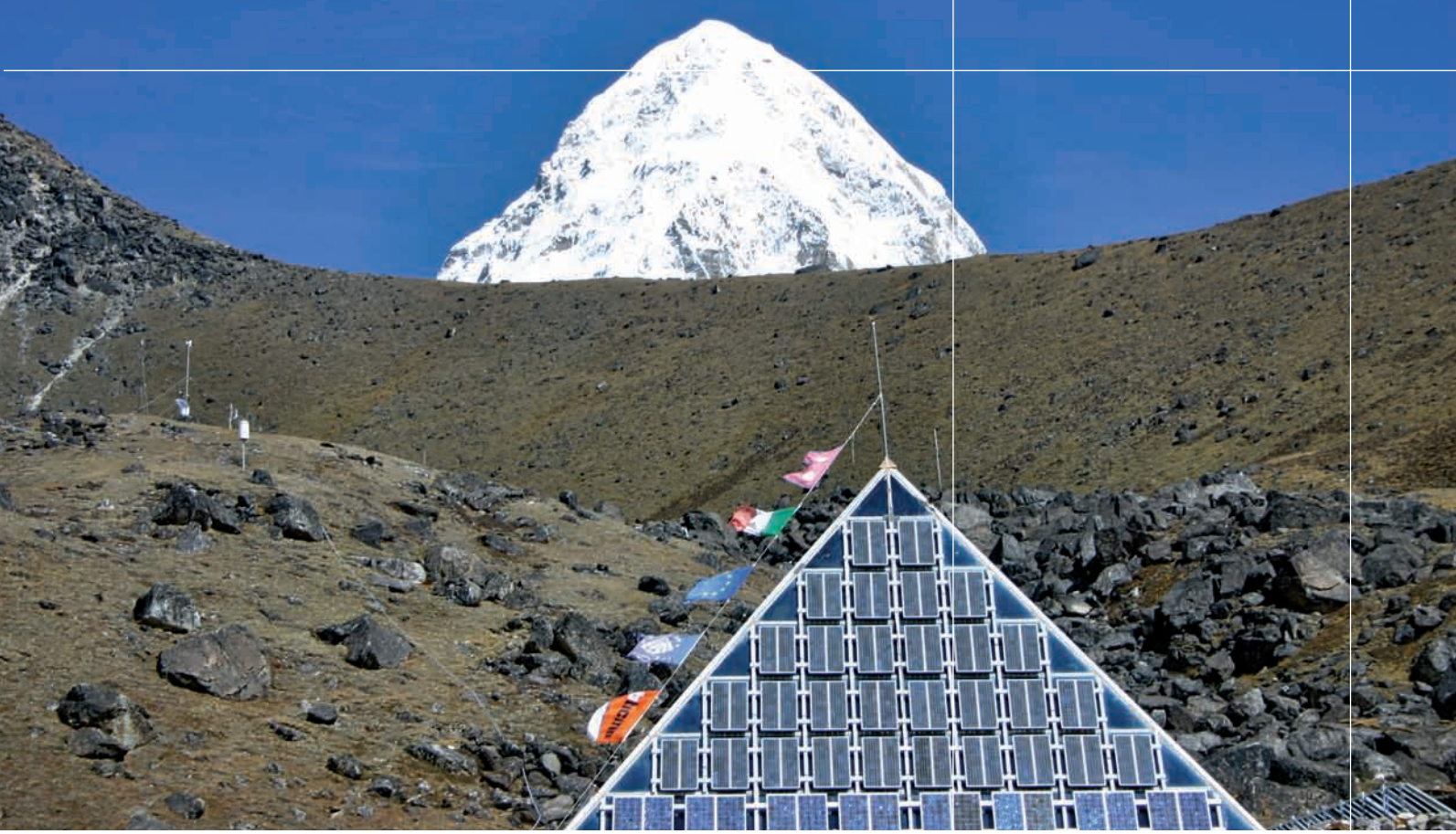


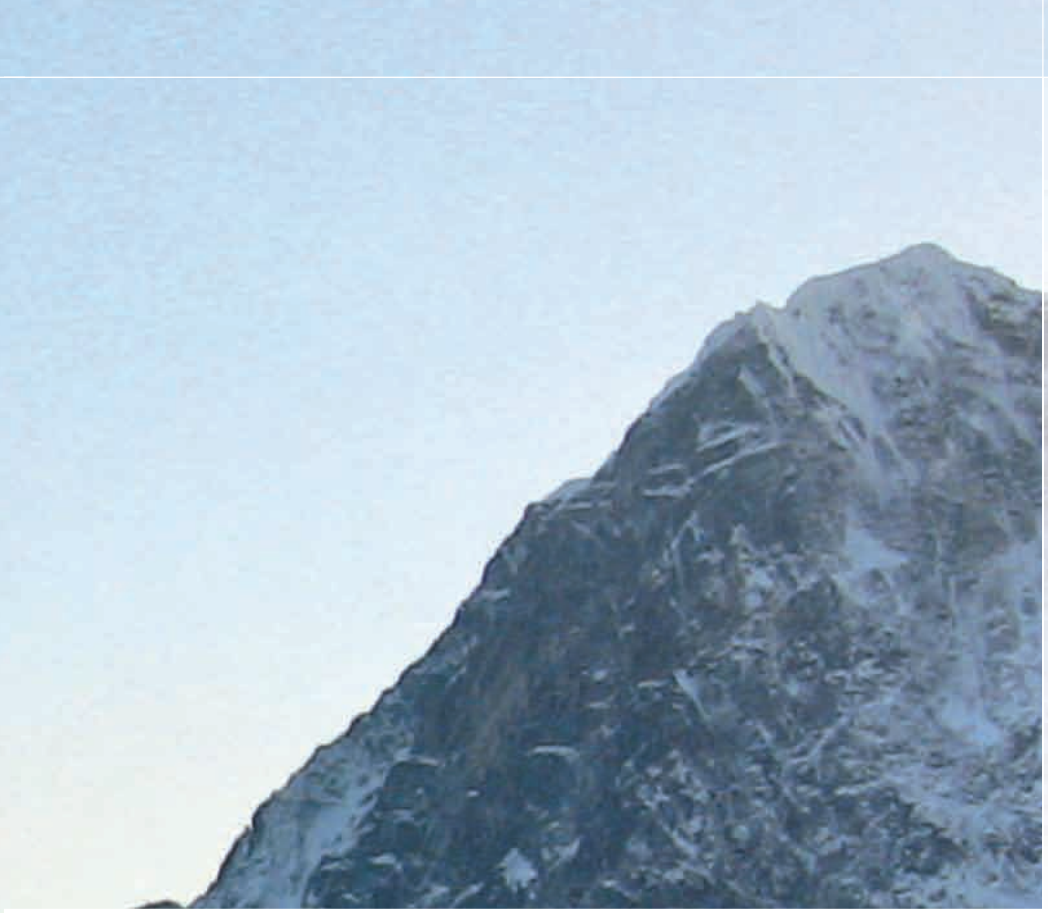
EvK2CNR

ANNUAL REPORT

09

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 initiatives with a particular focus on vulnerable environments and populations in developing countries.



CONTENTS

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) and Italian National Research Council (CNR), 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.

In 2007, in order to 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.

Research performed by Ev-K2-CNR has traditionally been executed within the specific disciplines of Medicine and Physiology; Environmental Sciences; Earth Sciences; Anthropological Sciences and Clean Technologies. Parallel to nearly all studies, training of local researchers and technicians is also performed, as capacity building and technology transfer to the benefit of partner institutions in developing countries.
Although historically dedicated to research in mountain environments, given the specificity of Ev-K2-CNR's multidisciplinary approach to understanding complex environments, project expertise has recently been exported for application in other specific ecosystems, such as the Arabian Gulf and the Mediterranean Sea.

Recent years have seen Ev-K2-CNR focusing more on the tangible outputs of its research efforts, moving beyond the generation of knowledge to the application of that knowledge on a management and decision-making level. Thus, contributions can be made to the resolution of major global or local problems, such as the impact of climate change on fragile mountain ecosystems and the urgent need for sustainable management of the world's precious resources like water, energy and food.

PRESIDENT'S MESSAGE

Dear friends, readers and supporters,

In this report you will read the key results of the Ev-K2-CNR Committee activities in 2009.

I am very proud of the goals that have been achieved during the last year, and first of all I would like to thank all our staff, members, our national and international partners and our sponsors for their continuous support and commitment to our cause.
The formal lunch of the SEED (Social Economic and Environmental Development) project has certainly to be listed among the successes.
The project has been formalized in the framework of Pakistan-Italian debt for development SWAP agreement (PIDSA). The PIDSA ratified that the amount of 120 million dollars owed by Pakistan to Italy would were transformed into cooperation activities between the two countries. In this case, Pakistan has converted 1,1 PKR million (8,5 million Euro) of its former debt into initiatives for environmental safeguard, scientific research and socio-economic development, to be implemented in concert with the Italians.
Ev-K2-CNR is the leader of such project: we did and, I'm sure we will do our best so that the resources of the debt swap will be dedicated to a concrete social-economic development of the Karakorum region. A region that we always had in our hearts.
The project is clearly ambitious and we fully realized the need to achieve the expected results through activation of a synergistic process involving all forces working in the region. Besides our main partner, the Karakorum International University, more than 50 local and international stakeholders and institutions such the Ministry of Environment, the Pakistan Forest Department, the Pakistan Meteorological Department, WWF Pakistan, Pakistan Alpine Club, Aga Khan Foundation, UNEP, IUCN, ICIMOD etc. have been involved as implementing partners.
The project will attempt to provide a new economic and social impetus, while fully respecting the traditional culture and customs. It is a complex project for the variety of activities and subprojects: they range from the handling of gemstones to high altitude atmospheric monitoring stations, from fruit-processing plants to sustainable development and education.

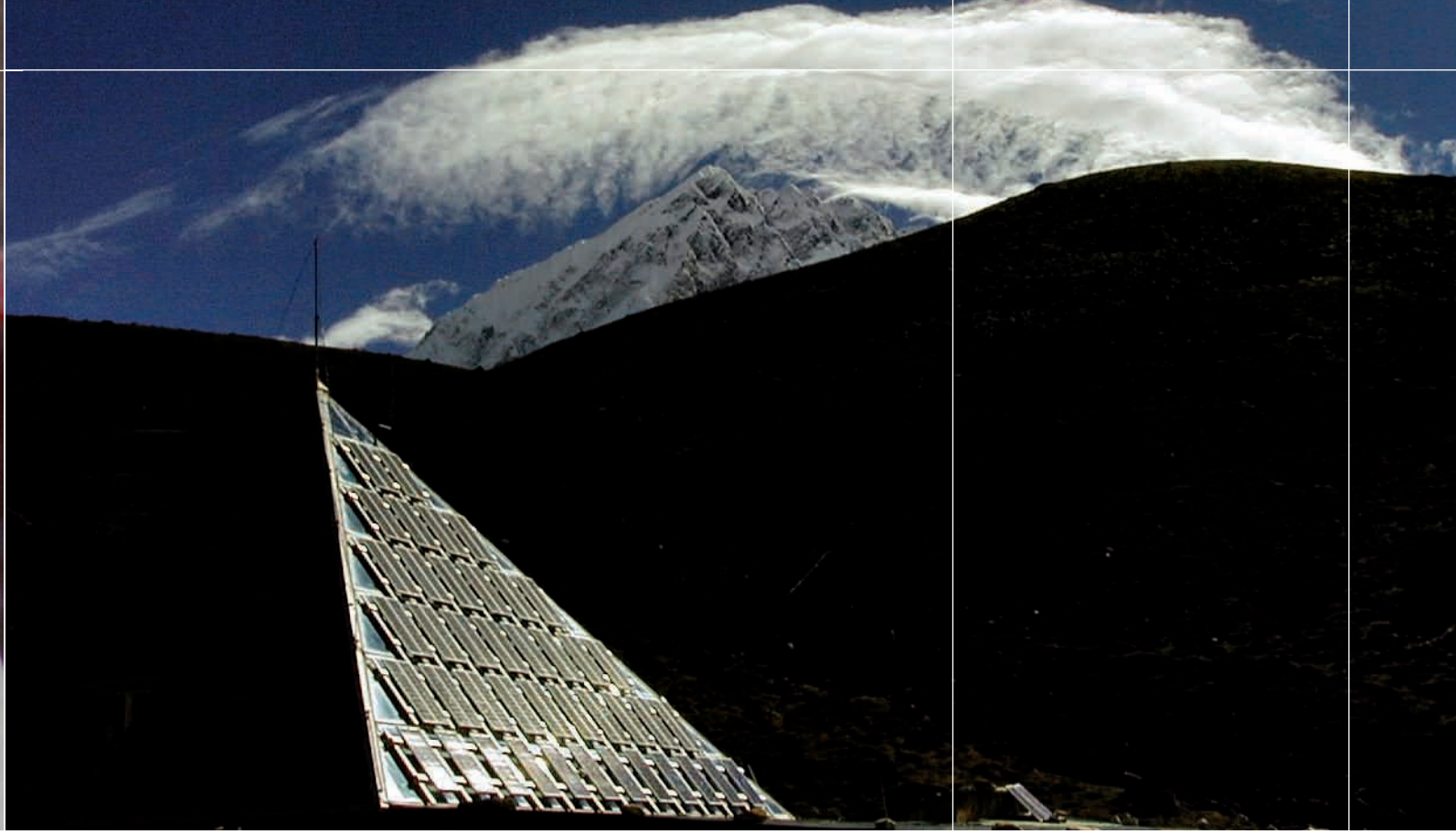
Ev-K2-CNR sinks its roots in the soil of the scientific research, a fertile humus and rich of opportunities; in these last years we have developed and addressed the whole EvK2CNR activity so that it could produce useful benefits not only for the scientific community but also for the local population thanks to concrete outputs in terms of natural resource conservation and valorization, without undervalue the interaction between the indispensable need of the countries where we are operating for a socio-economic development and their cultural and historical backgrounds.

Also the other Ev-K2-CNR projects such as SHARE, KARAKORUM TRUST 2, increased their interdisciplinary approach to research leading to the development of innovative integrated programs for the promotion of socio-economic development and environmental protection of the interested areas.

In the framework of SHARE, for example, it has been launched SHARE- PAPRIKA, which includes the twin national projects PAPRIKA-France, which operates in Nepal, and PAPRIKA-Italy, which principally operates in Pakistan, the project is devoted to determine the state of the glaciers and of the water reserves in the Karakoram and Himalaya region and to estimate their future conditions in different climate change scenarios. Working in accordance with this new view, one of the project's main objective will be propose plausible adaptation strategies for changing risks, including analysis of their economic efficiency and benefits within the social welfare context.

I really hope that the researchers reading this document will be able to better orient their current and possible future activities in accordance with Ev-K2-CNR's overall strategy. Institutional readers will be able to appreciate the political and scientific contexts of Ev-K2-CNR's activities and find inspiration regarding ways to support research and reinforce existing or create new collaborations.

Agostino Da Polenza
President, Ev-K2-CNR Committee



RESULTS ACHIEVED IN 2009

SHARE
Stations at High Altitude for Research on the Environment

Share's aim is to contribute to the study of climate change and its related impacts and adaptation in mountain regions, providing information on atmospheric composition and meteorology, glaciology, hydrology and limnology, geophysics, natural resource and medicine. The project, originally operating in the Asiatic Himalayan-Karakorum region, has expanded its activities in Africa and Europe, and a further expansion to South America is planned.

SHARE is an integrated Earth System environmental and research program, promoted by Ev-K2-CNR and funded by the Italian Ministry of Education, University and Research (MIUR) through the Italian National Research Council (CNR) and the Italian Cooperation (MAE-DGCS) trough UNEP, focused on integrated environmental monitoring in mountain regions in order to provide high-quality, long-term climatic and environmental data to international scientific community and decision-makers so that they may more thoroughly assess the processes and impacts of climate change in mountain areas, especially regarding vital sectors like water, energy, food, forest products and tourism.
SHARE network is made up of stations in Italy and around the world which monitor environment and atmosphere in real time.

With its stations in Europe, Asia and Africa, today SHARE represents the Italian contribution to international integrated scientific projects on climate and environment such as UNEP-ABC, WCRP-GEWEX-CEOP, WMO-GAW, NASA-AERONET, EUSAAR, GEO and ILTER.

The project work plan for years 2009-2015 foresees the following Work Packages (WP):

WP1 – Scientific research and climate - integrated project for climatic, environmental and geophysical monitoring in the field of atmosphere, glaciology, energy and water cycle, limnology, biodiversity and natural resources and medicine, on a local, regional and global scale in Asia (Himalaya e Karakorum), Europe (Alps and Apennines), Africa (Ruwenzori) and South America (Cordillera Real).

WP2 – Technological research and climate – scientific and industrial research for the development and improvement of a state-of-the-art technological system in the field of environmental monitoring in mountain areas.

WP3 – Information system – creation of a Multidisciplinary Integrated Information System concerning scientific and technological research activities in mountain areas, to the benefit of government and inter-government scientific agencies.

WP4 – Capacity building – development of a program supporting decision-making processes, at government level, in the environmental field: transfer of skills and technologies in order to produce and assure a sustainable development; technology transfer, business promotion and institutional offer system.

2009 RESULT

WP1 – Scientific research and climate

Since 2006 continuous measurements of aerosol, ozone and meteorological parameters, as well as, weekly samplings of particulate matter and grab air samples for the determination of halocarbons, were carried out at the Nepal Climate Observatory-Pyramid (NCO-P), the highest observatory of the UNEP-ABC monitoring program and a unique source of data on atmospheric composition in the Himalayas, located near the Pyramid at 5,079 m a.s.l.

NCO-P atmospheric station is calibrated every spring thanks to the organization of a dedicated field campaign organized for in order to guaranty a good quality of data within GAW and EUSAAR standards. During May 2009 the campaign was successfully carried out with a calibration of the whole instrumentation, except nephelometer that was on maintenance at TSI in USA. Paolo Bonasoni (CNR-ISAC), Gian Pietro Verza and Elisa Vuillermoz (Ev-K2-CNR) were involved in this mission. Besides the calibration, the campaign offered opportunity to test a new prototype of mobile atmospheric station, studied for extreme environmental conditions. A special box thermally isolated was instrumented with optical and condensation particle counters, ozone and meteorological measurements. The box measurements were inter-compared with NCO-P measurements, showing a good agreement of the data collected.

Finally in collaboration with the University of Ferrara, two new solid state sensors for continuous monitoring of gaseous pollution compounds (CO, NOx and O3) have been installed.

NEW PUBLICATION:
The Atmospheric Chemistry and Physics (ACP) Journal is publishing a special issue on "Atmospheric Brown Cloud in the Himalayas" containing the results collected at the Nepal Climate Observatory-Pyramid during the first 2 years period of activity.

Continuous meteorological data have been collected from all stations included in the SHARE Automatic Weather Station (AWS) network in Nepal, Pakistan, Uganda and Italy.

A mountaineering scientific expedition have been organized to maintain the AWS, installed on May 15, 2008 at 8,000 m a.s.l. at Mount Everest South Col. The Italian climber Silvio Mondinelli with the help of 3 Sherpa carried out two different missions coordinated by the Ev-K2-CNR Data Acquisition Station Manager Gian Pietro Verza. In that occasion, the power system was strengthened, installing a solar panel, three voltage regulators and a special battery.

Moreover, sensors of temperature, relative humidity, wind speed and direction have been replaced in order to restore the continuous measurement of this station.

Further to the perspective of expanding SHARE atmospheric monitoring network

in Italy, two preliminary measurement campaign have been carried out at Campo Imperatore (Gran Sasso, Abruzzo Region) and at Valcedec, Cevedale Pass (Santa Caterina, Lombardy Region) in August-September 2009.
Temporary instruments have been installed in two alpine refuges: Duca degli Abruzzi at Campo Imperatore, equipped with an AWS and an Ozone analyzer and Casati at Santa Canterina equipped with meteorological sensors, optical particle counter (OPC) and condensation particle counter (CPC). In both sites the field campaign has been carried out for nearly one month in order to achieve some information on the atmospheric condition during summer period and to have a preliminary vision of the effective representativeness of the selected site.

A Joint Ev-K2-CNR and DoM (Department of Meteorology) campaign has been carried out in Uganda in 2009 during which Gian Pietro Verza (Ev-K2-CNR) trained DoM Staff on procedures of ordinary maintenance and meteorological data collection.

A joint campaign was organized between Ev-K2-CNR and PMD (Pakistan Meteorological Department) in Pakistan in July. Elisa Vuillermoz and two local PMD technicians checked and download the data of AWSs installed in Pakistan.
PMD staffs have been trained on the maintenance procedure as well as on the data downloading. In this occasion, in the Deosai National Park has been identified as one of the possible sites for the installation of the new Pakistan Climate Observatory in Karakorum (PCO-K) under the umbrella of Ev-K2-VNR and UNEP collaboration within SHARE, ABC and Karakorum trust Projects.. This new station will be fundamental to study climate changes and its effects on Karakorum Mountain Range and together with NCO-P in Nepal, will be part of the high altitude observatory network of UNEP-ABC project.

Within the framework of CEOP, which is part of the Global Energy and Water Cycle EXperiment (GEWEX) of the WMO's World Climate Research Programme (WCRP), the Forni AWS (on Alps) and the "O. Vittori" station (in Northern Apennines), included in the SHARE network, were designated as CEOP Italy Reference Site.

In this year HE activities focused its attention on the drafting of CEOP-HE Science Plan, which describes the HE project, coordinated by Gianni Tartari (CNR-IRSA) with its objectives and future strategies, underlying the importance of mountain areas in the field of climate change study and in particular of energy and water cycles research. In this context, the contribution both of CEOP-HE Steering Committee members and other leading figures within the international scientific community of environmental scientists has been fundamental. In particular, each Steering Committee member has given his expertise in climatology, hydrology, glaciology and cryosphere and atmospheric chemistry. The relevance of main CEOP-HE Science Plan scientific issues has been sup-

ported by important dissemination activity. It has been launched SHARE- PAPRIKA project, which includes the twin national projects PAPRIKA-France, which operates in Nepal, and PAPRIKA-Italy, which principally operates in Pakistan, including however a benchmark glacier in Nepal. SHARE-PAPRIKA is devoted to determine the state of the glaciers and of the water reserves in the Karakoram and Himalaya region and to estimate their future conditions in different climate change scenarios, with special emphasis on the role of atmospheric aerosols.
In November Patrick Wagnon and Yves Arnaud (IRD, LGGE) carried out the positioning of five ablation stakes and one stake in the accumulation zone of Kongma Glacier in order to evaluate glacier ablation and the prosecution of monitoring activities at Mera Glacier where, besides ablation stakes measurements, an AWS has been also implemented on the glacial surface.

Monitoring activities on biodiversity have been carried out both in Sagarmatha National Park (Nepal) and in Central Karakorum National Park (Pakistan) to study climate change effects in particular on mammals in these mountain regions. In Nepal, between April and May, Sandro Lovari (University of Siena) and his Nepalese research team focused the attentions on counting of snow leopard and its preys for determining its presence. In August, Prof. Lovari with his Pakistan research team carried out an assessment of main study area, preliminary observations and test of methods. In this occasion, preliminary prey counts and snow leopard and wolf counts have been carried out.

The SHARE STELVIO project aims at detecting and quantifying climate change evidences and effects in the Stelvio National Park – Lombardy sector (600 km2 of area) through the installation and running of a systematic, coordinated and permanent environmental survey-system that will permit to evaluate composition, quality and variability of high elevation atmosphere and effects on the alpine water resources (i.e.: snow, glaciers and melt water rivers). Moreover collected data and applied models would be used to propose adaptation and water use and management strategies. In view of Expo 2015, this environmental monitoring system will provide at regional (Lombardy Region), national (Italian Alps) but also at global scale, an innovative and important interdisciplinary study on climate change and its impact on the atmosphere and on water resources of these mountains. This three-year project carried out in the framework of SHARE Project, is promoted and funded by Ev-K2-CNR Committee and Lombardy Foundation for the Environment (FLA).

The project coordinated by Aldo Marchetto (CNR-ISE) aims to study climate change effects on biotic community on lacustrine ecosystems in mountain region near the Pyramid and its responses to dynamic variability on inter annual, tenyear and secular scale. The project focus its attention also on measuring of

NANO-SHARE, performs continuous measurement of meteorology, ozone, carbon dioxide, particle number and size distribution (OPC and CPC)

atmospheric pollution levels recorded in Himalaya range. In 2009, data recording and lacustrine hydrochemical study have been carried out in order to re-build the evolution history of lacustrine environment.

Soil and water samples collected in 2007 and 2008 in the framework of the projects coordinated by Licia Guzzella and Raffaella Balestrini (CNR-IRSA), have been analysed. The project aims to identify the xeno-biotic species, related to the long distance transport of pollutants in the Himalayan lacustrine environments, as well as the study of the time and altitude evolution of the atrophic pressure in the high altitude areas, trough the water, deposits and surface soils analysis.

A new project, coordinated by Fabrizio Adani and Daniele Daffonchio (University of Milan), has been initiated in 2009 with a field campaign in Nepal. Research objectives concern the understanding of soil formation mechanism and evaluation of the contribution to the organic content of the supra-glacial waters and of pro-glacial basins of the primary production of organic substances.

WP2 – Technological research and climate

A prototype for a miniaturized and autonomous station for observation of aerosol and gases at high altitude has been carried out thanks to a joint technical and scientific collaboration among Ev-K2-CNR, the Italian National research Council-Institute for Atmospheric Sciences and Climate and the French National Research Council (CNRS-LGGE).

This innovative system, NANO-SHARE, performs continuous measurement of meteorology, ozone, carbon dioxide, particle number and size distribution (OPC and CPC).

Power consumption has been reduced until less then 50 Watts, and the station has been equipped with an integrated power production unit and a remote control system. The different monitoring sensors have been installed inside a box (52 x 43 x 23 cm L x W x H) for an approximate total weight of 12 kg. The acquisition system was done through a small net computer (and the inlets were prepared using teflon and tygon tube. The connection to the power production unit allowed avoiding any acquisition interruption due to possible lack of power. Before using the station on the field, to guarantee the proper functioning at high altitude condition and the quality and the reliability of the collected data, two different functioning tests have performed on the instrumentation.

WP3 – Information system

In collaboration with UNEP, within an integrated information system dedicated to environmental monitoring of research activities in mountain areas will be done. To design a compatible information system Dr. Maria Teresa Melis (University of Cagliari), focused the attentions on the existing data collection system (e.g. HKKH Partnership, GIIDA,) and took part to different meeting and seminars.

In July, a questionnaire has been sent to SHARE researchers in order to collect spe-

cific information on the different kind of scientific data collected within previous environmental study in order to define the structure of the archive.

WP4 – Capacity building
Training activities have been carried out in Nepal, Pakistan and Uganda in order to guarantee the transfer of knowledge to local staff and allow them to independently manage scientific monitoring instruments.

NEW AGREEMENTS:
Ev-K2-CNR signed new agreements with: University of L'Aquila - Centro di Eccellenza Tecniche di Telerilevamento e Modellistica per la Previsione di Eventi Meteo Severi (CETEMPS), for the implementation of a new SHARE Station and the creation of the information system (WP3) to be hosted by CETEMPS.

Université Joseph Fourier (France) for their participation in the maintenance and data management of NCO-P and for the implementation of NANO-SHARE.

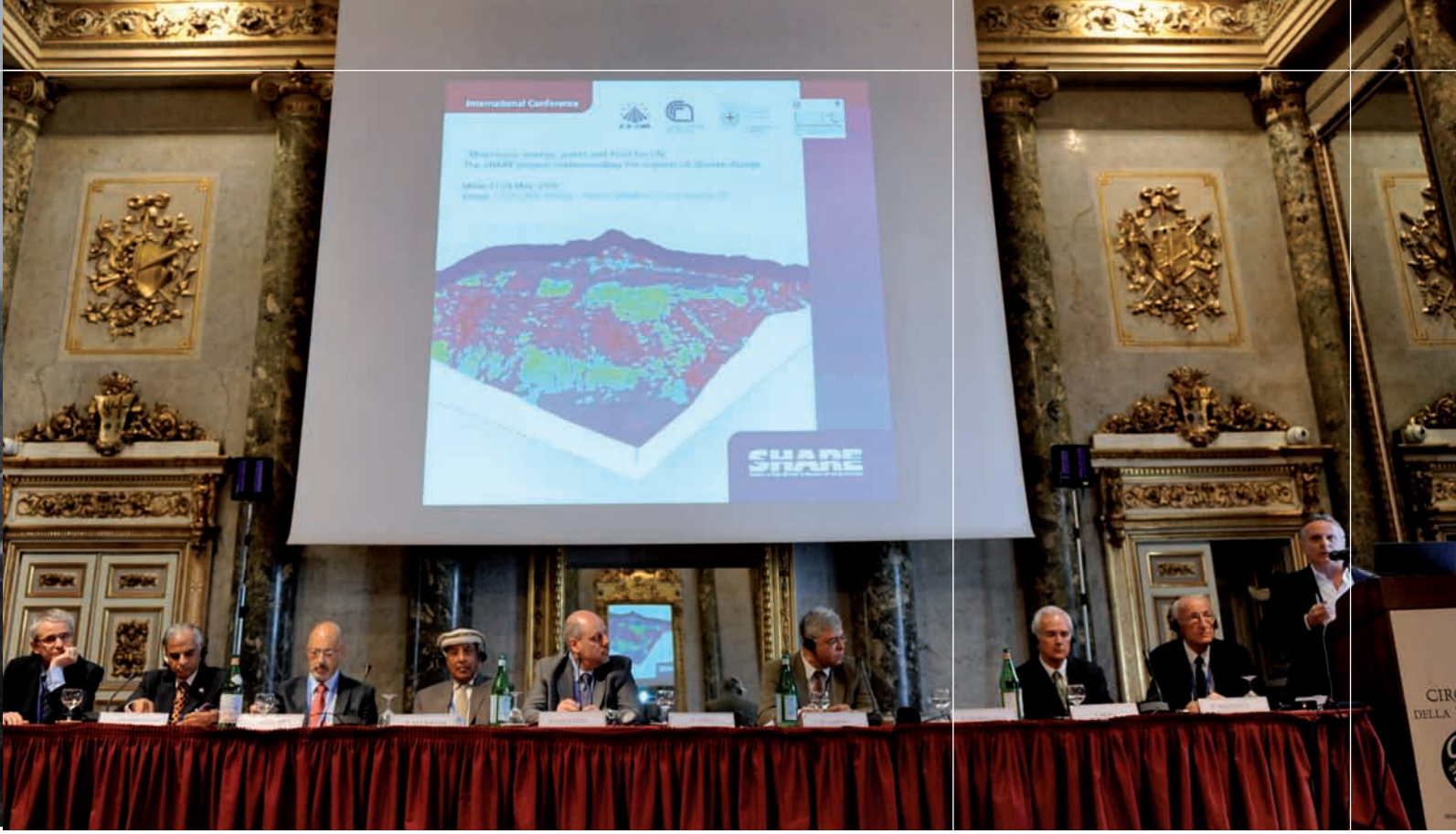
Department of Meteorology (Uganda) for their participation in the management of AWS installed on Ruwenzori.

2009 SHARE EVENTS

International Conference on "Mountains: Energy, water and food for life. The SHARE project: understanding the impacts of climate change", Milan, May 27-28, 2009.
The conference organized by Ev-K2-CNR Committee together with Milan Municipality, Milan-Expo 2015 Committee and CNR aimed to show the status of art of scientific environmental and climatic research carried out in mountain region. Many researchers, coming from around the word took part in this conference that represented and important occasion to illustrate the SHARE Project Phase II and its WPs.
In this occasion many experts presented their activities in the fields of atmospheric and climate, energy and water cycles, biodiversity and natural resource, heath and environmental medicine, adaptation and mitigation strategy.

First meeting between CEOP-HE and CEOP-AEGIS, Milan, Italy, June 29-30, 2009
Dr. Tartari (Chair of CEOP-HE Working Group) and Prof. Massimo Menenti (CEOP-AEGIS Coordinator – University of Strasburgo) organized this meeting in order to present their activities and promote future interactions and collaborations. In fact, both projects focus their attention on hydro-meteorology processes in mountain region using different action strategies.

Workshop "Ricerca scientifica in alta montagna: anche l'Aquila sul tetto d'Italia" Coppito, L'Aquila, July 1, 2009
SHARE Project contributed to install a meteorological station at the Gran Sasso Mountain to study the air pollution in the Mediterraneo Area, and an international data bank about the research in High Altitude. During this workshop an agreement between the Ev-K2-CNR Committee and the "Centro di Eccellenza Tecniche di Telerilevamento e Modellistica per la



Previsione di Eventi Meteo Severi" was signed by Mr. Agostino Da Polenza (Ev-K2-CNR Committee President) and by Prof. Guido Visconti (Responsible of the CETEMPS).

2nd Meeting of ABC Observatory Group, Pathumthami, Thailand, July 7-8, 2009
Dr. Paolo Bonasoni and Dr. Elisa Vuillermoz presented the main results obtained during two year activities carried out
at NCO-P during the meeting organized by UNEP. In this occasion the proposals to install a new Pakistan Climate Observatory at Karakorum and to study effects of Atmospheric Brown Clouds on the human health have been presented.

3rd Annual Meeting of the Coordinated Energy and water cycle Observation Project, Melbourne, Australia, 19- 21 August 2009
During the meeting, hosted by the Bureau of Meteorology, in Melbourne, the members of CEOP met in order to evaluate the project progress. On behalf of Ev-K2-CNR, Dr. Gianni Tartari presented the CEOP-HE progress and Dr. Elisa Vuillermoz shown the SHARE projects.

International Workshop on the Northern Eurasia High Mountain Ecosystem, Bishkek, September 8-15 2009
This event was organized by NEESPI (Northern Eurasia Earth Science Partnership Initiative) and HE (High Elevation) projects and represented an important occasion to face many themes related to study of mountain ecosystems and their changes in front of global worming phenomenon. In particular, the attention was focused on biodiversity, quantitywater, permafrost, etc…. The Dr. Gianni Tartari participated in this workshop on behalf of Ev-K2-CNR in order to strengthen the collaboration with other international scientific WCRP projects as like as CliC (Climate and Cryosphere).

Poster Session "High elevations Science" at the GEWEX/iLEAPS joint Conferences, Melbourne, Australia, August 24-29, 2009
Energy / Water Cycle Research" Joint GEWEX and iLEAPS International Science Conference, a poster session on "High Elevation Sciences" was held in Melbourne on August 24-29, 2009. In this occasion, the researchers coming from around the world focused their attention on different environmental themes, related to mountain regions as like as hydrology, climatology, glaciology and atmospheric composition and limnology. Dr. Gianni Tartari and Dr. Elisa Vuillermoz, on behalf of Ev-K2-CNR took part in this event.

Atmospheric Brown Clouds Science and Impact Symposium and ABC Science Team Meeting, Seoul, Korea,November 22-24, 2009.
The Dr. Sandro Fuzzi (CNR-ISAC) and Dr. Elisa Vuillermoz (Ev-K2-CNR) took part in these event and show main achieved results in the framework of the ABC-Project. During these occasions both research monitoring activities and ABC impacts on agriculture and hearth human have been presented. During ABC Annual Meeting, the future activities have been planned.

RESULTS ACHIEVED IN 2009

KARAKORUM TRUST 2

Karakorum Trust (Integration and harmonization of sustainable development interventions in the Central Karakorum National Park, Pakistan) aims to improve the quality of life of local communities and the conservation of environment, architecture and cultural heritage, and enhance capacity of local communities and institutions to adapt to climate change in the Central Karakorum

In order to promote sustainable development through better coordination of ongoing efforts and initiatives, development of integrated management plan supported by knowledgebase and environmental monitoring programme in CKNP, UNEP and EvK2-CNR is jointly implementing the "Integration and harmonization of sustainable development interventions in the Central Karakorum National Park, Pakistan" project commonly known as Karakorum Trust Project 2

The key activities are:

– Create a structured and harmonic network of communication to favour the implementation of development cooperation projects, involving local stakeholders in each activity;

– Increase the effectiveness of existing cooperation initiatives, filling identified project gaps with integration projects;

– Improve communication amongst the local stakeholders and actors involved in the implementation of development cooperation projects, both those within Karakorum Trust and independent from it;

– Improve knowledge of the impacts of climate change and adaptation measures to the impacts, and environmental, architectural and cultural heritage, and develop professional skills in management and coordination of development cooperation projects;

– Raise awareness and build capacity of Pakistani authorities relevant to CKNP regarding the implementation of procedures and policies which bear in mind the needs of the populations, ecosystems and cultural heritage of Northern Pakistan.

2009 RESULTS

An inventory of the main projects ongoing and carried out in Central Karakorum National Park and of the main local institutions working there has been prepared.

The first draft of the integrated management plan of CKNP has been prepared and identified the priorities thematic areas and related information requirement for CKNP management, foreseeing the activation of specific management research and the realization of related sub-plans with the aim of building up an Updated Integrated Management Plan for the project's end, fundamental milestone in the developing process of a CKNP Management Plan.

Guidelines for training and sustainable park management strategy have been identified and reported in the First draft of the Integrated Park Management Plan.

Pilot projects for sustainable park management and adaptation measures and monitoring activities in CKNP have been identified and reported in the first draft of Integrated Park Management Plan.
Within Karakorum Trust project, in collabo-

The background and the implementation plan of the Karakorum Trust project have been presented.
During an inception workshop held in Islamabad on october 7-8

ration with SHARE and ABC, it has been proposed the installation and operation of an atmospheric observatory for understanding of environmental processes in the context of climate change at local level. The information to be collected is essential to ensure immediate and long-term sustainable management of the fragile Central Karakorum ecosystem. To better identify the possible monitoring sites for the installation of permanent environmental monitoring station, for understanding environmental processes in the context of climate change at local level, Ev-K2-CNR made available to KT project a prototype for a miniaturized and autonomous station for observation of aerosol and gases at high altitude created thanks to a joint technical and scientific collaboration among Ev-K2-CNR, the Italian National research Council-Institute for Atmospheric Sciences and Climate and the French National Research Council (CNRS). The prototype was tested in Italy at the Experimental Flight Center at the Italian Air Force Base of Pratica di Mare and in Nepal near the Pyramid International Laboratory-Observatory at 5,050 m a.s.l.

A field survey in the Gilgit-Baltistan Region and on the Baltoro Glacier has been carried out in July-August 09 for the identification of possible monitoring sites where installing KT permanent environmental monitoring station. In the choosing of the proper location, some important aspects have been taken in account, such as: site representativeness, possible presence of long term existing meteorological measurements, possible power availability, possible structures to host the instrumentations, personnel availability for the regular maintenance of the instruments, site accessibility to facilitate material transportation and station field campaigns.

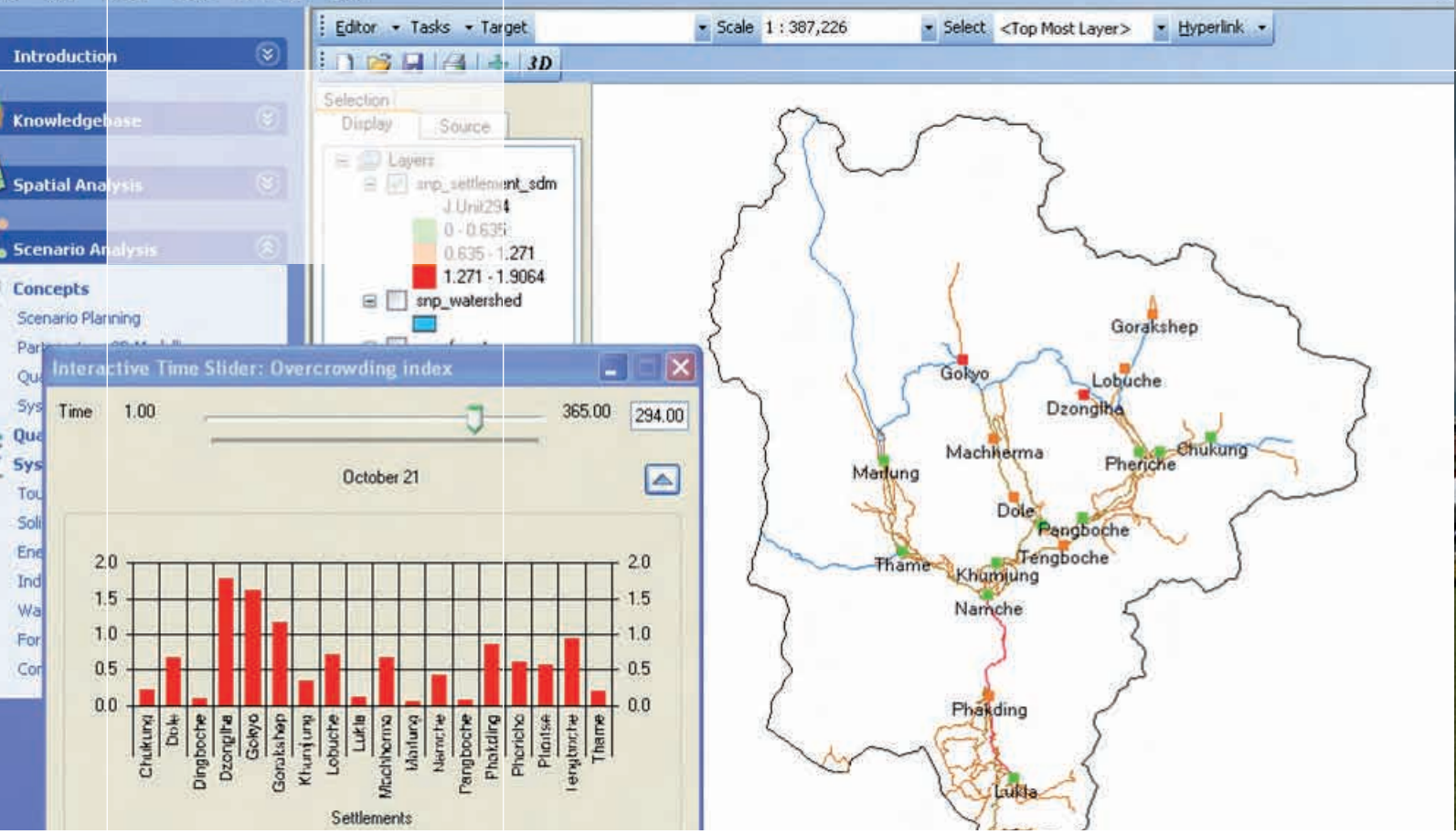
Several coordination meetings with local partner have been organized in order to monitor the activities ongoing and strengthen the existing collaboration between Ev-K2-CNR and KIU. Moreover the sharing of progress and the direction of work concerning the preparation of CKNP draft management plan represented the most of job carried out in these occasions.

2009 KT EVENTS

Inception workshop Karakorum Trust II project on "Integration and harmonization of sustainable development interventions in the Central Karakorum National Park of Northern Pakistan", October 7-8, 2009, Islamabad, Pakistan.

Mr. Kamran Lashari, Secretary of the Ministry of Environment, opened the workshop and Mr. Abdul Qadir Rafique, Chief Energy & Environment, UNDP, on behalf of UNEP, delivered a statement on the occasion of launching of Karakoram Trust Project 2. Dr. Iqbal Sial, Inspector General of Forests briefed on the policy of Government of Pakistan on national parks and climate change. The inception workshop continued with the introduction of the existing initiatives in the CKNP made by Ev-K2-CNR.

The background and the implementation plan of the Karakorum Trust project have been presented in order to take advantage of this opportunity for brainstorming outputs, activities and its effectiveness on ground. Comments received from the meeting would be useful way forward to implement the project. The workshop has also formed a basic for developing a network of concerned stakeholders on Karakorum Trust project.



RESULTS ACHIEVED IN 2009

HKKH Partnership
for ecosystem management

Ev-K2-CNR successfully carried out this five-year program aimed at facilitating local, national and regional systemic planning and management, focusing on poverty reduction and biodiversity conservation in the HKKH region.

The initiative is an institutional consolidation project for the coordinated and integrated monitoring of natural resources towards sustainable development and environmental conservation in the Hindu Kush-Karakoram-Himalaya mountain complex. The activities have been carried out in three pilot areas, all protected mountain areas which comprise fragile ecosystems and subject to climate changes effects: Sagarmatha National Park and Buffer Zone (SNPBZ) – Nepal, Central Karakorum National Park (CKNP) – Pakistan, and Quomolongma Nature Preserve (QNP) – Tibet Autonomous Region, China.

The program, concluded in 2009, was funded by the Italian Cooperation as an official World Summit on Sustainable Development "Type 2 Outcome" and executed in collaboration with The World Conservation Union (IUCN), the International Centre for Integrated Mountain Development (ICIMOD) and the Italian NGO CESVI.

2009 RESULTS (achieved with other partners)

Overall, the progress of implementation of activities had been impressive at the regional level as well as in Nepal, Pakistan and China. The Decision Support Toolbox (DST) for SNP had been finalized with several added functionalities, features and debugging during the semester, making it the key product of the project. The DST contains all models with full quantitative information at par with qualitative models in interaction with spatial datasets. User manual has been published and a help system has also been inbuilt in the DST to render it more user-friendly. The final version of DST has been installed in the Department of National Parks and Wildlife Conservation (DNPWC - Nepal) and orientation and user manual were provided to staffs and other stakeholders in Nepal.

The development of the socio-ecosystem model for the management of Sagarmatha National Park and Buffer Zone (SNPBZ) has been completed, with the completion of the qualitative phase which was finalized together with finalization of the quantitative phase. Running models for tourism flow and population dynamics and a composite model (comprising of forestry, energy, solid waste, indoor air pollution and water quality components) were developed with full documentation to introduce to the models. Various meetings and workshops to train or share the research result in Nepal has contributed to enhancing the capacities of the project stakeholders.

More than 100 participants took part in the workshop during which the HKKH DST was presented

In CKNP, the activities were geared towards the vision as seen of CKCC and laid out in the enhanced management planning roadmap of CKNP. Draft management plan of CKNP has been prepared along with thematic research reports and datasets to support the CKNP management. The research reports on forest, biodiversity, wildlife and glaciology has been finalized and used for draft management plan development. Awareness building and capacity building of newly formed CKNP Directorate staff has been carried out through presentations.

The implementation of activities in China has been completed as per the agreement signed between the IGSNRR and the project. A consolidated final progress report has been submitted by Institute of Geographic Sciences and Natural Resources Research (IGSNRR), consisting of research reports on tourism, transboundary meteorological study, environmental dynamism in terms of biodiversity and land cover change in QNP. Promotional materials like multilingual HKKH China brochure and visitors guide to QNP were also prepared together with simple QNP management software.

Capacity development efforts included training/workshops at different levels, GIS viewer for CKNP and QNP, handover of laboratories and equipments. Necessary agreements and procedures has been prepared to sustain the environmental monitoring systems with installation of water quality laboratory (in SNP) and a dendrochronological laboratory for study on long term climate change (in NAST). The project outreach and promotion was boosted through different publications and presentation of articles and othermaterials in workshops. All the research and study documents have been published with reports of major events that took place in this semester. Revised project brochure, project bulletin folder, notebook, technical documents were produced promoting the image including methodology and approach of project further up. The project web portal recorded about 8300 visitors in a year from all the continents of the world implying a global outreach.

NEW AGREEMENT:
On January 2009, NAST and Ev-K2-CNR signed an agreement for the installation, management and operation of a dendrochronology laboratory

2009 HKKH EVENTS

Regional workshop on "Innovative tool and Experiences in Mountain Ecosystem Management", Kathmandu, August 31 – September 3

A Regional workshop titled "Innovative tools and experiences in mountain ecosystem management" was held successfully, participated by 100 participants of 49 organizations from 7 HKKH countries. Major project outputs were presented and received praises from the participants. Valuable feedbacks were received pointing out the way forward ininnovative approach taken by the project.

More than 9000 Kg of waste have been collected from Baltoro glacier. During the keep baltoro clean expedition.

RESULTS ACHIEVED IN 2009

INTEGRATED MANAGEMENT OF CENTRAL KARAKORUM NATIONAL PARK NATURAL RESOURCES

Ev-K2-CNR participates in the project coordinated by CESVI and UCODEP and funded by the Italian Cooperation of Foreign Affairs Ministry, which promotes the integrated management of the natural and cultural resources of Central Karakorum National Park (CKNP) and aims to preserve the biodiversity, the ecosystems of Karakorum mountains for the benefit of local population and foreign visitors, trying to combining the preservation and environmental recovery with the fundamental rights of the local population.

This new 3-years initiative will be especially operative in the Skardu and Ganche Districts to achieve the protection of the environment and the socio-economical development of local population. In the framework of the project, Ev-K2-CNR has the responsibility of some specific activities such as:
- Advice for eco-tourism and technical environmental support for the harmonization of the natural resources management policy
- Implementation of waste management and disposal activities
- Technical training for high altitude porters and local Guides
- Purchase of equipment for drinking water and irrigation
- Plant supplying for reforestation activities

2009 RESULTS

One of the major interventions in the field of natural resource management, carried out by AKRSP and Ev-K2-CNR over the years, has been agro-forestry and conservation of natural forests, which has not only led to a tremendously positive impact on the natural environment but also brought about a significant improvement in the socio-economic conditions of the community living in the high land least developed villages of Baltistan. As results of continuous efforts, in 2009 the community has planted, in the villages of Mongrong and Tiste (CKNP), more then 18,000 plants (Popular, Willow, Rubenia and Russian Olives).

The Alpine Club of Pakistan, which in MoU with Ev-K2-CNR, carried out a crevasse rescue courses for High Altitude Porters and Guides and a rescue course for High Altitude crew. The courses were conducted at Passu Glacier and in Passu and Gulmit surroundings. During the courses the guides have learned the techniques of ropes, knots, rescue procedures in crevasses. The courses were successfully concluded with a brief ceremony held at the Base Camp of Borit Lake, during which were presented certificates of participation.

The program "Keep Clean Baltoro Project" was launched with the main aim to educate and involve the stakeholder of Tourism to keep clean Baltoro glacier on sustainable bases in future. In order to achieve this objective, the waste management staff of Ev-k2-CNR introduced a new idea to establish a "School of Environmental Education". An another important activity has been the collection or more then 9,000 kg of waste from different base camps and the transport to Askole and stored in the "Eco-inland" installed by Ev-K2-CNR.

From April 29 to May 5, 2009 a course on long term ecological monitoring and GIS application was held at the Karakorum University and on the field (Bragrot Valley and Haramosh Valley). The course was led by Ev-K2-CNR researchers Tommaso Anfodillo, Francesco Ficetola and Maria Teresa Melis and addressed to 13 participants from different local organizations such as: CKNP Directorate, WWF, KIU and Department of Forest Gilgit.

Atmospheric pollution over Kuwait City. GEMM is dedicated to monitoring and environmental research in Gulf region

GEMM Project (Gulf Environmental Monitoring and Management) is dedicated to monitoring and environmental research in the Gulf region and could take advantage of the collaboration between established researcher and existing local structures working together in an exchange perspective.

The research structure will not be autonomous and isolated, but supported by a mechanism directed to obtain high efficiency from existing competences, introducing them in a coordinated context of high level research.
This purpose will be carried out through the application of tested methodologies, technological knowledge transfer to the local community, political sensitization campaigns, improvement of local scientific authority within the international scientific community.

GEMM research program will be directed to the carrying out of high quality integrated environmental monitoring and research activities. It will also provide scientific and technological coordination integrating different existing research and monitoring programs through a dedicated program for the enhancement and the improvement of local scientific activities (implementation of new monitoring stations, dedicated program for instrument calibration, application of QA/QC procedures in environmental network management…)

GEMM could become a focal point for the world of environmental and technological research in Middle East thanks to the implementation of a structure able to carry out:
- Integrated environmental monitoring activities
- Environmental research and technological development
- High level academic education and training

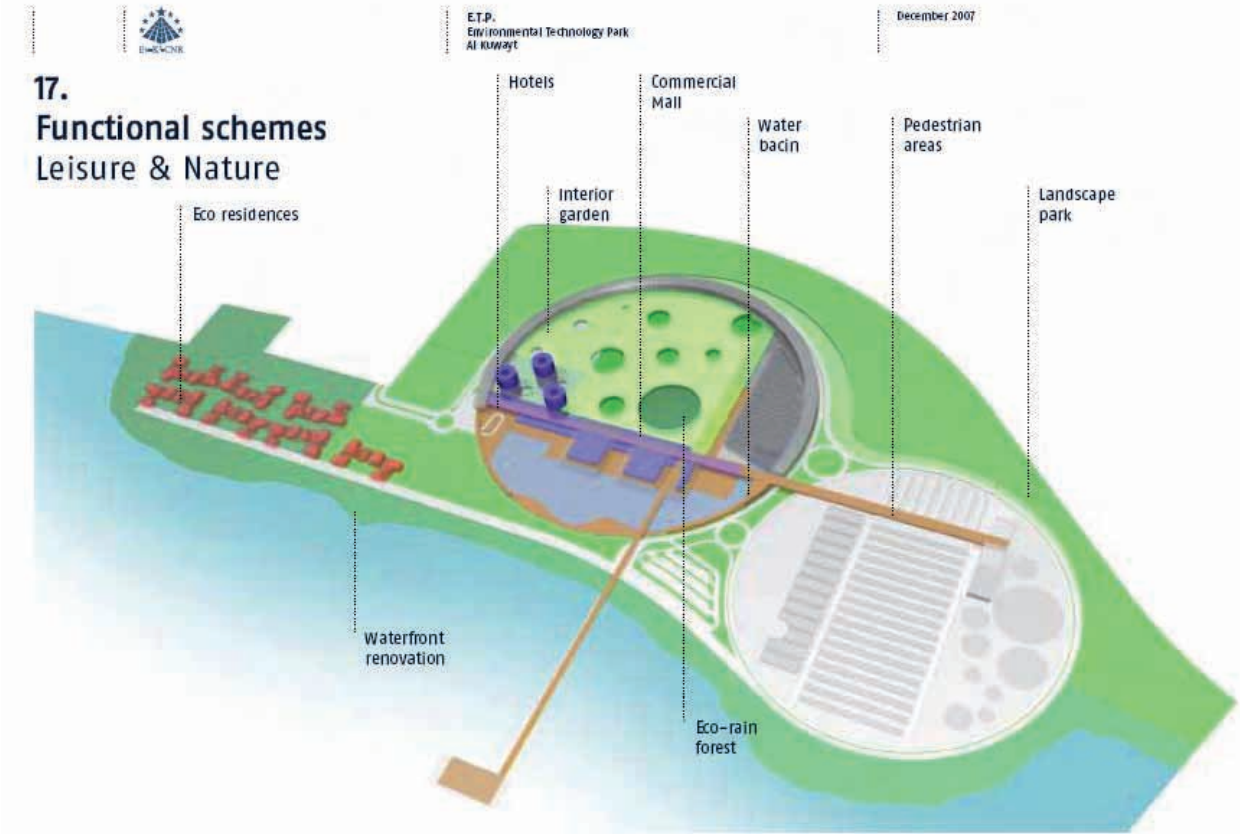
GEMM's primary output will be the essential instruments to support scientific research in order to solve environmental problems, aiming at achieving excellence in the field of integrated environmental research and monitoring. On this front, Ev-K2-CNR is collaborating with Kuwait Institute for Scientific Research.

2009 RESULTS

On 2009, KISR and Ev-K2-CNR continued their relationship in order to define the operational programme for GEMM.
Major 2009 milestones towards project implementation include:
- 5 Ev-K2-CNR visits to Kuwait
- 2 visit to Kuwait by a CNR/Ev-K2-CNR delegation
- re-definition of the operational programmes and budgets
- preparation of the feasibility for the Environmental Technology Park (ETP) which was considered as ideal outputof the scientific research on environment and preparation of a new Memorandum of Understanding to include ETP in the future activities.

RESULTS ACHIEVED IN 2009

GEMM
Gulf Environmental Monitoring and Management



Both Ev-K2-CNR and CNR staffs met their KISR colleagues to re-define the operational programs and budgets in order to carry out the project as soon as possible. Due to some difficulties coinciding with international crisis, all the organisations decided to start with the following projects within the end of 2009:

- Use of Advanced InSAR techniques for evaluating the surface stability in Kuwait
- Modelling the behaviour of hazardous chemicals in the Kuwait's coastal environment and studies on the effects of contamination on marine biota

Final application will be ready in the first semester 2010.

During the discussions and meetings, both Italian and Kuwaiti researchers agreed on new topics and opportunities of collaboration.

NEW AGREEMENT:
On June 2009, KISR and Ev-K2-CNR signed a MoU for collaborating in the development of the ETP

FUTURE PERSPECTIVES:
In the framework of GEMM and considering the contribution that this program could give to the environmental research in Kuwait and Arab Peninsula, Ev-K2-CNR and Polytechnic of Milan presented a concept regarding an Environmental Technology Park (ETP) to KISR and Kuwait Government. ETP is a science and technology park focused on the environment and the techniques of sustainable development, unifying three aspects that are fundamental for the success of a new scientific pole: Research, Business e Entertainment. ETP operates in net with the most advanced environmental research centres of the world and its target is to become the engine of the economical development in the area Environmental care is a must and will be more and more. This care is linked to an important business with a continuous growing trend. The concept of the Environmental Technology Park includes integration among the following business macro areas: Delocalized Promotion, Expo Centre, Development & Technology, Meeting Centre, Services to enterprises and Entertainment ETP configures as a space available to Italian companies and international consortiums committed in industry and environment-correlated services to promote their activities following methods of excellence.

Measurement of the Tectonic Movements of the Nanga Parbat Massif and in the Indus Valley

The project aims to determine the extent of tectonic movements of the Nanga Parbat Haramosh Massif, indicated by geologists as being the Himalayan area with the fastest rate of growth. Therefore a network of points on which perform satellite positioning measurements was set up in 2009. This research is of particular interest since, on the western margin of the tectonic plate under investigation, the construction of an electric power plant is planned with a large concrete dam on the Indus River. The results of the observations made, and those to be repeated in the future, will be of great interest for the local authorities involved in the construction of the dam.

This study was carried out thanks to contributions from the Italian Ministry of Education, Universities and Research and Italian Ministry of Foreign Affairs in the framework of the Executive Programme of cultural, scientific and Research in the framework of the Executive Programme of cultural, scientific and technological cooperation between the Italian Republic and the Islamic Republic of Pakistan.

2009 RESULTS

After an organizational phase during the first months of the year, the research project, coordinated by Prof. Giorgio Poretti, University of Trieste entered its operational phase. This second phase was performed in Italy for the theoretical part and in Pakistan for the field work, with several expeditions by Italian researchers and technicians in collaboration with Pakistani colleagues of Bahria University, Azad Jammu and Kashmir University and Karakurum International University, in the months of May-June, July-August and November. In December the processing of the data was carried out. The results achieved in 2009 are:

- the successfully involvement in the project by the local researchers who performed detailed analyses of the geological situation of the Massif and the outline of its margin. These studies allowed the identification of:
- two locations outside the Massif, where two GNSS stations were placed (Islamabad and Gilgit);
- two points on the Nanga Parbat (Harchu and Rama Bungalow);
- six points for a topographic network of the Basha Dam;

The pillar monumentalized at KIU and inaugurated by the vice Governor.

- the acceptance by the local authorities (civil and military) of the presence of foreigners in locations potentially politically sensitive;
- all the selected points were monumentalized on small concrete pillars and an initial survey was carried out to record the coordinates of the GPS points, and to measure the topographic distances of the banks of the Indus River;
- the data processing. The network installed in 2009 can be further improved with the creation of a third permanent GPS station in Skardu and two more benchmarks. The first one on the southern slope (at Fairy Meadows) and the second on the northern side of the Haramosh Massif. From an operational point of view, for the next measurements in the Basha Dam area, it will be necessary to put a fixed GPS station and a contemporary recording on another four vertices of the squares of the topographic measurements performed.

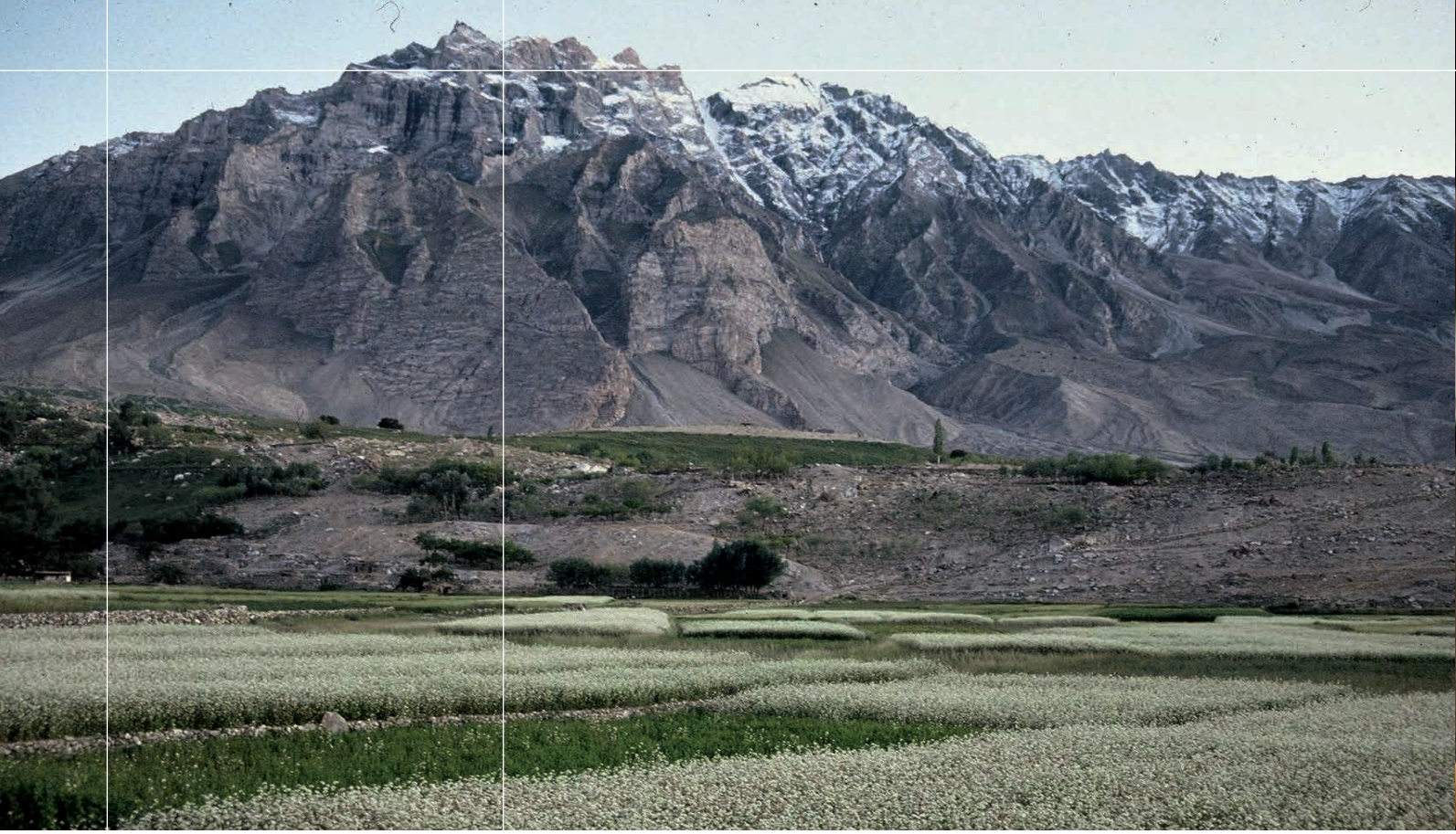
NEW AGREEMENT:
In April 2009 Ev-K2-CNR and University of Trieste signed an agreement for the implementation of "Measurement of the Tectonic Movements of the Nanga Parbat Massif and in the Indus Valley" project.

2009 SCIENTIFIC AND TECHNOLOGICAL RESEARCH EVENTS
28th National Meeting of the Italian National Group of Solid Earth Geophysics (GNGTS), Trieste, November 16- 19

The project was presented at the 28th National Meeting of the Italian National Group of Solid Earth Geophysics (GNGTS) that took place in Trieste between November 16 and 19, 2009. During the meeting an extended abstract of the work was presented while the project was still in progress. The results of the first measurements will be published in the proceedings of this workshop.

Ev-K2-CNR – NAST Bilateral Technical Committee Meeting, Kathmandu, Nepal, April 16

On April 16, 2009, BTC members met to approve the joint scientific activities to be carried out in Nepal in 2009. In total, 10 research projects are approved (7 proposed by Ev-K2-CNR and 3 by NAST). The meeting was co-chaired by Prof. Hom Nath Bhattarai, NAST Vice Chancellor, and Dr. Gianni Tartari, Ev-K2-CNR.



NEW PROJECT LAUNCHED IN 2009

seed Social Economic Environmental Development

Poverty alleviation, social and economic development, environmental research conservation and protected area management are closely interrelated in Gilgit-Baltistan Region, which features the third highest poverty rate at provincial level in Pakistan. SEED project aims to catalyze an integrated social, economic and environmental development for Central Karakorum National Park and buffer zone, which is situated in the north-east of Gilgit-Baltistan, Pakistan. This region includes mountain peaks, glaciers and wildlife populations of global importance and, as the most important tourist destinations and provider of important ecosystem services for the country, the mountain area around Central Karakorum National Park and buffer zone plays a critical role for Pakistan's development.

In September 2009, Ev-K2-CNR has been mandated by the Governments of Pakistan and Italy to carry out the SEED Project, in collaboration with Karakurum International University (Gilgit, Pakistan), funded by the Pakistan-Italian Debt for Development Swap Agreement (PIDSA). Over the next 5 years SEED Project will implement 58 activities in collaboration with important Italian and Pakistani organizations working in the field of development, research and conservation. A key focus of the SEED Project is to promote "management-oriented research" in and around Central Karakorum National Park with the aim to integrate research and capacity building for intrinsic knowledge management with support for national park management and development initiatives. An applied mountain studies faculty will be established at Karakurum International University in collaboration with Italian universities. Eco-sustainable tourism is the economic sector which is most consistent and compliant with the national park's vision, objectives and regulations.

It has the potential to generate funds which could sustainable support the park's vision and regulations. SEED Project supports the implementation of sustainable local resource management practices, development of eco-sustainable tourism facilities and promotion of Central Karakorum National Park and its cultural heritage. It also focuses its support on livelihood assets and improvements of local people's wellbeing in and around the park, ensuring that they are not in conflict with, but support the park's conservation efforts. For this reasons, SEED Project will improve local communities' basic needs, regarding health, hygiene and sanitation and contribute to increase livelihood security, foremost through supporting diversification of cash income sources of households, by generating income opportunities in the tourism, craft and small trade industry sectors.

2009 RESULTS

During 2009 Ev-K2-CNR activated directly the following activities:

- Establishment of two ecological platforms at Concordia on the Baltoro Glacier for the sustainable management of human waste;

- Implementation measures to improve water quality;
- Establishment of a new faculty for integrated mountain area development studies and applied research;
- Development of an integrated management oriented research program for the project's research activities;
- Assess and promote cultural heritage of CKNP and Buffer Zone;
- Installation and operation of AWSs (Automatic Weather Stations);
- Assess potential for increased production and marketing of local agricultural products;
- Establishment of a cultural/historical museum in Askole;
- Installation of a renewable energy supply scheme for KIU Campus;
- Establishment of an ecologically sustainable CKNP headquarters.

In 2009, through other SEED Project Partners, several activities also started:
- Capacity building for local gemstone cutting and polishing;
- Improvement/installation of water supply schemes for communities;
- Awareness raising for local communities on gender inclusion and improvement of community organization;
- Establishment of fruit nurseries and training for improved productivity and marketing for local farmers;
- Conduct teacher training courses;
- Provide contemporary teaching aids for local schools;
- Improve facilities/infrastructure of local school buildings;
- Community awareness raising for the importance of education;
- Installation of a water supply scheme for KIU campus;
- Capacity building for key stakeholder involved in CKNP management;
- Carry out solid waste cleanup campaigns on major trekking routes;
- Support traditional woodworking craftsmanship.

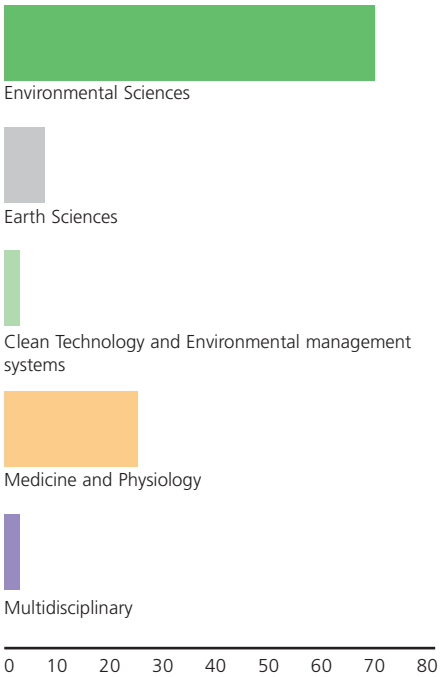
NEW AGREEMENTS:
In March 2009, Ev-K2-CNR signed an agreement with the Karakorum International University to jointly coordinate the implementation and execution of SEED Project.

2009 SEED EVENTS

SEED Project Presentation, Islamabad, December 14, 2009
The Ev-K2-CNR Committee and the Embassy of Italy, in collaboration with the Karakorum International University and the Alpine Club of Pakistan, inaugurated the photo exhibit "100 years after: on the route of Duke of Abruzzi expedition to Karakorum" to commemorate one hundred years of friendship and collaboration between Pakistan and Italy, and to pay tribute to the epic story of the first Italian mountaineering expedition organized by Duke of Abruzzi in 1909. SEED Project was also presented by its Project Director, Mr. Bastian Flury, together with Ahsan Ullah Mir, Register of the Karakorum International University, in Gilgit, the main partner.

SCIENTIFIC PUBLICATIONS

PUBLICATIONS FOR RESEARCH FIELD



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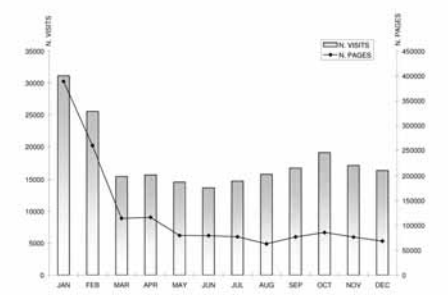
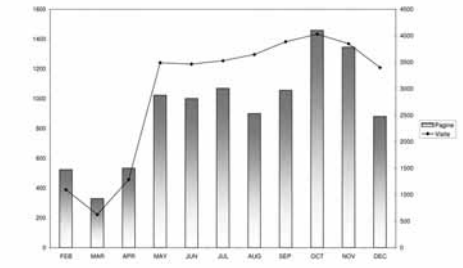
OUR WEBSITES



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

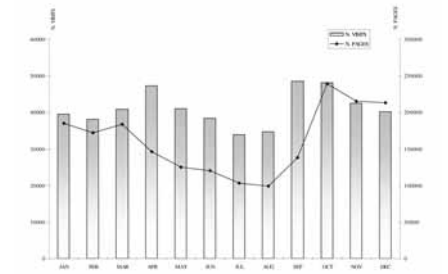
www.evk2cnr.org

It is the Ev-K2-CNR institutional website, available in English and Italian. It contains the information and the news about our projects, activities and initiatives carried out.



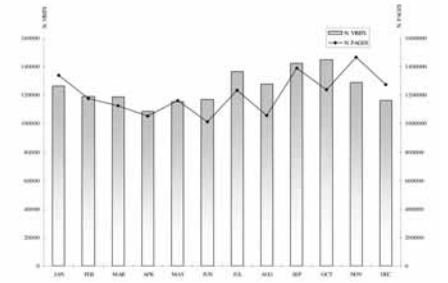
www.ceop-he.org

The website is dedicated to CEOP High Elevation initiative, launched and coordinated by Ev-K2-CNR in 2008, with the aim to study multi-scale variability in hydro-meteorological and energy cycles in high elevation environments, improving observation, modeling and data management.



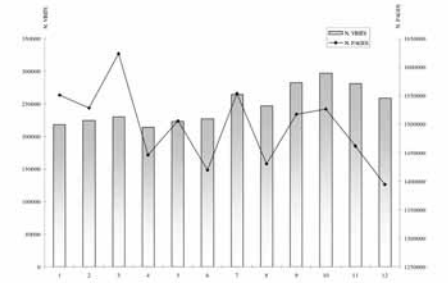
www.scienze.tv

The site contains news and videos concerning a variety of disciplines, including: environment, energy, technology, IT, health and medicine, plants and animals, earth sciences and space.



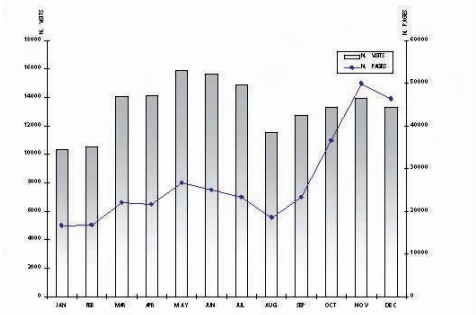
www.montagna.org

This portal is dedicated to mountain enthusiasts contains useful information on all things mountain-related: high altitudes sports, hiking itineraries, traditional food, mountain medicine, mountain book.



www.montagna.tv

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



www.nepalmountainnews.com

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

Ev-K2-CNR ORGANIZATION

Ev-K2-CNR
THE ASSOCIATION

EXECUTIVE COMMITTEE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President

2 **Davide Zulian**
Vice President

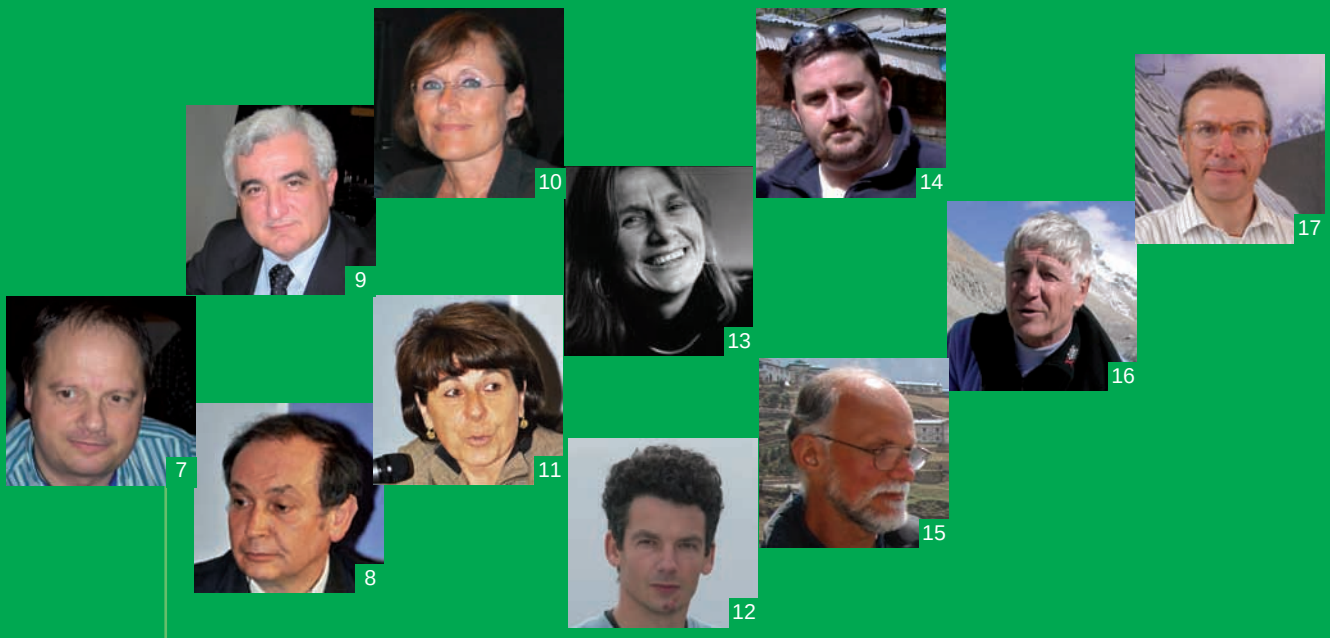
3 **Andrea Lami**
Scientific Coordinator

4 **Marcello Mora**
Administration & Finance

HONORARY PRESIDENTS

Paolo Cerretelli 5

Kurt Diemberger 6



MEMBERS

7 **Massimo Antoninetti**

8 **Claudio Smiraglia**

9 **Gianni Tartari**

10 **Anna Milvia Boselli**

11 **Annaluisa Cogo**

12 **Michele Comi**

13 **Hildegard Diemberger**

14 **Andrea Laganà**

15 **Sandro Lovari**

16 **Giorgio Poretti**

17 **Gian Pietro Verza**

NEW SCIENTIFIC COUNCIL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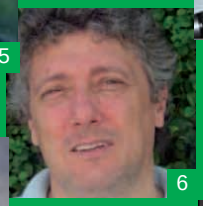
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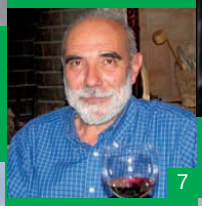
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CNR – ISE

2 **Leonardo Gastaldi**
CNR

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Padua University

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CNR – ISAC

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Foundation ENI Enrico Mattei, University of Milan

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Ev-K2-CNR Committee

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13 **Claudio Smiraglia**
University of Milan

14 **Gianni Tartari**
CNR – IRSA

15 **Elisa Vuillermoz**
Ev-K2-CNR Committee

BILATERAL TECHNICAL COMMITTEE


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MEMBERS

1 **Elisa Vuillermoz**

2 **Gianni Tartari**

3 **Giorgio Poretti**

EV-K2-CNR EXTERNAL RESEARCH UNIT MANAGEMENT COMMITTEE


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CNR - ISE

MEMBERS

2 **Giuseppe Cavarretta**
CNR – DTA

3 **Franco Prodi**
CNR – ISAC

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Ev-K2-CNR Committee

5 **Riccardo de Bernardi**
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EV-K2-CNR COLLABORATORS


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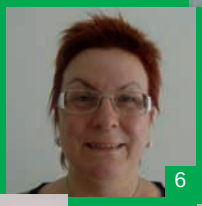
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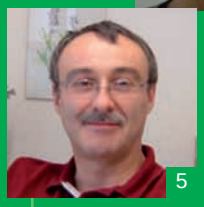
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TOP MANAGEMENT

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President

2 **Elisabetta Rossoni**
Secretary to the President

3 **Beth Schommer**
General Director

4 **Emanuela Brindisi**
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LOGISTIC AND ADMINISTRATION

5 **Alberto Cortinovis**
Sole administrator

6 **Angela Milesi**
Head Administration Office

7 **Elena Vismara**
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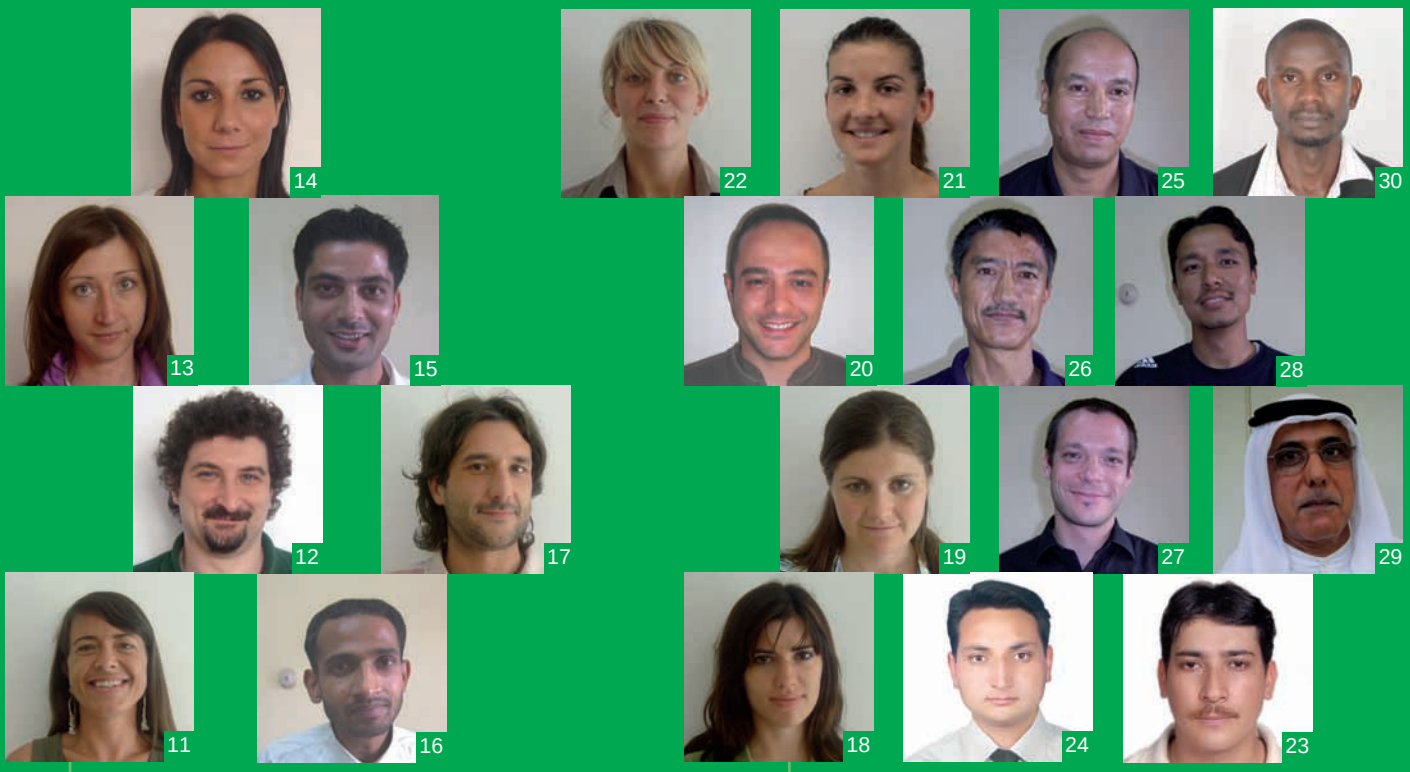
8 **Gian Pietro Verza**
Ev-K2-CNR Technical Office

9 **Maurizio Gallo**
General Logistics Manager



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Editor in Chief

14 **Valentina D'Angella**
Editorial Staff

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Nepali website journalist

16 **Suvash Sharma**
Nepali website journalist

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Communication Office Assistant

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SHARE Executive Cordinator

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KT Project Coordinator

21 **Roberta Toffolon**
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22 **Daniela Milanesi**
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Pakistani Resident Representative

24 **Muhammed Ismail**
Manager of the Italian K2 Museum

25 **Hari Shrestha**
Nepal Resident Representative

26 **Krishna Das Shrestha**
Nepal Resident Office Assistant

27 **Bastian Flury**
Nepal Activities Coordinator

28 **Sudeep Thakuri**
HKKH Partnership Technical Support Staff

29 **Abdulmagid Alsheikh**
Kuwait Resident Representative

30 **Gerald Muyanja Kyeyune**
Uganda Resident Representative

PYRAMID STAFF

TECHNICAL STAFF

1 **Chhimi Tenzing Sherpa**
Pyramid Technician

2 **Laxman Adhikari**
Manager of Nepali Staff

3 **Kaji Bista**
Manager of Nepali Staff

4 **Pema Sherpa**
Pyramid Technician

5 **Lhakpa Tshering Sherpa**
Pyramid Technician

6 **Lhakpa Tenzi Sherpa**
Pyramid Technician

7 **Tenzing Sherpa**
Pyramid Technician

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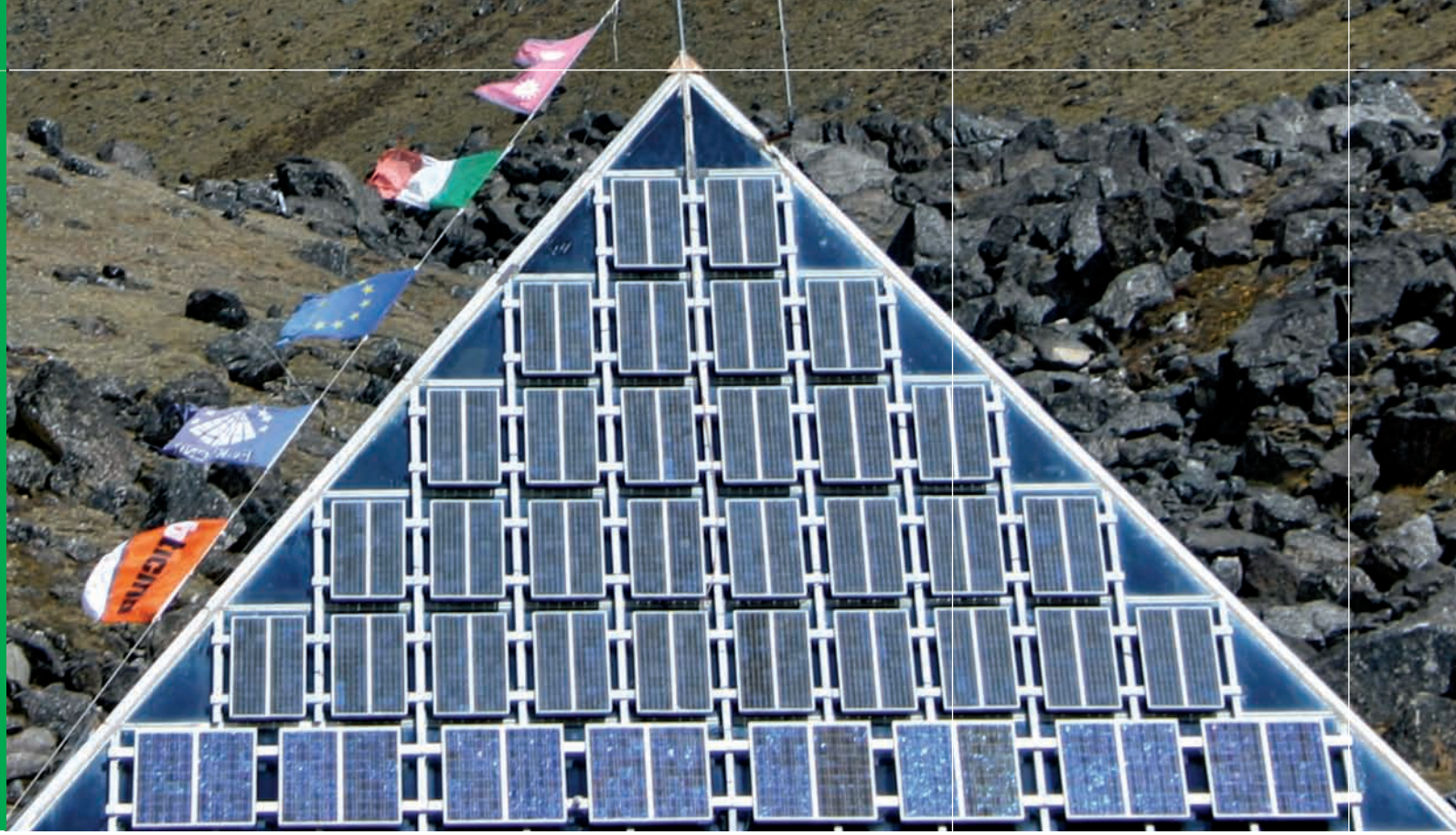
8 **Kesar Bahadur (KC)**
Cook

9 **Raj Bahadur Rai (Jettha)**
Lodge Staff

10 **Vesh Magar**
Lodge Staff

11 **Dorje Tamang**
Lodge Staff



HOW TO SUPPORT OUR WORK

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, co municating 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.

BTICINO SPONSORSHIP

In collaboration with Ev-K2-CNR, **"BTicino technology goes up on the roof of the world"**. This was the title of the event organized for the inauguration of the new electrical and technological gear of the research centre, developed and implemented by BTicino, global leader in the market of electric low voltage equipment for civil, industrial and tertiary installations.

In particular BTicino provided the electrical equipment needed to create a new general electric unit able to manage the multi-source electric supplies of the Pyramid Laboratory-Observatory. The project included even the creation of a system controlling the electric consumption that is applied to the lighting system through the "My Home" demotic technology. All the supplied systems, respecting the environment sustainability on every level, are tele-controlled via PC. Thanks to BTicino technology, plants will be therefore remotely controlled, thus grunting constant supervising and assistance.

And on October 20, this remote controlled mechanism gave big emotions. In fact, the Triennale of Milan was connected live with the Pyramid Laboratory for the activation of the lighting system: the Pyramid was lightened standing out against the darkness of the Himalayan night.

The evening was presented by Giuseppe Caravita of Nova 24 and it foresaw the speeches of Agostino Da Polenza, President of Ev-K2-CNR Committee, Claudio Smiraglia, University of Milan and member of Ev-K2-CNR Scientific Council, Paolo Perino, Managing Director and General Manager of BTicino and Fabrizio Fabrizi, Deputy General Manager of BTicino.

BALANCE SHEET 2009

STATEMENT OF ASSETS AND LIABILITIES

ASSETS	2009
Intangible fixed assets	373.944,07
Tangible fixed assets	3.774.296,69
Participations	502,00
Medium and long term credits	1.200,00
Sundry credits	1.354.962,95
Accrued income and deferred expenses	2.183,55
Cheques, money and cash values	7.035,99
TOTAL ASSETS	5.514.125,25

LIABILITIES	2009
Devaluation fund / intangible fixed assets	124.644,87
Devaluation fund / tangible fixed assets	433.208,75
Banks current accounts	12.727,52
Capital and reserves	3.809.425,29
Debts to suppliers	1.013.475,92
Sundry debts	83.154,32
Accrued expenses and deferred income	35.484,16
TOTAL LIABILITIES	5.512.120,83
Tied surplus for projects	2.004,42
TOTAL BALANCE	5.514.125,25

All amounts in Euro

PROFIT AND LOSS ACCOUNT

EXPENSES	2009
Purchase of goods and services	2.680.896,57
Depreciation	308.330,80
Various management burdens	25.206,35
Financial burdens	15.686,33
Extraordinary burdens	31.864,33
Fiscal burdens	438,62
Capital losses	1.799,61
TOTAL EXPENSES	3.064.222,61
Tied surplus for projects	2.004,42
TOTAL BALANCE	3.066.227,03

INCOME	2009
Contribution from Italian organization	1.839.240,01
CNR Share Project	*1.097.261,63*
CNR Karakorum Trust Project	*562.094,38*
CESVI	*49.884,00*
MIUR	*100.000,00*
Lombardy Region	*20.000,00*
Milan Municipality	*10.000,00*
Contribution from international agencies	1.143.448,33
UNEP Karakorum Trust Project	*575.200,00*
IUCN - DSS HKKH	*156.953,00*
PIDSA Seed Project	*411.295,33*
Contribution from private donors	76.945,80
Other income	3.386,80
Financial income	3.194,09
Extraordinary income	12,00
TOTAL INCOME	3.066.227,03

COLLABORATING ORGANIZATIONS

For implementation of the 2009 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
- University of Milan - Department of Earth Sciences "Ardito Desio" – Italy
- University of Milan - Department of vegetable production - Italy
- University of Urbino - Department of Chemical Sciences – Italy
- University of Siena - Department of Environmental Sciences – Italy
- University of L'Aquila - CETEMPS
- University of Insubria – Department of Structural and Functional Biology
- University of Cagliari - Department of Earth Sciences – Italy
- National Institute of Oceanography and Experimental Geophysics (OGS)
- Milan Polytechnic – Department of Environmental, Hydraulic, Infrastructures and Surveying Engineering
- LSI Lastem – Italy
- Italian Glaciological Committee – Italy
- CNRS, Laboratorie de Glaciologie et de Géophysique de l'Enviroment – Grenoble, France
- CNRS, Laboratoire de Météorologie Physique - Clermont-Ferrand, France
- Université Joseph Fourrier, Grenoble, France
- International Centre for Theoretical Physics - Italy
- Euro-Mediterranean Centre for Climate Changes – Italy
- 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
- University of Chile, Department of Geophysics, Santiago – Chile
- 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 (CPPA) NOAA Climate Program Office, Silver Spring, Maryland, MD - USA
- NCAR/Earth Observing Laboratory (EOL) – USA
- Scripps Institution of Oceanography (SIO), La Jolla, CA – USA
- Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing - China
- Institute of Geographical Sciences and Natural Resources Resource, Chinese Academy of Sciences, Beijing - China
- University of Tokyo, Department of Civil Engineering - Japan
- University of Tsukuba, Graduate School of Life and Environmental Science – Japan
- World Meteorological Organization
- United Nations Environment Programme

KARAKORUM TRUST

- United Nations Environment Programme
- International Centre for Integrated Mountain Development - Nepal
- International Union for Conservation of Nature - Pakistan
- Ministry of Environment, Pakistan
- World Wildlife Fund - Pakistan
- Sustainable Development Policy Institute - Pakistan
- Karakorum International University - Pakistan
- Pakistan Meteorological Department - Pakistan
- Aga Khan Rural Support Programme - Pakistan

HKKH PARTNERSHIP PROJECT

- The World Conservation Union
- International Centre for Integrated Mountain Development – Nepal
- CESVI - Italy
- University of Cagliari - Department of Earth Sciences - Italy
- University of Milan "Bicocca" - Department of Environment and Earth Sciences - Italy
- University of Milan - Department of Earth Sciences "Ardito Desio" - Italy
- University of Napoli "Federico II" - Department of Arboriculture, Botany and Plant Pathology
- Italy
- University of Padova - Terrestrial and Agro-Forestry Systems Department - Italy
- University of Padova - Department of Environmental Medicine and Public Health, Hygiene Division - Italy
- University of Ferrara - Department of Respiratory Diseases - Italy
- Nepal Academy of Science & Technology – Nepal
- Sagarmatha National Park – Nepal
- Sagarmatha National Park Buffer Zone – Nepal
- Sagarmatha Pollution Control Committee - Nepal
- Tribhuvan University – Nepal
- Kathmandu University – Nepal
- Resources Himalaya Foundation – Nepal
- WWF Pakistan

INTEGRATED MANAGEMENT OF CENTRAL KARAKORUM NATIONAL PARK NATURAL RESOURCES

- CESVI - Italy
- Unity and Cooperation for Development of Peoples ONLUS – Italy
- Alpine Club of Pakistan
- Aga Khan Rural Support Programme – Pakistan
- Mountain Glacier Protection Organisation – Pakistan

GEMM - GULF ENVIRONMENTAL MONITORING AND MANAGEMENT

- CNR – Earth and Environment Department - Italy
- CNR - Water Research Institute - Italy
- CNR - Institute of Ecosystem Study - Italy
- CNR - Institute of Marine Sciences - Italy
- CNR - Institute of Atmospheric Pollution - Italy
- CNR - Institute of Intelligent System for Automation - Italy
- CNR - Institute of Inorganic Chemistry and of the Surfaces - Italy
- CNR - Methodological Chemistry Institute - Italy
- CNR - Institute for the Dynamics of Environmental Processes - Italy
- CNR - Institute for Coastal Marine Environment - Italy
- Kuwait Institute for Scientific Research – Kuwait
- Al-Arfaj Group of Companies – Kuwait
- Environment Public Authority - Kuwait

EV-K2-CNR SCIENTIFIC AND TECHNOLOGICAL PROJECT

- Nepal Academy of Science & Technology – Nepal
- Italian National Research Council - Italy
- University of Trieste - Department of Mathematics and Informatics – Italy
- University of Trieste - Department of Geological, Environmental and Marine Sciences – Italy
- TO.TE.M. S.r.l. – Italy
- Department of National Parks and Wildlife Conservation – Nepal
- Bahria University – Pakistan
- Karakurum International University – Pakistan

SEED - SOCIAL, ECONOMIC, ENVIRONMENTAL DEVELOPMENT IN THE CKNP REGION, NORTHERN AREAS, 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

EvK2CNR

Ev-K2-CNR Committee

Via San Bernardino, 145
24126 Bergamo - Italy

Tel. +39 035 3230511
Fax +39 035 3230551
Email: evk2cnr@evk2cnr.org
www.evk2cnr.org