Chosang Sherpa, Wangchu Sherpa, Pemba Ongchu Sherpa and Dawa Tshering Sherpa, coordinated from the Pyramid, by the head of the expedition, Mr. Agostino Da Polenza, and by the manager of Ev-K2-CNR monitoring

stations, Mr. Gian Pietro Verza, installed a new weather station at South Col (8,000 m a.s.l.) to replace the old station installed in 2008.

This station is equipped by sensors of temperature, relative humidity, wind speed and direction and UVA radiation, supplying unique information to international scientific community.

In the framework of the same expedition, the Ev-K2-CNR Committee installed, near the AWS at Kala Patthar (5,600 m a.s.l) the highest altitude web-cam in the world.

The web-cam is far only 11 Km from Everest and permit to see the Everest's summit by a high definition image and in real time. In fact, the image (available at link: <http://www.ev-k2-cnr.org/WebCams/PyramidOne/everest-webcam.html>) is updated every few minutes and this permit to perceive the presence and dynamic of clouds.

SHARE America

Stations at High Altitude for Research on the Environment

From 27 November to 4 December 2011, the Italian and French researchers (Dr. Francescopiero Calzolari – ISAC-CNR; Dr. Paolo Villani, Dr. Patrick Ginot, Dr. Paolo Laj–LGGE) reached the Observatorio de Física Cós mica in Chacaltaya, Bolivia, in order to install different atmospheric sensors (SMPS, Aethalometer, Nephelometre, MAAP, CO2, AIS, High-Vol, Inlet, CPC, O3) for the new South American GAW station, thus to permit to study atmospheric dynamics and composition in this area. Ev-K2-CNR provided full support for the acquisition and installation of an analyser for ozone observations and the installation of the server for data recorder, supporting the work of Mr. Calzolari on the site.



Kala Patthar web cam:
Everest in real time



Transport and installation of the climatic monitoring station SHARE-box at Forni Glacier, Italy

SHARE Modeling Center

Stations at High Altitude for Research on the Environment

In 2011, Ev-K2-CNR started a collaboration with Dr. Bhupesh Adhikary, Nepalese scientist of the Kathmandu University, expert in processing meteorological data through different models such as WRF/MM5/RAMS developed in the USA. In particular, within this context, the creation of a Center for Numerical Modeling and Earth Observation was promoted in Kathmandu where mesoscale meteorological modeling will be initiated to study mountain weather regimes in the Khumbu valley and over the Nepal Himalayas. This Modeling Center could supply a support for national and international projects for environmental monitoring studies in the HKKH Region.

Wp1.2 - Glaciology



Drilling snowpit Godwin Austen

SHARE stelvio

Stations at High Altitude for Research on the Environment

SHARE-STELVIO program is supported by the Lombardy Region under the umbrella of an agreement between the Lombardy Region and a regional research

foundation: FLA (Lombardy Foundation for the Environment).

In the framework of this project in June, on the Forni Glacier in Valtellina, Dr. Paolo Bonasoni, Dr. Angela Marinoni, Dr. Francescopiero Calzolari (ISAC-CNR), Dr. Antonin Broquet (CNRS-LGGE) and Mr. Gian Pietro Verza (Ev-K2-CNR) installed the climatic monitoring station SHARE-box.

This system has been equipped with sensors that permit to measure ozone, CO₂ and atmospheric particulate, and has been tested for black carbon which play a fundamental role in glacier melting.

In this occasion, at Branca Refuge (2,493 m a.s.l.), an internet connection was activated, guaranteeing a near real time data transmission at ISAC-CNR and a web cam was installed, allowing the regular monitor of the Forni Glacier

(http://www.umbriameteo.com/web_cnr_isac/01/images/movix_pdah.jpg).

The Stelvio National Park Glacier Inventory (Lombardy Sectors) was done thanks to the work of the University of Milan researchers (Prof. Claudio Smiraglia, Dr. Guglielmina Diolaiuti, Dr. Carlo D'agata, Dr. Claudia Mihalcea) and a data base including all glacier data was prepared. Moreover collected information have permitted the quantification of the glacier shrinkage occurring over the last half a century, which turned out to equal an area decrease of about 40%.

The Stelvio National Park Lake Inventory (Lombardy Sectors) was also done. The researchers of Water Research Institute (IRSA) - CNR and Institute of Ecosystem Study (ISE) - CNR prepared a data base of lake data.

In particular, in autumn 2011 a field mission, finalized to collect lacustrine water sample in Stelvio National Park was carried out by Dr. Franco Salerno and Dr. Gaetano Viviano (IRSA-CNR). The water samples will be analysed to describe lake chemical, physical and biological features.



Radar measurements firm on Godwin Austen

SHARE paprika

Stations at High Altitude for Research on the Environment

In **Himalaya**, Nepal, four missions were carried out in 2011. French researchers (Dr. Frederic Hernandez, Dr. Savéan Marie, Dr. Delclaux Francois and Dr. Luc Neppel – University of Montpellier 2; Dr. Vincent Christian, Dr. Yves Arnaud, Dr. Pierre Chevallier, Dr. Patrick Wagnon - CNRS) with the support of Pyramid staff technician continued the activities of measuring of snow, in particular on Changri Nup glacier, where in the past ablatometric sticks were installed.

Moreover, the hydrometers previously installed long the rivers of Khumbu Valley have been checked to verify their working and measure the discharge of rivers.

In **Karakorum**, Pakistan, several missions were carried out during the year.

In April, Prof. Alberto Bianchi, Dr. Andrea Soncini and Dr. Nicoletta Addimando (Polytechnic of Milan), installed a hydrometric station at Shigar, on river. Collected data have been and will be used to elaborate hydrologic models. Moreover, in this occasion, near this station water samples were collected and were analyzed by ISE-CNR research team.

In July, a glaciological mission was carrying out on Baltoro glacier with the involvement of Dr. Christopher Mayer and Dr. Astrid Lambrecht (BAW), Dr. Boris Mosconi (University of Milan), Dr. Luigi Bonetti (ARPA), Dr. Michael Weber (LMU) Dr. Daniele Bocchiola (POLIMI) and Mr. Gian Pietro Verza (Ev-K2-CNR) in order to install the ablatometric sticks and measure regularly the thickness glacier.

During this mission, snow and firn samples were also collected for future studies.

Moreover, in 2011 the researchers involved in this project focused their attention on developing and validation of climatic, atmospheric and cryospheric models.

Wp 1.3 - Water Resources

In 2011, the lacustrine samples of the Inferior and Superior Lakes near the Pyramid Laboratory, were collected by local technicians and sent to ISE-CNR, in Italy for laboratory analysis.

The Italian team focused its attention on the re-definition of research activities related to study of water resources.

In particular, the main interest of this WP is to carry out observations and information both a quantitative and qualitative evaluation of water resources in mountain regions, in synergy with atmosphere and glaciology WPs.

Under this umbrella, four executive projects on lake, biodiversity, precipitation and river, have been defined, and particularly:

- quantitative and qualitative status of water resources in remote areas: establishment of long-term monitoring networks for the study of remote lakes – Principal Investigator: Dr. Michela Rogora (ISE-CNR)
- water resources in remote areas: biodiversity of aquatic ecosystems as a tool for their assessment – Principal Investigator: Dr. Andrea Lami (ISE-CNR)
- chemistry of precipitation at Nepal Climate Observatory-Pyramid Global GAW Station, within the GAW Programme – Principal Investigator: Dr. Raffaella Baletrini (IRSA-CNR)
- a long term monitoring of quality and quantity of rivers in running waters in Sargamatha National Park (Nepal) - Principal Investigator: Dr. Franco Salerno (IRSA-CNR)



Download of Data from AWS
Concordial (Pakistan - 4.700 m a.s.l.)



NAST Training-Workshop on Seed Biology

SHARE Seed Bank

Stations at High Altitude for Research on the Environment

In the framework of this project, Prof. Graziano Rossi and Dr. Simone Orsenigo (University of Pavia), carried out a mission in Nepal, at Kathmandu. They organized a workshop at NAST on the Himalayan biodiversity conservation. More than 30 Nepalese researchers, coming from NAST, Nepal Agricultural Research Council (NARC), Tribhuvan University (TU) and Ministry of Forest, attended the meeting. During the year the building works at Himalayan Seed Bank were completed.

SHARE Snow Leopard

Stations at High Altitude for Research on the Environment

Prof. Sandro Lovari and Dr. Francesco Ferretti (University of Siena) and Prof. Leonida Fusani (University of Ferrara), carried out a field mission in Nepal, in order to continue the research activities on Snow Leopard and Common Leopard in the Sagarmatha National Park.

In Pakistan, Dr. Anna Bocci with the involvement of local students and technicians coming from Karakorum International University carried out field activities to survey predator presence and to collect biological samples of Snow Leopard and Lupus in the Central Karakorum National Park.

Wp 1.5 Environmental Medicine

SHARE Gard Khumbu

Stations at High Altitude for Research on the Environment

During the year two field missions were carried in Khumbu Valley (Nepal), from Prof. Annalisa Cogo (University of Ferrara) and her research team in order to improve knowledge concerning indoor pollution effects on human health.

During the first mission, in April, Thame residents were subjected to spirometry and cardiovascular tests.

During the second mission, in October, the same research activities were carried out in Phakding and Penboche villages. In addition, in this occasion, engineering study in local houses were also carried out in order to improve the knowledge on typical ventilation system.

These studies were promoted by the University of Ferrara, Dr. Enrico Duo within this context, the programme "Breathing Himalaya" was launched in November 2011 and funded by Italian Ministry of Education, University and Research.

The aim is to promote dissemination activities in order to awaken public opinion to importance of spirometry tests for prevention of Chronic Obstructive Pulmonary Diseases.

In this programme training courses related to the carrying out of spirometry tests, in Nepal, are also foreseen.



Spirometry test in Khumbu Valley villages, Nepal.

Wp 2 - Technological research and climate

SHARE Nano

Stations at High Altitude for Research on the Environment

In spring 2011, Italian researchers (Dr. Paolo Bonasoni, Dr. Paolo Cristofanelli, Dr. Francescopiero Calzolari, Dr. Ubaldo Bonafè) of ISAC- CNR realized a sensor to be installed on the Everest summit. This system was equipped with temperature, atmospheric pressure and relative humidity sensors installed on the summit of the mountain. During the year ISAC-CNR and LGGE-CNRS researchers focused their attention on the

improvement of the SHARE-box prototype, through the execution of tests in several Italian regions (at ISAC-CNR, at "O. Vittori" GAW station, on Forni Glacier in Valtellina). These tests permitted to improve the sophisticated applications installed in the system and particular attention was given to data acquisition and insulation systems. During the tests, this prototype performed continuous measurement of ozone, carbon dioxide, particle number and size distribution and meteorological parameters; nevertheless, this prototype is equipped by a modular system, so that in the future further parameters could be measured, according to the monitoring request.

Wp3 - Information System

SHARE Geonetwork

Stations at High Altitude for Research on the Environment

In 2011 SHARE GeoNetwork has been launched in occasion of the International Mountain Day, December 11. Inside this portal several categories have been identified and metadata on Atmosphere & Climate, Biodiversity, Earth Science, Glaciology, Health, Maps & graphics, Sat Images, Stations at High Altitude, Water Resources are available. In the forthcoming period the GeoNetwork will be implemented with data and metadata collected in the SHARE project.





Training before SHARE EVEREST 2011 expedition

WP4 - Capacity building

Each mission carried out by Ev-K2-CNR researchers in the developing countries represents an important opportunity to increase local awareness on climate changes. Training activities were carried out in Nepal, Pakistan and Uganda in order to guarantee the transfer of knowledge to local staff in order to allow them to independently manage scientific monitoring systems.

During the year, Nepal, Pakistan and Uganda staff was trained on the maintenance of scientific instruments as well as on data downloading procedures. Mr. Gian Pietro Verza weekly trained the Pyramid staff by video and/or teleconference in order to transfer technological knowledge concerning the maintenance of NCO-P, Pyramid instrumentation and AWSs.

During the year the Ev-K2-CNR Committee started a collaboration with Dr. Bhupesh Adhikary, Nepalese researcher of Kathmandu University, in the framework of WP 1.1 – Atmosphere. Dr. Adhikary spent two months in Italy, at ISAC-CNR, Bologna, in order to deepen his knowledge on the processing of meteo-climatic data from the stations installed in the Khumbu Valley and, in particular, from NCO-P.

titative changes of lakes and biodiversity in water ecosystems at mountain regions;

- CMCC for global climate simulation and atmospheric variability,
- ENEA for guaranteeing the radiometer sensor calibrations of all SHARE AWSs and NCO-P;
- “Department of Earth Sciences “ A. Desio” - University of Milan for maintenance and management of glacial AWSs;
- Department of Territorial Ecology and Environment – University of Pavia for improving knowledge on plant biodiversity in mountain regions and climate change effects;
- NAST in order to guarantee the scientific and technical-organizational activities of Ev-K2-CNR project related also to Pyramid International Laboratory;
- ICIMOD for strengthening the collaboration on activities about atmospheric and glaciological studies in Himalayan and Pakistan;
- MIUR in the framework of “Breathing Himalayas” project.



Dr. Andreas Schild and Mr. Agostino Da Polenza during the signature of ICIMOD/Ev-K2-CNR agreement

New agreements

In 2011, Ev-K2-CNR signed new agreements with several Italian and International institutions:

- ISAC-CNR for improving the NANO-SHARE technology and carry out test on Mt. Cimone;
- IRSA – CNR for studying qualitative and quantitative changes of rivers and precipitations at mountain regions;
- ISE – CNR for studying qualitative and quan-

2011 Events

ABC Science Team Meeting, March 21-26, 2011, Kathmandu, Nepal

Dr. Sandro Fuzzi (ISAC-CNR) took part in ABC Science Team Meeting as member of ABC Scientific Committee, presenting the activities carried out on atmospheric context and the achieved results in the framework of SHARE project.

SHARE EVEREST press Conference, April 20, 2011, Rome, Italy

On April, the Ev-K2-CNR organized a press conference in order to present to National Authorities the SHARE EVEREST expedition, finalized to the installation, on Mt. Everest, of the highest AWS in the World.

GEO WORK PLAN SYMPOSIUM, May 4-6, 2011, Geneva, Switzerland

Dr. Valentina Carminati (Ev-K2-CNR) participated in this meeting in order showing the important contribution that SHARE Geonetwork could supply to GEO/GEOSS and to international scientific community.

Training – Workshop on Seed Biology, June 2, 2011, Kathmandu, Nepal

The Nepal Academy of Science and Technology, with the support of Ev-K2-CNR organized a workshop on biodiversity conservation in Himalayas. On behalf of the Italian Institutes, Mr. Agostino Da Polenza and Dr. Valentina Carminati (Ev-K2-CNR), Prof. Graziano Rossi and Dr. Simone Orsenigo (Uni Pavia) took part in the event.

Alpine Summer School “Regional Climate Dynamics in the Mediterranean and beyond: An Earth System perspective”, June 20-29, 2011, Val d’Aosta, Italy

Dr. Antonello Provenzale (ISAC-CNR) organized this event and together with Dr. Paolo Bonasoni (ISAC-CNR) and Dr. Paolo Laj (LGGE-CNRS), took part, as teachers, in the Alpine Summer School, showing the activities carried out in the framework of SHARE project.

International Conference on Green Economy and Sustainable Mountain Development: Opportunities and Challenges in View of Rio+20, September 5-7, 2011, Kathmandu, Nepal

Dr. Luca Listo, Dr. Valentina Carminati and Dr. Bhupesh Adhikary (Ev-K2-CNR) took part in this conference showing the contributions that SHARE project can supply to international institutions and governments in promoting of green economy and adaptation strategies.

VIII Earth Science Italian Forum - Geitalia 2011, September 19-23, 2011, Turin, Italy

Dr. Elisa Vuillermoz (Ev-K2-CNR) focused the attention on important results achieved thanks to atmospheric research activities carried out at Pyramid and NCO-P.

Word Mountain Conference 2011, 11-12 October 2011, Lucerna, Switzerland

On behalf of Ev-K2-CNR, Dr. Luca Listo and Dr. Francesca Steffanoni took part in this conference aimed “Move Mountains toward Global Sustainable Development” and promote adaptation strategies and green economy actions.

Workshop ICIMOD “Upper Indus Basin monitoring workshop”, November 15-16, 2011, Islamabad, Pakistan

In this context, Dr. Elisa Palazzi (ISAC-CNR) shown main activities and scientific results achieved in SHARE project, in particular on Pakistan land. Her participation permitted to strength collaborations with local agencies.

COP 17, November 28 – December 9, 2011, Durban, South Africa

Dr. Paolo Cristofanelli (ISAC-CNR) took part in the side event on “Highlighting the Critical Role of Mountain Ecosystems for Climate Adaptation and Sustainable Development” organized by ICIMOD.

KARAKORUM TRUST 2

INTEGRATION AND HARMONIZATION
OF SUSTAINABLE DEVELOPMENT
INTERVENTIONS IN THE
CENTRAL KARAKORUM NATIONAL PARK





Central Karakorum National Park map.

KARAKORUM TRUST 2
 INTEGRATION AND HARMONIZATION
 OF SUSTAINABLE DEVELOPMENT
 INTERVENTIONS IN THE
 CENTRAL KARAKORUM NATIONAL PARK

Karakorum Trust 2 project, was launched by UNEP and Ev-K2-CNR Committee in collaboration with local stakeholders and institutions, in order to improve the quality of life of local communities and the conservation of environment, architectural and cultural heritage, and enhance the capacity of local communities and institutions to adapt to climate change in the Central Karakorum sustainable development in the Karakorum area through coordination of ongoing efforts and initiatives; strengthen the decision support system; strengthen institutional mechanism to better manage the CKNP, and enhance capacity of local communities and institutions to face climate change. Within the KT2 programme, Ev-K2-CNR is responsible for the development of the integrated management plan of Central Karakorum National Park, built starting from the status of the background information and completed with the data collected in the last years. Due to the limited budget availability, in this scientific framework, the project strictly collaborates with other ongoing program in Pakistan such as SEED and SHARE.

2011 Results

Main result achieved in 2011 include the preparation of an updated version of the first phase management plan prepared in December 2009 and approved and included in the PC-1 in July 2010.





Herewith below a summary of the main output of 2011:

Activities / Outputs related to the year 2011	Status	Results/Impact
1 Develop sustainable and integrated management plan for CKNP and hold national consultation workshops	ongoing	First draft integrated management plan completed and approved Updated version of the Integrated Management Plan provided in Dec. 2011
2 Develop joint training packages for local communities on sustainable park management	ongoing	Training course to CKNP Directorate local staff for Park Management, including visit of Pakistani staff in Italy to National Parks
3 Install and operate environmental monitoring stations for the CKNP	ongoing	Maintenance of existing climate network Installation on an hydromet station in Shigar Installation of an automatic weather station in Concordia Temporary installation of an air quality monitoring system in Urdukas
4 Develop and disseminate training and awareness raising packages on sustainable and integrated park management and adaptation to climate change for CKNP	ongoing	Preparation of research protocol for park resource management to be approved by local authorities Dedicated training course for scientific and technical research activities
5 Develop a decision support system for CKNP	Ongoing	ICIMOD through UNEP is developing the DSS for CKNP
6 Develop a climate change assessment report	Ongoing	SDPI through UNEP is developing the climate change assessment report for CKNP

New agreement

An amendment to the agreement between UNEP and Ev-K2-CNR to extend the project duration until December 2012 has been signed on December 13, 2011.



seed
Social Economic
Environmental
Development

seed
Social Economic
Environmental
Development



Pakistani miners



Achieving poverty alleviation, community development, livelihood improvement and conservation through an integration of intrinsic, scientific, ecosystem-management oriented research, indigenous practices of natural resource management and eco tourism principles to support the development and implementation of the CKNP and its surrounding areas.

2011 Results Important conservation relevant non farm income activities supported

Three activities with distinctly different stakeholders and beneficiary groups: conservations-related community organizations, miners, local private entrepreneurs in the gemstone processing sector. Under the activity A.A.1.a **Development of trophy hunting programs** (implemented by CKNP), to raise awareness and promote capacity building for the target communities, an exposure visit was carried out for the representatives of the Conservation Committees of Arandu, Askoli, and Nar Valley to Gol National Park and Toshi Conservancy (Community Controlled Hunting Area) – Models for successful management of wildlife conservation. Within the activity A.A.1.b **Promote safe gemstone mining techniques in CKNP area** the geologist, Dr. Marco Barsanti (Ev-K2-CNR consultant), finalized a training program and equipment list, based on the situational analysis conducted in 2010. Mr. Barsanti, Eng. Maurizio Gallo (Ev-K2-CNR), Dr. Hawas Khan (Geologist, KIU) and Mr. Ashraf Hussain (Head of geologist Department KIU) jointly concluded three trainings with four local mining communities of Dass-Shigar, Astak, Nagar and Haramosh.

The trainings included topics related to excavation techniques, mineral extraction techniques and use of manual equipment, safety and first aid concepts, recognition and evaluation of mineral and gemstones. Under the activity A.A.1.c **Capacity building for local gemstone cutting and polishing** (KIU &BCDF) a trainer of Baltistan Culture and Development Foundation (BCDF) in Skardu was trained in the developed methodology, and the first training was launched in November 2011 by BCDF.



Dr. Marco Barsanti (Ev-K2-CNR consultant) is training a local miner promoting the safe gemstone activity.



Participants in the "Training course for the miners of Braldo and Rondu valleys".

Community organization and local people's access to important livelihood-assets improved

This component includes infrastructural improvements in CKNP Buffer Zone (Baltistan-side), irrigation, access of local communities to improved services and facilities, as well as the improvement of social organization and gender equality in the key project area. Within the activity A.A.2.a - **Improvement/installation of water supply schemes for communities**, implemented by AKRSP six irrigation channels have been initiated, four water supply projects completed and four are in progress. Two reservoirs in Saydar and Kunar (total 38 beneficiary households) have been constructed. One reservoir in Nid is under construction. Under the activity A.A.2.b **Implementation of measures to improve water quality** implemented by Ev-K2-CNR in collaboration with ISE-CNR, the list of equipment for water laboratory was finalized and tendering for the equipment initiated. A PhD scholarship on water quality in CKNP area for a KIU student started. Under this component AKRSP implemented the activity AA2d **Awareness raising for local communities on gender inclusion and improvement of community with the establishment of the last LSO** (in Tissar) to be completed next year. The LSOs are partnering with CKNP Directorate for the development and implementation of the park management plan. In addition, 7 Gender workshops, with 35-60 participants each, have been held within the main project area. 5 link road projects (Askoli Braldo, Dassu Bala, Sarfakhor, and Bandegon Dassu, and Kurfe) have made physical progresses under the activity AA2e **Improvement of access ways** (developed by AKRSP). These projects will be completed next year.

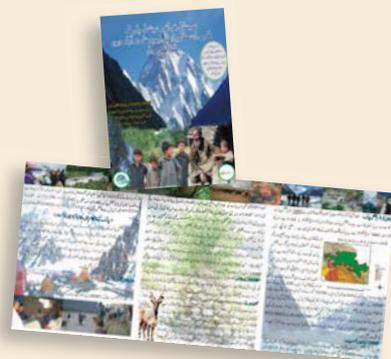
Local-level natural resource management improved

This component (in line with PC-1) aims at supporting CKNP Directorate in developing a participatory setup able to include local communities in the future management of the park. Within A.A.3.a **Assess local sustainable natural resource use techniques and practices** (jointly coordinated by Ev-K2-CNR & KIU), particularly important in view of the development of the management plan, on November 12th 2011 SEED Scientific Committee approved the research dedicated to map resources, formal and informal property and use rights in and around the park area.

This research will start next year. The activity A.A.3.d **Engage local media in mass awareness and sensitization for conservation, coordinated by WWF**, aims at increasing awareness and outreach for conservation activities in CKNP park and buffer zone.

To support visibility for and information about CKNP, 2 draft factsheets on the park were developed. Within the activity A.A.3.e **Mobilizing communities for participation in conservation and sustainable use of Park resources** (implemented by WWF) wildlife baseline surveys and seasonal wildlife surveys have been carried out during 2011 by the University of Siena jointly between WWF, CKNP Directorate, the Wildlife Department and local watch and ward staff. 10 out of 11 Valley Conservation Committee (VCCs) were officially endorsed in 2011. Under A.A.3.f **Raising community awareness about their role in CKNP management**, CKNP Directorate held four local awareness events and signed a memorandum of understanding for participation in the development of the park management plan and for its implementation with 15 (of total 28) identified community organizations. CKNP Directorate also develo-

AKRSP Training for Community Women of CKNP Buffer Zone





ped a brochure in local language to summarize community rights and obligations regarding use of natural resources in the park.

Local agricultural production improved in accordance with CKNP vision objectives and regulations

This component is an extensive program for improving the agricultural sector, which is key for the local livelihoods in the project area. During 2011, under A.A.4.a **Assess potential for increased production and marketing of local agricultural products**, in order to share the findings and disseminate better practices and techniques, KIU Agricultural Department in collaboration with the Agricultural Department of Gilgit-Baltistan, held 3 workshops for 25 local farmers each inside the project area. Within the activity A.A.4.b **Devise and install systems and provide training for environmentally sound, safe and hygienic production and processing of agricultural products** (coordinated by Ev-K2-CNR in collaboration with Impresa Pvt Ltd and BCDF) the development of a concept proposal for a food processing plant in the project area was initiated at the beginning of 2011. BCDF in Skardu was identified as a suitable local partner, and the contract with it was signed.

Moreover, a suitable building in Skardu was chosen and a tender was started for purchase of technical equipment. Under A.A.4.d **Establishment of fruit nurseries and training for improved productivity and marketing for local farmers** 10 nurseries were established by AKRSP.

The beneficiary farmers were trained in fruit nursery management through 3 trainings of 5-days each, organized by AKRSP and the

Agricultural Department. Within the activity A.A.4.e **Promotion of off-season vegetable farming and seedling production** AKRSP installed 48 greenhouses and carried out trainings for the beneficiary communities. During 2011 “community watch and ward mechanisms” were established in the identified valleys, and the involved personnel was trained.

Fodder cultivation on farmland has been initiated in Basha and Hisper on 14 hectares each. A livestock insurance scheme was initiated in Thallay and a vaccination campaign carried out in Hisper. (WWF Activity A.A.4.f **Improve livestock and pasture management**).

Local awareness, quality and extent of health services improved

The activity A.A.5.a **Improve capacity of Lady Health Workers (LHWs) and Trained Birth Attendants (TBAs)**, coordinated by AKRSP started in 2011, by providing 2 three-month trainings for 10 LHWs of the project area.

Through these trainings the LHWs will be skilled as TBA. 20 women have been selected and have been trained from 1st December 2011, in collaboration with the respective LSOs, staff from Family Planning & Primary Health Care Gilgit Baltistan (FPPHC-GB) and Dr. Raza, who has been appointed in Dassu. Under the activity A.A.5.b **Establishment of a health-service network for Braldo-Shigar** (coordinated by Ev-K2-CNR) the Health Department Skardu was in process of approval for a PC-4 project concerned with the establishment of the Dassu health post. The doctor for the health post Dassu was appointed in September in collaboration with the Health Department





Askoli Primary school

Skardu. The agreement with the Health Department is in the finalization phase. The appointed doctor was provided with equipment and facilities to start his work in Dassu.

9 one-day workshops have been held by AKRSP for 289 participants in ten villages in October and 3 more workshops have been conducted in December under the activity A.A.5.c **Raise awareness for hygiene and health issues at community-level.**

Quality of lower education system improved

This component has a very clear focus on the improvement of the lower education system in Braldo and Basha Valleys in terms of quality of education and available facilities.

The entire component is implemented by AKRSP and follows the AKRSP project implementation strategy, working directly through community-based organizations of the project area.

The activity A.B.1.a **Conduct teacher training courses** was concluded in 2011, with the realization of three 10-day trainings focused on diminishing the shortfalls in skills and teaching techniques of local teachers.

8 schools have been provided with teaching aids and partly renovated under the activity A.B.1.b **Provide contemporary teaching aids for local schools.**

Within A.B.1.c **Improve facilities/infrastructure of local school buildings** by the end of 2011, 7 school buildings have been repaired: Teste/Monrong, Arandu, Saisko, Dhoko, Kho-sta Khor, Dassu Bala, and Bisil. 4 school buildings are under renovation in Thongal, Zil, Nid Dassu, and Hemisil.

Workshops dedicated to raise awareness on the importance of education, with a special

focus on girls and women, have been conducted in 8 communities under the activity A.B.1.d **Community awareness raising for the importance of education.**

Development of northern Areas and CKNP initiated through the consolidation of KIU as vibrant centre for applied sciences and hub for knowledge transfer

This component has reached a key milestone in 2011. All PhD scholarships have started in December 2011.

The establishment of the "IMARC" is in process. A building has been identified, and tendering for the necessary equipment has started.

In 2 rounds of advertisement, 15 students were selected and enrolled in PhD scholarships since March and September 2011 in the framework of the activity A.B.2.a **Establishment of a new faculty for integrated mountain area development studies and applied research**, jointly coordinated by EvK2-CNR and KIU. Also the remaining 5 students have been selected and they will start courses in 2012.

The construction works foreseen in the activity A.B.2.f Installation of a water supply scheme for KIU campus, under coordination of KIU, started with the awarding of the contract in July 2011. The excavation of water tank is complete and the layout for trenches has been marked.

Under the activity A.B.2.g **Installation of a renewable energy supply scheme for KIU campus**, Ev-K2-CNR started the tendering for the equipment (Photovoltaic Panels).

Due to delays caused in the procurement process, the planned installation of the system has been postponed to 2012.



CKNP new headquarters, Skardu



Apricot Trees



Integrated research program to support CKNP development and management

This component is related to the improvement of the scientific baseline and monitoring for environmental and social dynamics in CKNP and its “buffer zone”. Within the framework of the activity A.B.3.b **Conducting management-oriented environmental researches and monitoring to support the CKNP planning and implementation process**, jointly coordinated by Ev-K2-CNR and KIU, all the research programs delineated in 2010 operated according to their detailed ToRs. All research groups hold a briefing and de-briefing at CKNP Directorate in Skardu before and after every field missions. Moreover 3 new research lines have been approved in November: CKNP Boundaries delineation, Waste Management in the Park area and Livestock research. In July an AWS has been installed in Concordia on Baltoro Glacier within the framework of the activity A.B.3.h **Installation and operation of AWS** (automatic weather stations). This AWS will be particularly relevant for the environmental protection of CKNP and for both research lines Atmospheric Sciences and Glaciology/Mountain Hydrology. Technical staff of Pakistan Meteorological Department (PMD) has taken part in this mission and trained on AWS management and data downloading. This activity has been carried out by Ev-K2-CNR in collaboration with KIU and PMD. 40 hectares of plantation were established by WWF in collaboration with CKNP Directorate in key areas in around the park in 2011 under the activity A.B.3.i **Afforestation and social forestry interventions carried out in vulnerable watershed areas**. The species planted are: willow, poplar, mulberry, robinia and

wild olive which are the main species cultivated around the park by local communities for timber, fire wood and fodder production. Overall, it is estimated that 80% of the plants have successfully stroke roots. The proposal for the implementation of the activity A.B.3.j **Assessment of local livelihood opportunities, risks and changes** coordinated by Ev-K2-CNR and KIU was presented and approved in the SC meeting in November 2011, and the project will be initiated in 2012.

Capacity of CKNP management improved

This component is concerned with improving the capacity of CKNP Directorate/Department of Forest Gilgit-Baltistan for managing the park. Under the activity A.C.1.a **Recruitment of new staff and support to Forestry Department to meet the salary need for existing CKNP staff** the required approval from the Department of Forest, Wildlife and Parks Gilgit-Baltistan for advertising the new positions foreseen in the PC-1, was obtained in 2011 and the recruitment is in process. 80% of the equipment for CKNP Directorate, as per revised PC-1, has been procured and handed over to CKNP Directorate in 2011, including 3 cars, 5 motorbikes, 5 computers with office equipment and different technical equipment for field work within the framework of the activity A.C.1.c **Provision of working equipment for CKNP staff**, implemented by Ev-K2-CNR in collaboration with CKNP. An exchange visit with 2 senior staff of CKNP Directorate and the Secretary of the Department of Forest Gilgit-Baltistan took place at the end of November 2011 to Gran Sasso National Park in Italy under the activity A.C.1.d - **Capacity building for key stakeholder involved in CKNP management**.



Trekking leaders course

The project research groups also improve the specific knowledge of the game watchers through their direct involvement in the different field activities. Specific workshops were held on Wildlife management and GPS use. Within the framework of this component also the activity A.C.1.b **Establishment of an ecologically sustainable CKNP headquarter** has made progress in 2011

Visitor facilities in CKNP and buffer zone and visitor management established or improved

The establishment of new facilities in the park is subject to the different interests of tourism industry, visitors, the local communities and conservation-oriented NGOs, as well as the park management, which often diverge significantly. Therefore, keeping all stakeholders regularly informed on the progresses and direction of the activities is essential. The project managed to launch the visitor registration system in 2011 and initiated a process of handing over campsite management from MGPO to the Park Directorate. Support from authorities and local communities for the implementation of an improved campsite management system, has been obtained and was implemented as a pilot phase in 2011, along with the participatory development of a campsite management plan.

Within the activity A.D.1.a **Establishment and implementation of sanitation maintenance- and waste management schemes for existing campsites along major trekking routes**, coordinated by MGPO, an agreement was signed between MGPO and CKNP Directorate on campsite management at the beginning of 2011. A two day capacity building training workshop with all CKNP staff was

conducted in March in Skardu, to share the experience of MGPO for campsite management and to outline an improved and centralized campsite management plan. The pilot phase of the new management system was carried out in the tourist season 2011. A plantation of 9000 plants was established by WWF on 9 ha of community land (Hispar campsite) in the first half of 2011 (activity A.D.1.c **Establishment of tree plantations in Hispar campsite**). Additionally, a nursery was established in Nagar valley in collaboration with CKNP Directorate and the Wildlife Department.

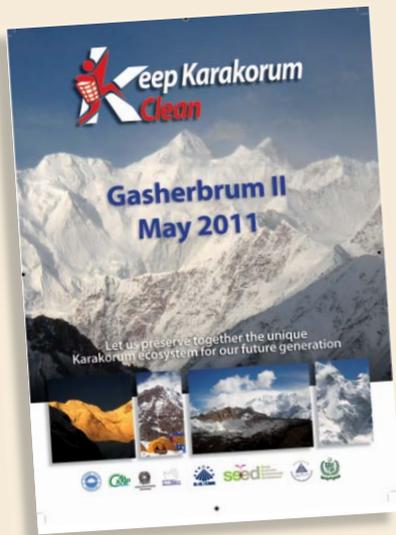
Within the activity A.D.1.d **Establishment and improvement of Park Entrance Points including camping, CKNP field office and visitor registration facilities the boundary wall and water tank** was completed in the second half of 2011 by MGPO, preparing the site for the construction of the campsite and entrance point, whose final design has been finalized by the architect Michele Locatelli (Poli Mi) in collaboration with CKNP Directorate.

Under the activity A.D.1.e **Establish visitor information and registration for CKNP** CKNP Directorate in collaboration with EvK2-CNR established and operated temporary visitor registration and information points at the LSO office Askoli and Sheikh Hassan Guesthouse in Hushe between June and October 2011. All tourists and groups registered their entrances and exits in the park through proper forms. The collected information is being analyzed. Within the activity A.D.1.f - **Improvement of park signage**, 42 iron framed wooden sign boards were developed and installed in 2011 by CKNP Directorate along two important trails in the park - Hushe to Saicho campsite, and Askoli to Jula campsite - and at important locations in the park area,





Mountaineering an trekking leaders course



Keep Baltoro Clean Expedition

such as on Skardu-Gilgit road, Gilgit-Nagar road, Bagrot road and Askoli village.

Besides the maintenance of 25 km of trails between Askoli and Jula campsite, and Hushe and Saicho campsite; 4 small foot bridges along the trail from Jula to Paju, and Hushe to Saicho have been built. Extensive maintenance work was carried out just before Jula campsite, where the trail was hit by a landslide. These initiatives have been developed by CKNP Directorate under the activity A.D.1.g carry out **trail upkeep and maintenance services**.

CKNP waste management improved

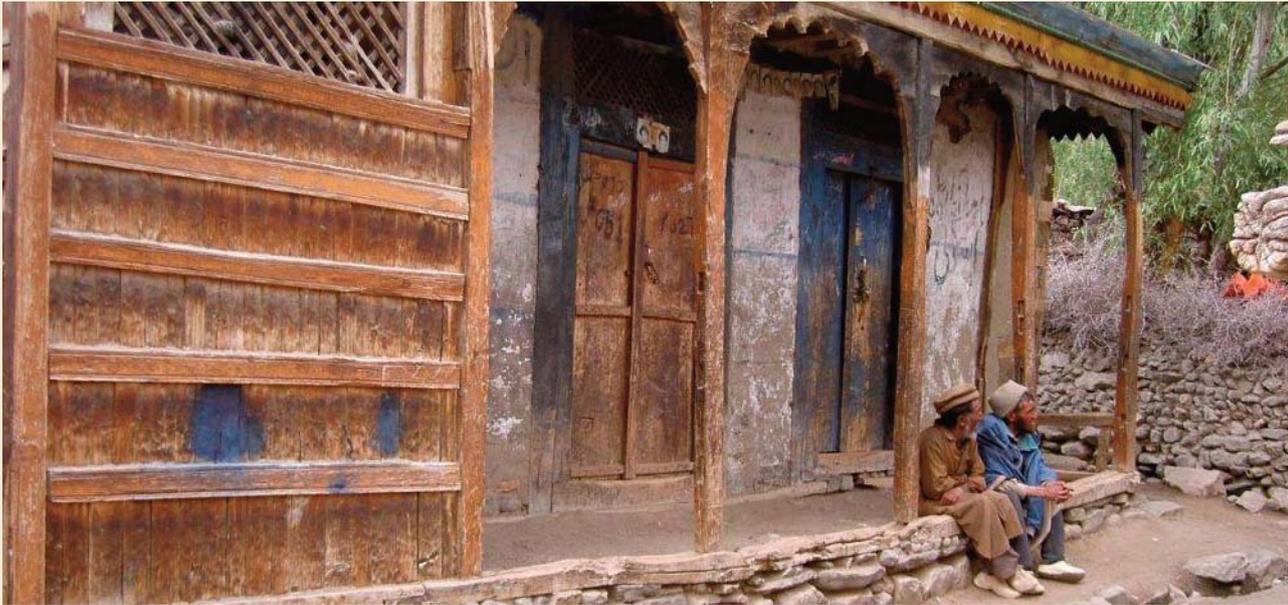
This component has been successfully running since the beginning of the project and has been implemented as planned. Based on the positive experience

of 2010, when 8 eco-toilets have been installed in Concordia, 3 new eco-platforms have been manufactured according to a new design specifically planned for high altitude use (aluminium made), by Ev-K2-CNR under the activity A.D.2.a **Establish 2 ecological platforms at Concordia on the Baltoro Glacier for the sustainable management human waste**. From June to July the toilets installation took place. 3 eco-toilets have been installed at Gasherbrum base camp, 2 at Goro II and 6 in Concordia. A.D.2.b - Carry out solid waste cleanup campaigns on major trekking routes (Ev-K2-CNR & ACP) The 2011 clean-up campaign to the Base Camps of K-2, Broad Peak, Gasherbrum I and II was held from July 10th to August 15th 2011, 7'300 kg of waste have been collected by a team of around 200 people. In the same period also Gasherbrum II has been cleaned. 1521 kg have been collected in advanced base camp, camps 1, 2, 3, 4. This expedition has seen the involvement of 72 participants. These initiatives have been carried out by Ev-K2-CNR in collaboration with ACP under activity A.D.2.b **Carry out solid waste cleanup campaigns on major trekking routes**.

Quality of tourism services improved

This component aims at improving the quality of tourism related service in the project area, regarding trekking and lodging. In 2011 a one week-long guide instructors course for 10-12 Instructors, coming from mountaineering school in Gilgit-Baltistan, was held by Mr. Michele Cucchi, an Italian mountaineering expert. This initiative has been carried out by Ev-K2-CNR in collaboration with ACP, under the activity A.D.3.b **Carry out training courses for trekking leaders and guides**



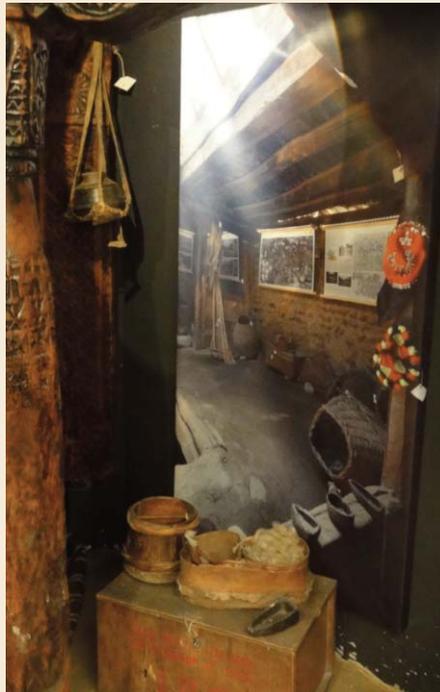


Tradition wood craftsmanship and cultural heritage of CKNP and buffer zone preserved and promoted

This component includes a number of interrelated activities aimed at promoting traditional wood crafting techniques and cultural heritage sites among local communities (awareness of their history) and tourists.

The restoration of cultural heritage sites has strong synergies with the promotion of traditional wood crafting techniques. In 2011 an exhibition “Cultural Heritage in Baltistan” was established at K2 Museum in Skardu. It is related to the activity A.D.4.a, A.D.4.b., A.D.4.c. and shows through 17 panels the research activities on cultural heritage in Baltistan. Within the framework of the activity A.D.4.b **Assess and promote cultural heritage of CKNP and Bufferzone** (coordinated by Ev-K2-CNR), ISIAO completed the ethno-anthropological survey for Basha Valley (initiated in 2010) to investigate handicraft techniques and artifacts as well as artisans’ family traditions and oral-based ancient myths associated with Ancient Sagas.

A report on anthropological features of the area, a brochure of ethnographic features of Basha Valley with a video and a scientific publication on the topic have been developed. Under activity A.D.4.c **Renovate traditional architecture and village-layouts in Askole**, coordinated by Ev-K2-CNR and ISIAO initiated the restoration of the Imam Barga in Askole working with local carpenters. Collaboration was initiated with AKRSP and BCDF in Skardu, an organization which has extensive experience in restoring old monuments in the area. Under activity A.D.4.d **Establishment of a cultural/historical museum in Askole**, coordinated by Architect Locatelli,



Askoli House Museum

the Askole museum infrastructure was improved (light, power, shelves) and maintenance work carried out.

A management scheme for Askole House Museum was put in place with the local community. Also, new carved wood artifacts from a demolished house in Askole village were collected and placed in the museum (5 pieces). Surveys along the proposed “walk about” trekking route were carried out, on both sides of the Braldo river, up to Skoro-la. During the mission in July 2011 the proposed “walk about” trekking route was illustrated to the local communities. A training for 10 illiterate youth of Baltistan was carried out in the first half of 2011 by KIU in the framework of the activity A.D.4.f **Support (traditional) woodworking craftsmanship.**



Skardu Museum



Signature of MoU between Ev-K2-CNR President, Mr. Agostino Da Polenza and Chief Minister of Gilgit-Baltistan, Mr. Syed Mehdi Shah

New agreements

- On March 2nd, Ev-K2-CNR signed new operative agreements with the Government of Gilgit-Baltistan, represented by its Chief Minister Mr. Syed Mehdi Shah, in order to establish and coordinate the existing development cooperation initiatives in the Central Karakorum Area.
- On July 25th, Ev-K2-CNR signed an operative agreement with Baltistan Cultural and Development Foundation (BCDF) in order to implement and run the Stone fruit processing factory in Skardu.
- A Memorandum of Understanding was signed among Karakorum International University (KIU); Environmental Protection Agency (EPA); Local Government and Rural Development (LGRD); Aga Khan Planning and Building Service (AKPBSP); World Wide Fund for Nature Pakistan Gilgit-Baltistan (WWF-P); United Nations' Development Programs' Mass Awareness for Water Conservation and Development (UNDP-MAWCD) in order to work mutually on Water Quality in Gilgit-Baltistan.

2011 Events:

In May 2011 the **celebration of the International Biodiversity Day** was organized by WWF Pakistan.

In 2011, 3 joint events have been organised: The World Forest Day on March 21st 2011 in Skardu, where SEED Project plantation initiatives were promoted, the International Biodiversity Day on May 22nd 2011 in Gilgit, and the World Environment Day on June 5th in Hushe and Hisper village.

The **closing ceremony and press conference for the mining training** in Astak was held on June 3rd, 2011. In this occasion Mr. Wazir Hassan, Member Legislative Assembly Gilgit-Baltistan was Chief Guest. In June 2011, the World Environment Day was organized under the lead of CKNP Directorate in Hushe, Ghanche District, Gilgit-Baltistan.

On July 11th 2011, **the official ceremony and press conference at the Ev-K2-CNR "K2 Italian Museum" in Skardu** were held in order to present the 2011 cleaning expeditions of Baltoro Clean Up and Gasherbrum II Clean Up.

Dr. Chiara Calligaris (University of Trieste - Department of Mathematics) participated in **VIII Forum Italiano di Scienze della Terra** (Turin, Italy, 19-23 September 2011) showing the "First steps into the landslide inventory of the Karakorum National Park using a new generation of high quality DTM", about a better knowledge of the territory through the analysis of the hazardous areas, important instrument for a future rational territorial planning.

Dr. Chiara Calligaris (University of Trieste - Department of Mathematics) took part in the **"Second World Landslide Forum"** (Rome, Italy, 3-7 October 2011) focusing her attention on the importance of on field monitoring technique in remote areas in order to prevent social economic tragedies like the one occurred.

At the end of November 2011, Director of CKNP Mr. Abid Ali; Ecologist Mr. Yasir Abbas; Secretary Forest and Environment Gilgit Baltistan Mr. Abdul Hameed participated to **the exchange visit to Italy**, they visited the Gran Sasso National Park, Park of Maremma, Regional Park of Colli Euganei and Regional Park of Cansiglio.



**WATER
FOR LIFE**
IN PAKISTAN

WATER
FOR LIFE
IN PAKISTAN




WATER FOR LIFE

I N P A K I S T A N

Main aim of the project, funded by Fondazione Cariplo, is to provide concrete and enduring support for primary needs of local populations living in Basha Valley (Central Karakorum National Park) and particularly for reducing malnutrition, by implementing a suitable water network and in this way improving the health conditions of the population and the food availability for the families. The reduction of poverty level is going to be achieved by increasing the economic conditions of local communities in order to face the primary necessities and territory conservation, essential for the future of local communities.

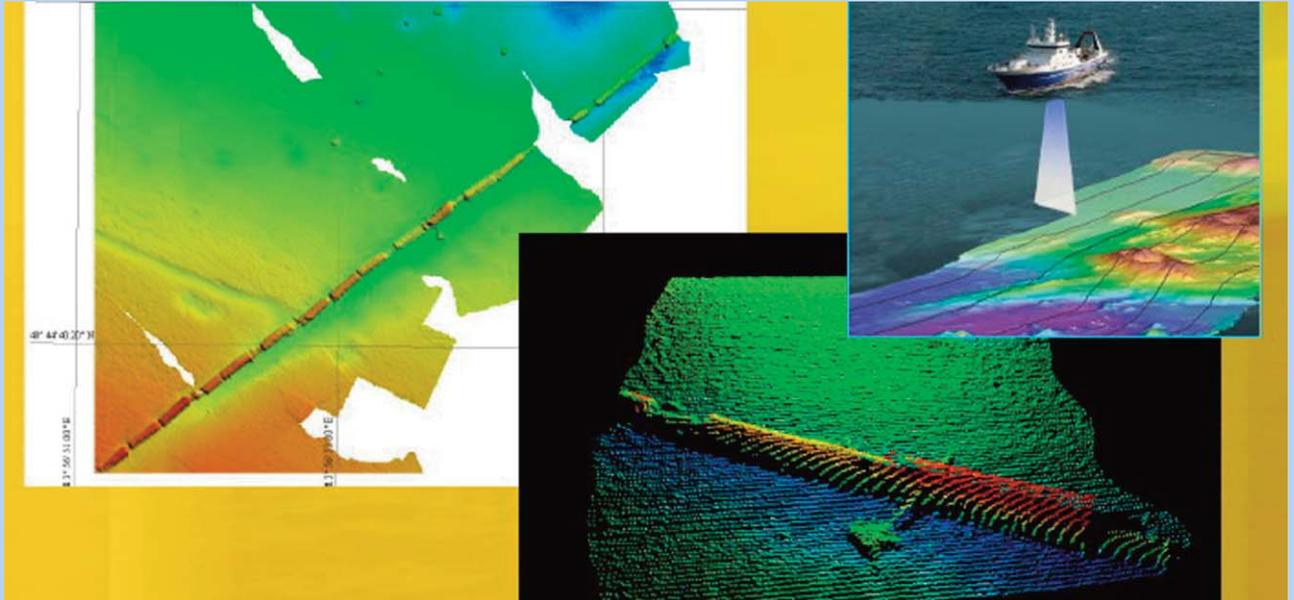
2011 results

- Basically Baltistan region falls under the subsistence agriculture category as most of the people rely on agriculture for their survival. Given its natural topography, agriculture is largely dependent on snowmelt water for irrigation. The water courses are the lifelines for this subsistence farming communities. Thus, given these important factors, local populations of the villages of Dhogoro, Bain Basha, Hemisil and Zil have been supported to extend their irrigation channels. Beneficiaries have been 238 households and 2,07 km² of cultivated lands.
- Drinking water availability is one of the main issues in CKNP Area. Water sources are often significantly far away from the settlements and in summer people usually use the water of irrigation channels for drinking and cooking purposes, which is neither safe nor hygienic. Due to water contamination many water born diseases are common in the area, especially children are often victims of such diseases. Thus, give the importance of water supply schemes for local populations the villages of Hemisil, Doghoro Gon and Sajjad Abad have been supported for the installation of water pipes. Beneficiaries have been 170 households.
- Due to depletion and improper management of natural resources local people are deviating from agriculture to other sectors. To address this, agriculture has to become more productive and a source of cash income for communities. For this purpose fruit nurseries have been established in Dogohoro, Zill, Saisko and Besil. For these nurseries owners 2 nurseries management training were provided.
- Buckwheat is one of the most important crops of CKNP Area, therefore efforts have been taken to make this crop valuable for the people. In this regards, buckwheat was collected from Basha Valley, processed and given back to 30 farmers from Basha Valley UC.
- Analysis of availabilities of drinking and irrigation water and assessments of local needs have been successfully carried out in the villages of Bein, Zill, Seisko Shonal, Seisko Proper, Seisko Monaco, Seisko Ongbusok, Bisil Gulshanabad, Bisil Chamanabad, Arandu, Arandugon, Doko, Sibbirhi, Doghoro-Yul, Doghoro-Gon, Niaslo, Daimal, Thorgu, Himisil, Chutron, Tisar. For each village the GPS coordinates have been collected.
- In April and July 2011, through field works expeditions, water samples have been collected. The analysis of these samples will guarantee to identify possible polluting agents and which waters can be considered drinkable.



PARFAMAR
Laboratorio Marino

PARFAMAR



MULTIBEAM system (echo-sounder multi-beam)

NEW PROJECT LAUNCHED IN 2011



PARFAMAR Reinforcement of Marine Research and Training Activities in Southern Italy

PARFAMAR is made up of several technological and scientific research projects related to the sea, funded by the National Operative Programme (PON) 'Research and Competitiveness 2007-2013' (Directorial Decree Ministry of Education, University and Research Protocol no 1/Research January, 1, 2010).

The Italian PON 'Research and Competitiveness 2007-2013' global strategies aim both at supporting the economic structural changes in the 'Convergent Regions' (Campania, Calabria, Puglia, Sicilia) and at strengthening their scientific and technological potentials, promoting the transition process to a "knowledge economy" and the innovative context of the involved Regions.

At the same time, the European Commission, in its 2005-2009 strategic objectives, declared: "the particular need for an all-embracing maritime policy aimed at developing a thriving maritime economy, in an environmentally sustainable manner. Such a policy should be supported by excellence in marine scientific research, technology and innovation".

PARFAMAR implies a close cooperation between public and private research agencies and enterprises from Southern Italy aiming at:

- enhancing the technological progress in a specific field;
- developing and strengthening infrastructures and supporting the already existing scientific networks;

- spreading the results of the marine environmental research at regional and international levels.

The global strategy of PARFAMAR consists in the realization of Technological Platforms with a strong individuality and multiple technological interconnections, in order to face multidisciplinary problems concerning coastal regions sustainable management.

Therefore, the primary objective of PARFAMAR is to improve the technological component of the Convergent Regions current scientific networks, focusing not only on the realization of innovative prototypes (Technological Platforms), but also on the application of new technologies for scientific research and know-how development.

PARFAMAR covers 4 projects focused on the realization of innovative Technological Platforms. These projects aim at developing new strategies and methods of observation, monitoring and controlling the phenomena occurring in the marine environment from the coast to the off shore areas.

The 4 projects are:

- **PiTAM** - Advanced Technological Platform for Geophysical and Environmental Parameters Acquisition at Sea;
- **STIGEAC** - Integrated Systems and Technologies for geophysical and environmental monitoring in coastal-marine areas;
- **TESSA** - TEchnology for the Situational Sea Awareness;
- **AMICUS** - Study for the environmental protection and the mitigation of Anthropogenic Pollution In the Coastal Environment of selected areas of Calabria.

Each project lasts 36 months and comprises Industrial Research activities, Experimental Development and staff Training.

In particular, the Ev-K2-CNR Committee is in-



volved in 2 projects, PiTAM and STIGEAC, carried out in collaboration with the following organizations/companies:

- So.Pro.Mar. S.p.A. (group leader enterprise);
- Zen Yacht S.r.l. (enterprise);
- CNR IAMC (public research organization).

PiTAM project (Advanced Technological Platform for Geophysical and Environmental Parameters Acquisition at Sea)

MULTIBEAM system (echo-sounder multi-beam)

Research project

The PiTAM project foresees Research and Development actions aimed at the realization of a technological platform understood as a “multipurpose” sea research laboratory with structural and functional characteristics which makes it competitive for:

- the execution of scientific and technological research;
- the valorisation of marine heritage;
- the industrial activities;
- the interventions, in case of emergency, related to environmental crises.

Cooperation in the field of Science and Technology is fundamental to pursue a sustainable economic growth of the activities related to the sea and to the marine and coastal environment protection.

The implementation of competitive strategies and technologies in marine research is today one of the main objectives to ensure the correct implementation of the recent European Community Directives on the environmental sustainability of marine areas, as described in the Marine Framework Strategy Directive (MFSD).

The prototype platform will be approximately

75-80 meters long and will host at least 25-30 technical-scientific operators.

The prototype will be:

- characterized by excellent nautical features;
- suitable for housing scientific instrumentations and innovative equipments operating in deep waters;
- equipped with functional laboratories and technical precautions which could improve the productivity and reduce the power consumption.

Moreover a particular attention to the platform security system will be given.

The prototype platform will contribute to upgrade the scientific knowledge on the marine environment, improving the following productive processes using technologically integrated and complex systems for the data acquisition:

- the acquisition and analysis of morphobathymetric data at high depths (5.000 meters);
- the acquisition and analysis of chemical, physical and biological properties of the water column, at depths of up to 5.000 meters;
- the acquisition and analysis of sismo-acoustic data;
- the extraction of shallow and deep seabed and sub-seabed samples (at depths of up to 5.000 meters);
- the acquisition of oceanographic and meteorological data and data transmission through satellite.

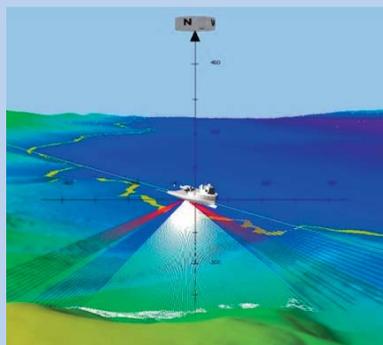
The technological results which could be reached through the achievement of the project are:

- static stability at low speeds (4 knots) ;
- maximum efficiency of the speed/consumption rate;
- survey station maintenance in sea state 5;
- excellent sea holding, allowing the operators to develop the productive processes;





Bannock Oceanographic Vessel



- operational capacity at maximum safety levels;
- noises and vibrations reductions to the lowest level;
- optimization of the energy consumption distribution during the productive processes.

Training project

The project aims at organizing training for the technicians identified to work on board of the platform during the multidisciplinary oceanographic surveys, which will be carried out mainly in the Mediterranean Basin.

The staff will learn:

- the main on board safety rules;
- the main techniques about scientific work at sea;
- to use the oceanographic vessel principal equipments;
- to use the innovative equipments installed on board.

The training project consists of 3 modules, arranged as follows:

Objective 1: Training of seamen (engine-room officers) for their qualification, updating and specialization.

This training is addressed to the research platform technical management (operating, maintenance, control).

Objective 2: Training of seamen (deck officers) who should learn the functioning of the complex systems in order to carry out scientific and technological research, the sailing practices, the safety rules and the environmental protection measures during the productive processes.

Objective 3: Training of electronic and electrotechnical technicians (diploma's holders) on electronic and electrotechnical subjects for their qualification, updating and specialization.

STIGEAC project (Integrated Systems and Technologies for geophysical and environ-

mental monitoring in coastal-marine areas)

Research project

The STIGEAC project foresees to carry out Research and Development actions promoting the prototype realization of integrated systems for the acquisition and analysis of multidisciplinary (geophysical and environmental) data in marine areas, with high operational performances.

The achievement of this objective will allow the Italian companies to align themselves with the European and international Research and Development strategies, as indicated in the framework of the European Community program GMES (Global Monitoring for Environment and Security).

The project is characterized by a strong content of "technological upgrading" and predicts an initial stage of analysis of the state of the art of the available technologies, to identify possible weak points of the current instrumentation. This analysis will consider the latest requirements of technological integration on recent platforms.

The critical aspects related to the data transmission and the remote survey problems will be also considered. This is because they play fundamental roles in the so-called early warning systems and real-time monitoring.

In particular, the project involves the creation of:

- an integrated system for the acquisition of morphological data with instruments (e.g. multibeam, Chirp, ADCP, singlebeam, dynamic positioning) installed on the hull of a mobile floating platform;
- an integrated system for the acquisition of morphological data with fixed cable instruments (e.g. SSS, magnetometer, multiparametrical drill, vibro-core barrel);
- an integrated system for the acquisition of very high definition seismic data (2D+1, 3D): the analysis is aimed at the launching in-



Urania Vessel

novation, the hydrophones control and recovery, the air gun shot system and acquisition; – an integrated system for the launching and the recovery of a deep waters cable instrument: the analysis is aimed at the innovation of the cabling system and the data transmission.

The project's additional objectives include products innovation and processes that will arise from the various ICT sectors upgrades.

The connections created within the framework of this project could be further strengthened by the involvement of other sectors and end-users, like the oil industry or the marine plant engineering industry, which focus their activities mainly on the sea floor survey and aim at the sustainable use of environmental resources.

Training project

The project aims at organizing training for the technical personnel identified to work on oceanographic technological platforms during the implementation of multidisciplinary oceanographic cruises, mostly in the Mediterranean Basin.

Above all, the staff should be able to learn how to use the innovative instruments on the platform, but also:

- the main on board safety rules;
- to use of the oceanographic research vessel main instruments;
- the main techniques about the scientific work at sea.

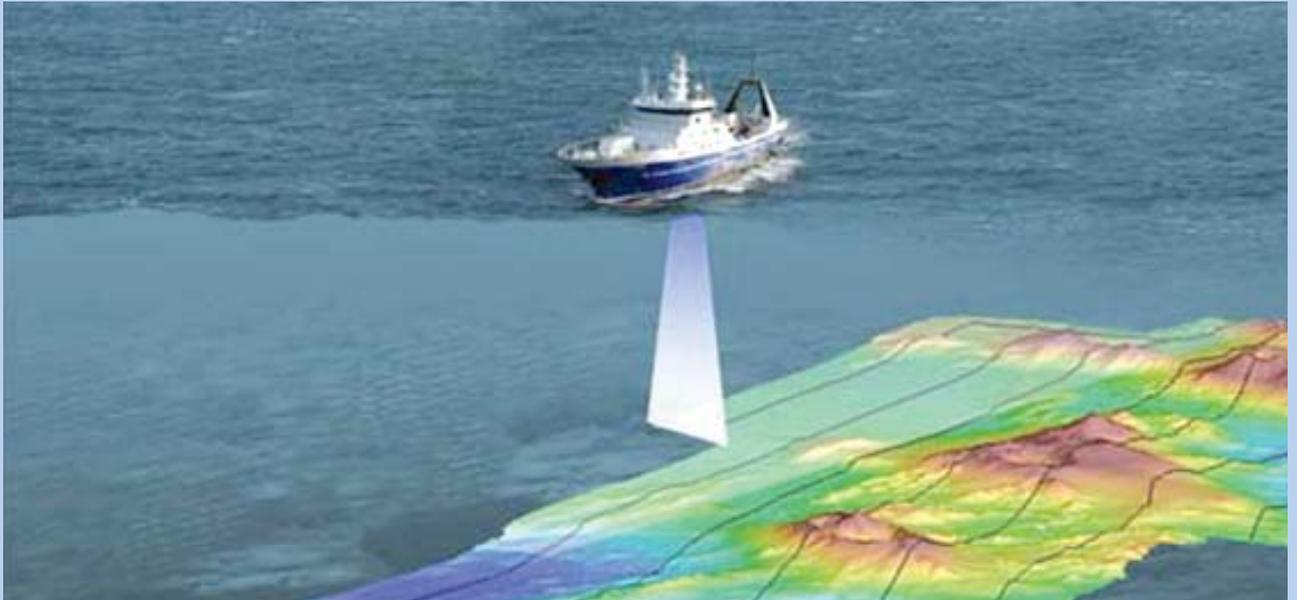
On board training project consists of three modules, divided as follows:

Objective 1: Training of technical operators (technical college graduates) about the acquisition of oceanographic data (biological, chemical, geological and physical) through integrated and highly technological systems.

Objective 2: Training of technical operators (te-

chnical school graduates) about the oceanographic data processing (biological, chemical, geological and physical) through integrated and highly technological systems.

Objective 3: Training of research staff (Geological and Environmental Sciences graduates) about the interpretation of geological data, obtained by the morphological analysis based on the bathymetric data high resolution.



2011 Results

The activities of industrial research related to both projects started on 1st July 2011 and in particular, they were focused on the achievement of Objective 1 (OR 1) "State of the art analysis" for which related activities (see below) are still on going. Experimental development and training activities have not been activated yet.

PiTAM

The 2011 **Industrial Research Activities carried out are:**

OR 1 (Realized Objective 1): State of the art analysis

- **OR 1 – Activity 1: Analysis of new scientific themes related to Oceanic.**

The analysis was focused on the operational needs to develop scientific research on board the technological platforms, both in coastal and in offshore areas, in order to identify the main critical aspects and the market requirements, also with reference to the latest European Directives.

- **OR 1 – Activity 2: Recognition of the functional critical aspects of the existing oceanographic platforms.**

The main critical aspects concerning the improvement of the platforms' performances, taking into account the sailing needs, the scientific effectiveness and the security at sea, were identified.

- **OR 1 – Activity 3: Definition of an overall prototype of the oceanographic platform system.**

Studies concerning the building of an oceanographic platform, equalizing it to the latest security standards and to the environmental sustainability principles, were performed.

STIGEAC

The 2011 **Industrial Research Activities carried out are:**

OR 1 (Realized Objective 1): State of the art analysis

- **OR 1– Activity 1: Analysis of the new scientific themes related to Oceanic.**

The preliminary activities were aimed at the analysis of the state of the art on the geologic and geomorphologic instrumentations used to carry out multipurpose research campaigns in marine offshore and coastal areas, taking into account the real operational limits.

- **OR 1– Activity 3: Definition of the technical feasibility study of the innovative integrated systems.**

During 2011, the technical feasibility analysis of the proposed innovative integrated systems was started.



PROJECT
CHILE 

PROJECT
CHILE 



Pyramid Rock Glacier

NEW PROJECTS LAUNCHED IN 2011

PROJECT CHILE

Chile- Action Plan for the Conservation of Glaciers to Climate Change

The project "Plan de acción para la conservación de glaciares ante el cambio climático" started in December 2011. This programme is promoted within the Convention on Non-Reimbursable Technical Cooperation Action Plan for the Conservation of Glaciers to Climate Change, signed between the Inter-American Development Bank and the Republic of Chile, in which beneficiary and executor of the technical cooperation is the General Water Directorate (DGA) under the Chilean Ministry of Public Works. After a successful bid, Ev-K2-CNR Committee became the consultant of the DGA and its related Unit of Glaciology and Snow (UGN). In particular, Ev-K2-CNR is carrying out the work schedule in collaboration with national and international Universities and Research centers like the University of Milan (Department of Earth Sciences "Ardito Desio"), the Polytechnic of Milan (DIIAAR) and the National Geological Survey of Denmark and Greenland (GEUS).

The overall objective of this technical cooperation is to contribute to the development of technical-scientific studies in the context of Glacier Monitoring Network, as well as to develop activities for institutional strengthening of the Directorate General of Water.

Main Activities

The researchers, in collaboration with Ev-K2-CNR staff, are working together with UGN-DGA on the basis and guidelines of the National Strategy for Glacier Monitoring as follows:

- To support the glaciology group in the de-

tailed design and implementation of monitoring in pilot areas, data analysis, and in obtaining results that help the management of glaciers in the country for the medium and long term, considering the environmental impacts and climate change.

- Installation of glaciological and meteorological instruments for monitoring glaciers.
- In-Situ measurements on glaciers, including both the ablation and accumulations areas, and the proglacial environments.
- Data analysis to obtain results of mass balance, ice-flow velocity, surface energy balance and water discharge.
- Ablation modeling and related issues to climate change and water discharge flow. In particular, in Hydrological sector the support in the localization, design, installation and inspection of new fluviometrical stations on mountainous areas was supplied.

All the activities are performed in the Central Glaciers of Chile and in the Patagonian range.

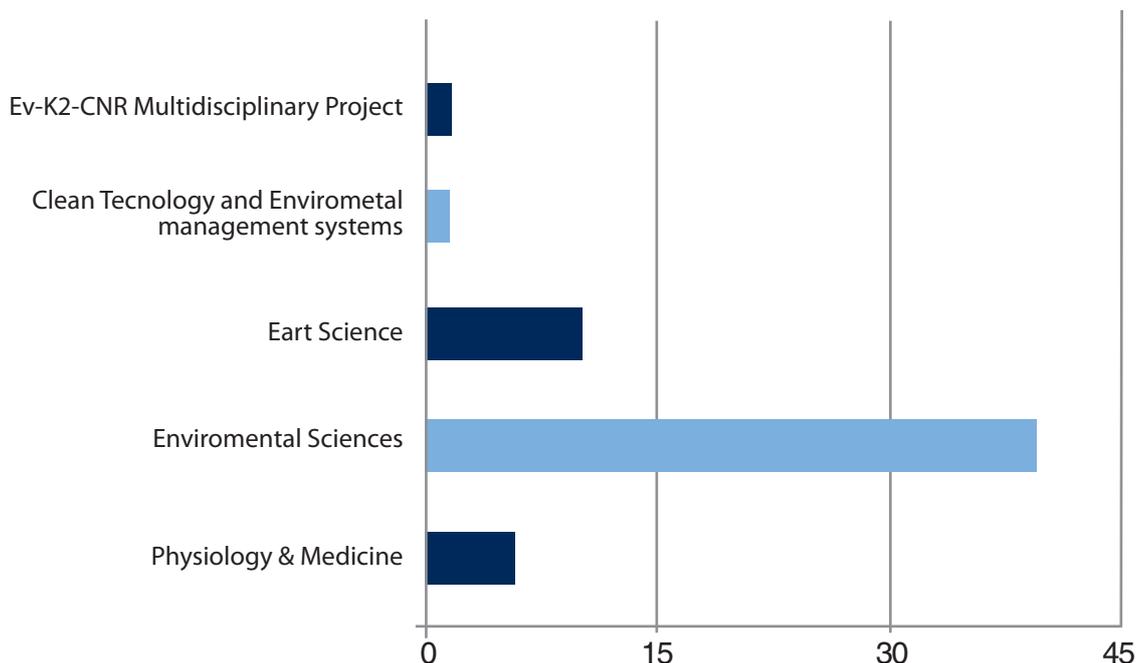




GPS (GNSS) instrumentation system used to detect the position of the benchmark of measurements on Chilean glacier surface in order to calculate the superficial velocity.



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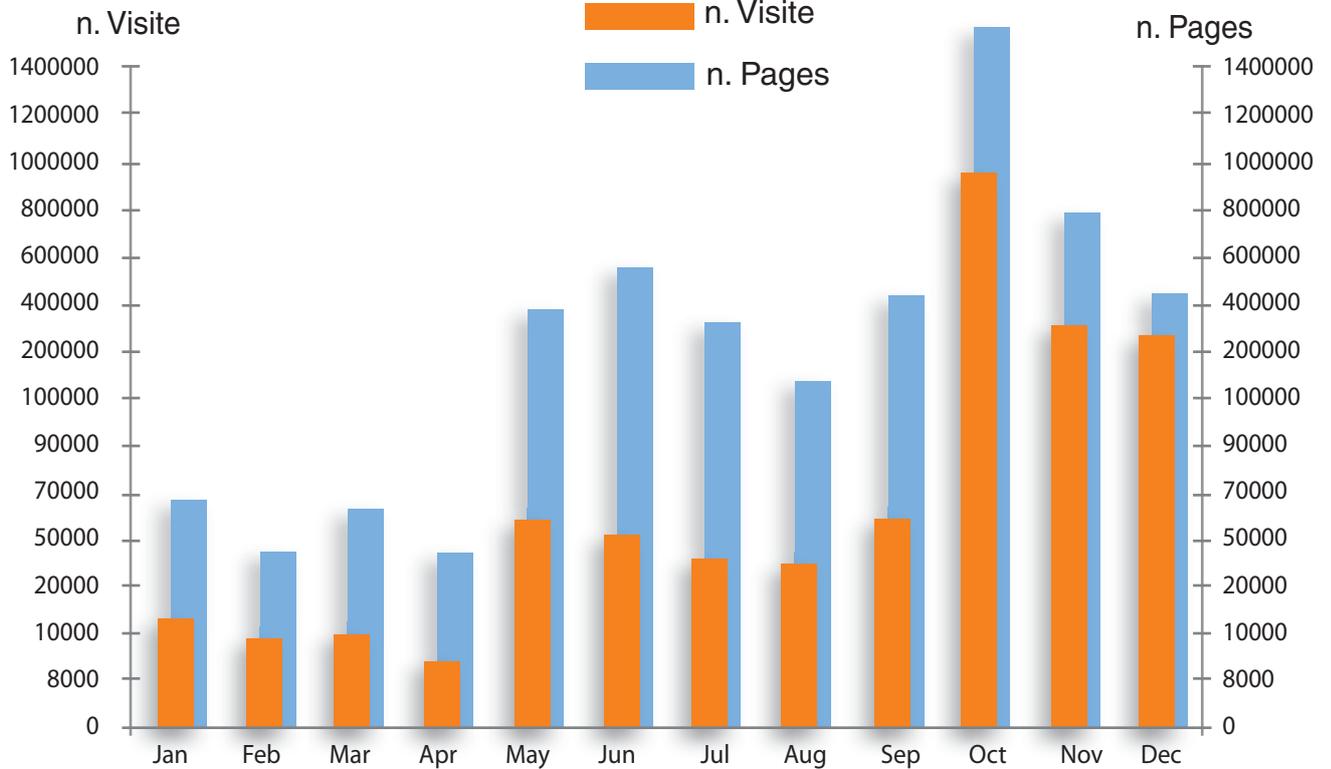
Our websites

Ev-K2-CNR Press and Communications office manages a total of 4 websites.



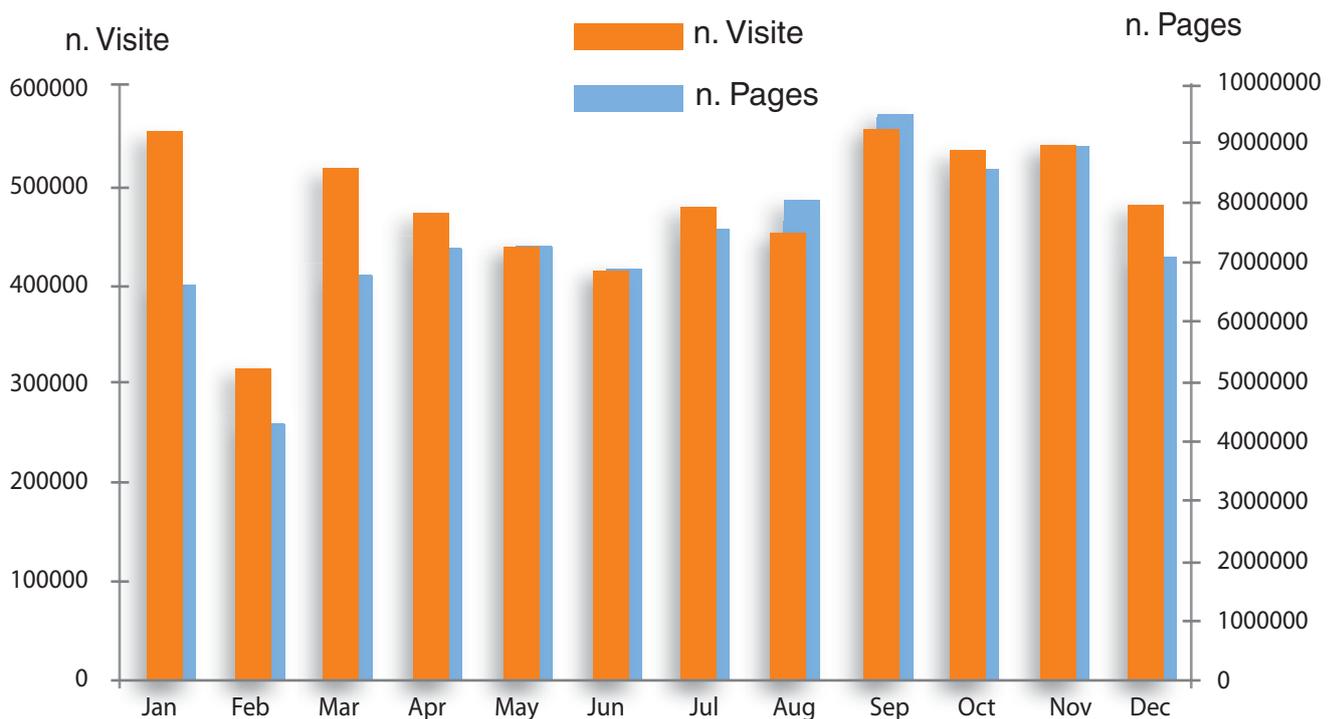
www.ev2cnr.org

It is the Ev-K2-CNR institutional website, available in English and Italian. It contains all the information on projects, activities and initiatives carried out. During the 2011 the section dedicated to the SHARE Project has been regularly activated.



www.montagna.tv

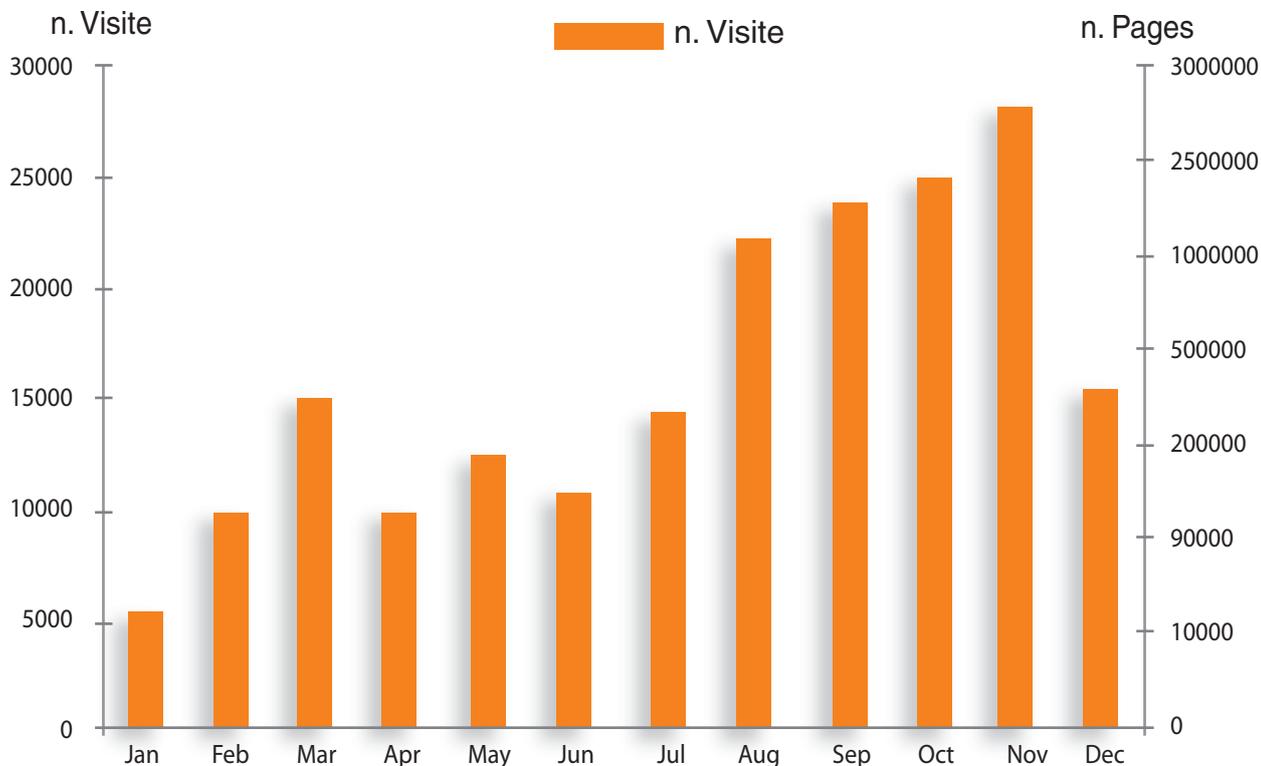
The Italian web-TV dedicated to the world of mountains. It provides news, information and videos covering everything from mountaineering expeditions to mountain-related politics.





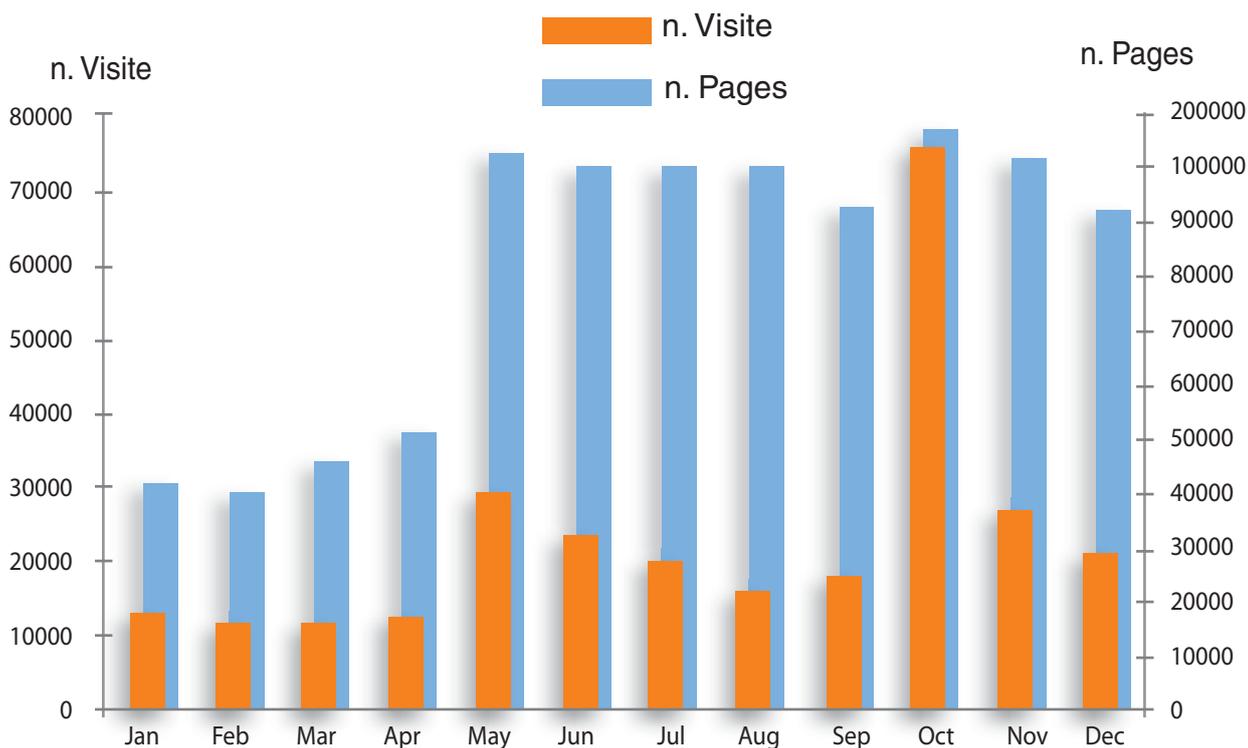
www.nepalmountainnews.com

One of the most visited websites in Nepal, this site provides information on Nepal, local, politics, mountain tourism, expeditions,



www.share-everest.org

The web site completely dedicated to SHARE EVEREST's expeditions, where news, pictures and videos are available.



Web sites

Ev-K2-CNR organization



Ev-K2-CNR - The Association

Honorary Presidents:

Paolo Cerretelli
Kurt Diemberg

Executive Committee

Agostino Da Polenza - *President*
Davide Zulian - *Vice President*
Gianpietro Verza - *Member*
Marcello Mora - *Administration and Finance*

Members:

Claudio Smiraglia
Gianni Tartari
Anna Milvia Boselli
Michele Comi
Hildegard Diemberger
Annalisa Cogo
Massimo Antoninetti
Andrea Laganà
Sandro Lovari
Giorgio Poretti
Elisa Vuillermoz

Ev-K2-CNR Scientific Council

Riccardo de Bernardi - *CNR - ISE*
Thomas Hofer - *FAO*
Aziz Ali Najam - *Shifa College of Medicine Islamabad*
Roland Psenner - *University of Innsbruck*
Laura Viganò - *University of Bergamo*

Bilateral Technical Committee

Elisa Vuillermoz
Gianni Tartari
Giorgio Poretti

Ev-K2-CNR Scientific Advisor

Riccardo de Bernardi
Elisa Vuillermoz
Ennio Marsella

President's Secretariat

Valerio Carne
Francesca Saldi

Logistics Management

Alberto Cortinovis - *Sole administrator*
Elena Vismara - *Logistics and Secretariat*
Gianpietro Verza - *Data acquisition stations manager*

Administration and Accountancy

Angela Milesi - *Head Administration Office*
Chiara Belotti - *Agreements and statements*
Alice Arnoldi - *Legal Assistant*

Starting up and coordination Unit for National, European and Multilateral Projects (tenders and calls)

Mauro Ferraris - *General Coordinator*
Giuseppe Maternini - *Executive Coordinator*
Luca Listo - *Multilateral Development Banks Projects Coordinator*
Giulia Gualdi - *Executive Secretary*
Roberto Ferraris - *Assistant for National and European Projects*
Rita Barra - *Secretary*

Press and Communications

Francesca Steffanoni - *Director*
Wainer Preda - *Editorial Director*
Sara Sottocornola - *Editor in Chief*
Valentina D'Angella - *Editorial Staff*

Ev-K2-CNR Scientific Research Development Cooperation

Elisa Vuillermoz - *Scientific coordinator*
Roberta Toffolon - *Assistant*
Paolo Bonasoni - *SHARE project Manager*
Paolo Stocchi - *SHARE meteo data supervisor*

Nepal office

Valentina Carminati - *Nepal focus person*

Pakistan office

Daniela Milanese - *Technical and Executive Secretariat Coordinator*
Laura Decè - *Technical and Financial executive for Pakistani Project*
Maurizio Gallo - *Technical Advisor*
Franco Mari - *Co-Scientific Advisor*
Anna Bocci - *Co-Scientific Advisor*

Ev-K2-CNR URT:

Responsible External Research Unit:

Andrea Lami - *CNR - ISE*

Board of Directors

Enrico Brugnoli - *CNR - DTA*
Franco Prodi - *CNR - ISAC*
Agostino Da Polenza - *Ev-K2-CNR Committee*
Riccardo de Bernardi - *Ev-K2-CNR Committee*

NEPAL

Nepal

Hari Kumar Shrestha - Nepal Resident Representative
Bhupesh Adhikary - SHARE Resident Scientific Coordinator
Krishna Das Shrestha - Nepal Resident Office Assistant
Surendra Paudyal - Nepali website journalist
Suvash Sharma - Nepali website journalist

Pyramid Technical Staff

Laxman Adhikari - Manager of Nepali Staff
Kaji Bista - Manager of Nepali Staff
Pema Sherpa - Pyramid Technician
Lhakpa Tshering Sherpa - Pyramid Technician
Lakpa Tenzi Sherpa - Pyramid Technician
Tenzing Chhottar Sherpa - Pyramid Technician
Chhimi Tenzing Sherpa - Pyramid Technician
Sarki Dorjee Tamang - Pyramid Technician

Pyramid Lodge Staff

Kesar Bahadur (KC) - Cookman
Raj Bahadur Rai (Jettha) - Kitchen Helper
Vesh Magar - Kitchen Helper
Manoj Kathet - Kitchen Helper

CHILE

Chile:

Guillermo Canessa Fresno
 Resident representative

PAKISTAN

Pakistan

Riaz Ul Hassan - Resident Representative
Raffaele del Cima - SEED Project Director & General Coordinator
Nadeem Naazar - Head Office Manager
Hafeez ur Rehman - Finance Manager
Amman Ullah Khan - Accountant
Muhammad Ismail - Manager of the Italian K2 Museum
Arif Hussain - SEED Technical Representative
Seema Hussaini - SEED Project Director Secretary
Shezada Maqboon Hussain - Field Assistant
Iqbal Karim - SEED Project Management Unit - Finance Manager
Yasir Abbas - SEED Project Management Unit - Accountant

UGANDA

Uganda:

Gerald Muyanja Kyeyune
 Uganda Resident representative

Became our sponsor

From its establishment, the Ev-K2-CNR Committee has been making collaboration with the private sector a strong point of its activities.

Thanks to the development of projects with technological spin-offs in various fields and successful co-marketing initiatives, the image of the Pyramid – associated with some prestigious Italian brands – has traveled around the world.

Ev-K2-CNR offers a unique opportunity for private companies who believe in our value and want to support research which benefits humankind and the environment: transform science into a business opportunity.

How you can help us / How we can help you:

1. support to our projects as part of a Corporate Responsibility initiative, communicating your responsible actions to the public and shareholders;
2. cause-related marketing, where commercial and social objectives meet;
3. joint research applied to your business: use our know-how, facilities and two decades of experience to develop, test and improve your products.

For more information, contact: corporate@evk2cnr.org .



Ev-K2-CNR and Riello



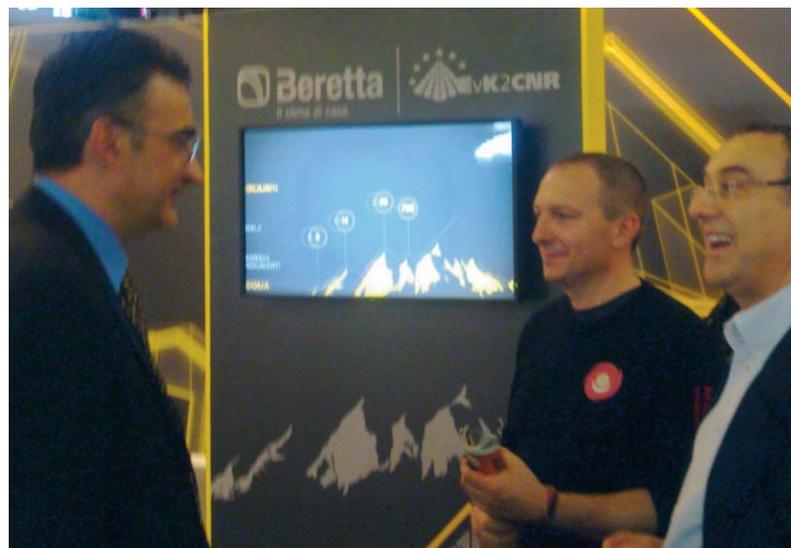
The ambitious project of realizing, on the highest mountain of the world, a laboratory for high altitude scientific research equipped for reaching interesting developments on a cognitive, technologic and social level couldn't prescind from the sustainability concept.

Pyramid Laboratory-Observatory's assumption which accompanied all the phases, from planning, to achievement, is actually that its structure should be entirely eco-compatible and use just renewable energies, according to a broader concept of sustainability: sustainable research, sustainable technology and sustainable facilities.

A second essential requisite for facility achievement was that Laboratory should be a jewel of Italian technology and therefore all the utilized materials and the supplied instrumentation - maintenance and improvement interventions included - should be strictly Made in Italy.

Sustainability and technology Made in Italy are two grounding concepts of Ev-K2-CNR Committee philosophy and themes equally essential for Riello.

The attention for topics linked to sustainability has driven Ev-K2-CNR Committee to implement year after year the collaboration with Riello, which has going on for 15 years by now; it all started from testing of Riello boilers in extreme conditions for heating and sanitary hot water supply, in a second moment the focus shifted on the setting up of a solar plant for the Pyramid's lodge always for the sanitary hot water supply and heating and as a last step we got to the utilization of solar energy produced by real-time heating.



The use of renewable power sources is the primary need of our planet. Of fundamental importance in this sense, the commitment of Riello in promoting the rational use of energy combined with a higher efficiency of the systems that enable cost savings and energy together with respect for the environment. Features that are also present in the project realized inside the Pyramid Laboratory-Observatory.

How to support our work

Collaborating Organizations and Partner

For implementation of 2011 programs, Ev-K2-CNR collaborated with the following organizations:

SHARE – Stations at High Altitude for Research on the Environment

- CNR - Institute for Atmospheric and Climate Sciences – Italy
- CNR - Water Research Institute – Italy
- CNR - Institute of Ecosystem Study – Italy
- CNR – Institute of Atmospheric Pollutant
- Department of Earth Sciences “Ardito Desio” – University of Milan - Italy
- Department of vegetable production – University of Milan - Italy
- Centro studi biomedici applicati allo sport – University of Ferrara – Italy
- Department of Earth and Environmental Sciences - University of Pavia – Italy
- Department of Chemical Sciences – University of Urbino - Italy
- Department of Environmental Sciences – University of Siena - Italy
- Center of Excellence for the integration of remote sensing Techniques and numerical Modelling for the Prediction of Severe weather - University of L’Aquila - Italy
- Department of Structural and Functional Biology - University of Insubria – Italy
- Department of Earth Sciences – University of Cagliari - Italy
- National Institute of Oceanography and Experimental Geophysics -Italy
- Department of Environmental, Hydraulic, Infrastructures and Surveying Engineering - Milan Polytechnic – Italy
- LSI Lastem – Italy
- Italian Glaciological Committee – Italy
- CNRS - Laboratoire de Glaciologie et de Géophysique de l’Environnement – France
- CNRS - Laboratoire de Météorologie Physique - Clermont-Ferrand - France
- Université Joseph Fourier - France
- International Centre for Theoretical Physics – Italy
- Italian National Agency for New Technologies, Energy and Sustainable Economic Development- Italy
- Euro-Mediterranean Centre for Climate Changes – Italy
- National Institute of Geophysics and Volcanology –Italy
- Delft University of Technology - The Netherlands
- Bavarian Academy of Sciences and Humanity – Germany
- Universidad Mayor de San Andres - Bolivia
- Nepal Academy of Science & Technology – Nepal
- Department of Hydrology and Meteorology – Nepal
- Pakistan Meteorological Department – Pakistan
- Department of Meteorology – Uganda
- University of Witwatersrand – School of Geography, Arch & Environmental Studies - South Africa
- NASA Commercial Space Center – Washington D.C., USA
- NOAA, Surface Radiation Research Branch, Air Resources Laboratory – Boulder, CO, USA
- Department of Geography - College of Science, University of Idaho, Moscow, ID - USA
- Climate Prediction Program for the Americas NOAA Climate Program Office, Silver Spring, Maryland, MD - USA
- NCAR/Earth Observing Laboratory – USA
- Scripps Institution of Oceanography – USA
- Institute of Tibetan Plateau Research, Chinese Academy of Sciences - China
- Institute of Geographical Sciences and Natural Resources Resource, Chinese Academy of Sciences - China

- University of Tokyo -Department of Civil Engineering - Japan
- University of Tsukuba -Graduate School of Life and Environmental Science – Japan
- World Meteorological Organization (WMO)
- United Nations Environment Programme (UNEP)

KT2 – Karakorum Trust 2

- Ministry of Environment –Pakistan
- International Union for Conservation of Nature - Pakistan
- World Wildlife Fund - Pakistan
- International Centre for Integrated Mountain Development - Nepal
- Sustainable Development Policy Institute - Pakistan
- Karakorum International University - Pakistan
- Pakistan Meteorological Department -Pakistan

SEED – Social Economic, Environmental Development in the Central Karakorum National Park region, Pakistan

- Karakoram International University – Pakistan
- Aga Khan Rural Support Programme – Pakistan
- Alpine Club of Pakistan – Pakistan
- Government of Pakistan - Pakistan Meteorological Department – Pakistan
- Government of Pakistan – Central Karakoram National Park Directorate – Pakistan
- Istituto Italiano per l’Africa e l’Oriente – Italy
- Mountain Glacier Protection Organisation – Pakistan
- WWF – Pakistan
- Baltistan Culture and Development Foundation , Skardu – Pakistan
- Aga Khan Cultural Service Programme – Pakistan
- Forest, Wildlife and Parks Department (Gilgit- Baltistan Administration) – Pakistan
- Istituto Italiano per L’Africa e l’Oriente – Italy
- CNR - Institute for Atmospheric and Climate Sciences – Italy
- CNR - Institute of Ecosystem Study – Italy
- University of Padua – Department of Earth Land, Environment, Agriculture and Forestry -Italy
- Milan Polytechnic – Department of Environmental, Hydraulic, Infrastructures and Surveying Engineering -Italy
- University of Siena - Department of Environmental Sciences – Italy
- University of Trieste - Department of Mathematics and Informatics and Department of Geosciences – Italy

Water for life in Pakistan

- Karakorum International University – Pakistan

Plan de Acción para la conservación de glaciares ante el cambio climático

- Department of Geophysics - University of Chile, Santiago – Chile
- Department of Earth Sciences “Ardito Desio” – University of Milan - Italy
- Department of Environmental, Hydraulic, Infrastructures and Surveying Engineering - Milan Polytechnic – Italy
- Dirección General de Aguas (DGA) – Chile
- National Geological Survey of Denmark and Greenland (GEUS)

BALANCE SHEET 2011

STATEMENT OF ASSETS AND LIABILITIES

BALANCE SHEET 2011

ASSETS OF SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES

Intangible fixed assets	456,385
Tangible fixed assets	4,602,455
Participations	7,502
Medium and long term credits	3,847
Sundry credits	638,567
Accrued income and deferred expenses	1,389,558
Banks current accounts	747,304
Cash balance	5,139

Subtotal **7,850,757**

ASSETS OF PROJECTS "NATIONAL OPERATIONAL PROGRAMME" - PON

PON03 – I-AMICA	5,625,296
Subtotal	5,625,296

TOTAL ASSETS **13,476,053**

LIABILITIES OF SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES

Devaluation fund / intangible fixed assets	252,773
Devaluation fund / tangible fixed assets	962,717
Banks current accounts	31,620
Capital and reserves	3,849,857
Debts to suppliers	567,306
Sundry debts	42,503
Accrued expenses and deferred income	347,055

Subtotal **6,053,831**

LIABILITIES OF PROJECTS "NATIONAL OPERATIONAL PROGRAMME" - PON

PON03 – I-AMICA	7,412,796
Subtotal	7,412,796

TOTAL LIABILITIES **13,466,627**

Tied surplus for projects **9,426**

TOTAL BALANCE **13,476,053**

PROFIT AND LOSS ACCOUNT
EXPENSES

Operating Charges for Projects	3,551,002
Staff and Collaborations Operating Charges	264,684
Amortisations	378,169
Various management burdens	99,518
Financial Operating Charges	18,885
Fiscal burdens	3,654
Extraordinary expenses	109,105
TOTAL EXPENSES	4,425,017
Tied surplus for projects	9,426

TOTAL BALANCE	4,434,443
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INCOME
Contribution from Italian Organizations

CNR SHARE Project	3,481,783
CESVI	39,883
Lombardy Region	195,000
MIUR Parfamar	11,765

Contribution from International Organizations

UNEP – Karakorum Trust II	166,440
MOP – Chile	8,141

Contribution from Private Donors	187,224
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Financial income	1,831
Extraordinary income	342,376

TOTAL INCOME	4,434,443
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2011

ANNUAL REPORT



Ev-K2-CNR Committee
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