

## **Ecosystem Services in NATURA 2000 areas of Crete: Information and communication campaign for the ecological, social and economic values of ecosystem services**

**Michalis Probonas, Konstantina Ploumi, Niki Kyriakopoulou, Stavros Xirouchakis, Georgia Piligotsi, Elisavet Georgopoulou, Kalliopi Baxevani**

University of Crete – Natural History Museum of Crete, Heraklion, Crete, Greece

### **Abstract**

This paper refers to the 'LIFE Natura2000 Value Crete project' (LIFE13 INF/GR/000188), an environmental awareness project that is being implemented under the framework of LIFE+ Information & Communication Programme 2013. The project aims to support the NATURA 2000 (N2K) sites in Crete and motivate lay public and stakeholders to seize the opportunities and address the challenges associated to the economics of ecosystems and biodiversity into the societal decision-making. To achieve this goal, a baseline survey was implemented so as to firstly assess the current level of knowledge, attitudes and practices of local stakeholders and targeted audiences. Results were used to develop a Communication Strategy addressed towards targeted audience consisting of representatives from the major sectors of the island's economy, namely farming, stockbreeding and tourism, as well as other key stakeholders. This study suggests that project's impacts on citizen's perception with regards to the benefits of the N2K Network should be monitored and evaluated not only once, but in several time intervals after the completion of the project, so as to gain representative feedback regarding the embracement of its messages by the citizens.

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### **Keywords**

Crete, Natura 2000 Network, ecosystem services, values of ecosystem services, stakeholders, communication strategy, economy, attitudes.

### **Introduction**

Crete has 53 N2K sites and only one Management Body of a Protected Area (National Park of Samaria). N2K sites cover approximately 30% of the islands' surface (NYKTAS 2016; PROBONAS et al. 2015). Crete faces numerous environmental problems including stressed natural resources, desertification, deforestation, loss of biodiversity, and industrial-scale development of renewable energy sources (KOUTROULIS et al. 2010; SBOKOS 2017). The aforementioned issues are enhanced by inadequate law enforcement and lack or low level of implementation of the EU regulations and environmental policy (SBOKOS 2017). Regrettably, the majority of the local population in Crete is not adequately informed since many people still believe that residing in a N2K area excludes them from the development opportunities of the rest of the island. The LIFE Natura2000 Value Crete project (LIFE13 INF/GR/000188), an environmental awareness project under the LIFE+ Information & Communication Programme 2013, is connected to major sectors of the island's economy, namely farming, stockbreeding and tourism. Experience so far has proven that working with the local societies aiming to their consensus in species and habitats protection and applying concrete and localized management actions is more successful than trying to put into effect the national or European legislation in a broader sense (KETTUNEN et al. 2011). Therefore, the project aims to support the N2K Network in Crete and motivate locals and stakeholders in general to seize the opportunities and address the challenges identified by integrating the economics of ecosystems and biodiversity into the societal decision-making.

### **Methods**

Crete is the biggest island in Greece and the second biggest in the Eastern Mediterranean. The population of the island is approximately 630,000, with a percentage of 7% living within the N2K Network (NYKTAS 2016). The Region of Crete participates in the Gross Domestic Product (GDP) of the country with a share of 5%, while it contributes 9.53% to the added value of the primary sector at national level (2012 data) (REGION OF CRETE 2015). The impressive 35.7% of the inhabitants of the N2K sites work in the Primary Sector, in contrast with only 10.8% inhabitants in the rest of Crete (NYKTAS 2016), clearly stating the importance especially of the Provisioning Services not only for the local economies of these areas, but also for the differentiation of the national GDP when considering the worldwide shift of economies towards tertiary sector, as a result of globalization and technological development. In line with the main objectives and the structure of the project (i.e. information on: ecological value of the SACs / SPAs, legal obligation for their conservation, perspectives for social and economic development), stakeholders were categorized as follows:

1. Inhabitants with property within the N2K sites;
2. Farmers practicing agricultural activities in semi-mountainous and mountainous areas;
3. Fishermen earning their living in marine SPAs;
4. Hunters who take action within SPAs; and
5. Professionals involved in the tourism sector.

The Communication Strategy was based on our findings from the literature review, the establishment of a clearing house mechanism (CHM) and a community awareness survey conducted in early stages of the current project (Fig. 1).

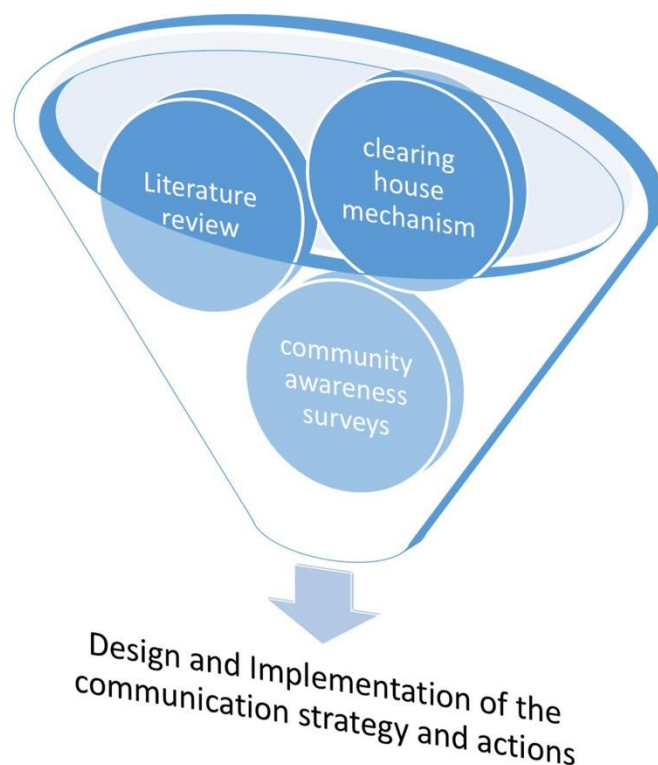


Figure 1: Preliminary actions that produced the Communication Strategy of the project.

#### Literature review, establishment of a clearing house mechanism (CHM) and community awareness surveys

Literature review for the establishment of a CHM and community awareness surveys have defined the framing of the communication campaign that followed. These preliminary actions were aimed to update our knowledge on the Greek legal framework and the current economic and social situation in the N2K sites of Crete, so as to establish a framework for linking ecology and economics in the N2K sites of Crete. The steps undertaken in the course of implementation of these actions involved:

1. review of the Greek legislation,
2. sorting data and information potentially useful for the assessment of ecosystem services, and
3. definition of a conceptual framework that links ecology with socio-economic factors.

Moreover, an integrated geographic database was established, focusing on relevant indicators based on existing socio-economic information. This database served the production of comparable data between the N2K sites and the rest of Crete. GIS was the platform that brought together the aforementioned information and became the core tool for the establishment of a CHM (NYKTAS 2016).

Since there were no official public surveys in Crete regarding the status of the current level of awareness of locals towards the N2K Network and the economics of ecosystems and biodiversity, a baseline survey was implemented (PROBONAS et al. 2015). The aim of this survey was to assess the current level of knowledge, attitudes and practices of the stakeholders and targeted audiences with respect to the project's objectives. The survey was conducted in the 24 Municipalities of Crete using random sampling and self-completion questionnaires. At the end, 3,587 questionnaires were collected and 3,570 were processed. Statistical analysis was conducted and the final results have contributed to the finalization of the Communication Strategy of the project.

### Implementation of the Communication Strategy and public awareness actions

The implementation of the communication campaign has commenced in 2015 and is foreseen to be completed by 2018. Main project's actions are the development of printed material (information booklets, posters, banners, two special issues of 'Oionos' magazine, T-shirts, hats, stickers, calendars) and audiovisual environmental communication material (documentary, TV spots and Radio spots). The implementation of the awareness-raising campaign also involved several direct communication activities (26 workshops, 10 open events, participation in local festivals, a travelling photo exhibition), as well as the development of an Information Centre (NATURA Hall) at the Exhibition Premises of the Natural History Museum of Crete. The promotion of the key messages of the environmental communication campaign was also facilitated through an environmental education campaign addressed to pupils of all levels of education and through media (press conferences, advertising campaign and broadcast of the documentary).

Capacity building of professionals involved in tourism, journalists and media employees, as well as the students of the University of Crete and the Technical University of Crete is currently under completion through Training Seminars that provide participants with specific skills so as they are able to support the conservation objectives of the NATURA 2000 Network. The project's impacts will be monitored to gain representative feedback regarding the effect of the communication campaign and the embracement of its messages.

## Results

### Preliminary actions

Data and literature review indicates that recent developments have led rural sector to overexploit natural resources in an unsustainable way or to change land uses ending to the deprivation of wildlife habitat and degradation of the agricultural environment even in N2K sites (e.g. excessive and illegal logging for firewood, misuse of water supplies, transformation of olive groves to photovoltaic installations etc.).

Moreover, one of the most significant deductions of conservation work has been the ignorance of the majority of specialized scientists and civil servants on the utility and financial potential of the N2K Network. Existing information on the socio-economic significance of the N2K Network is mainly related to benefits arising from direct and indirect employment supported by the N2K sites, in particular through tourism and recreation.

The results from the community awareness survey show that 51.8% of the respondents believe that the N2K Network protects the natural environment and 44.3% believe it also benefits the regional economic growth. However, 60.6% of the respondents mentioned that infrastructures and/or investments have been limited in their area since its integration in the Natura 2000 Network. In addition, the majority of the respondents (83.7%) believe that ecotourism activities make great profit for those involved in them, whilst half of the professionals in the tourism sector who participated in the baseline survey mentioned that they do not intend to be professionally involved or are already involved in ecotourism or other forms of ecological tourism. Finally, mixed responses were received with regards to whether they are sufficiently informed regarding the N2K Network and its legislation, limitations, responsibilities and benefits (Fig. 2).

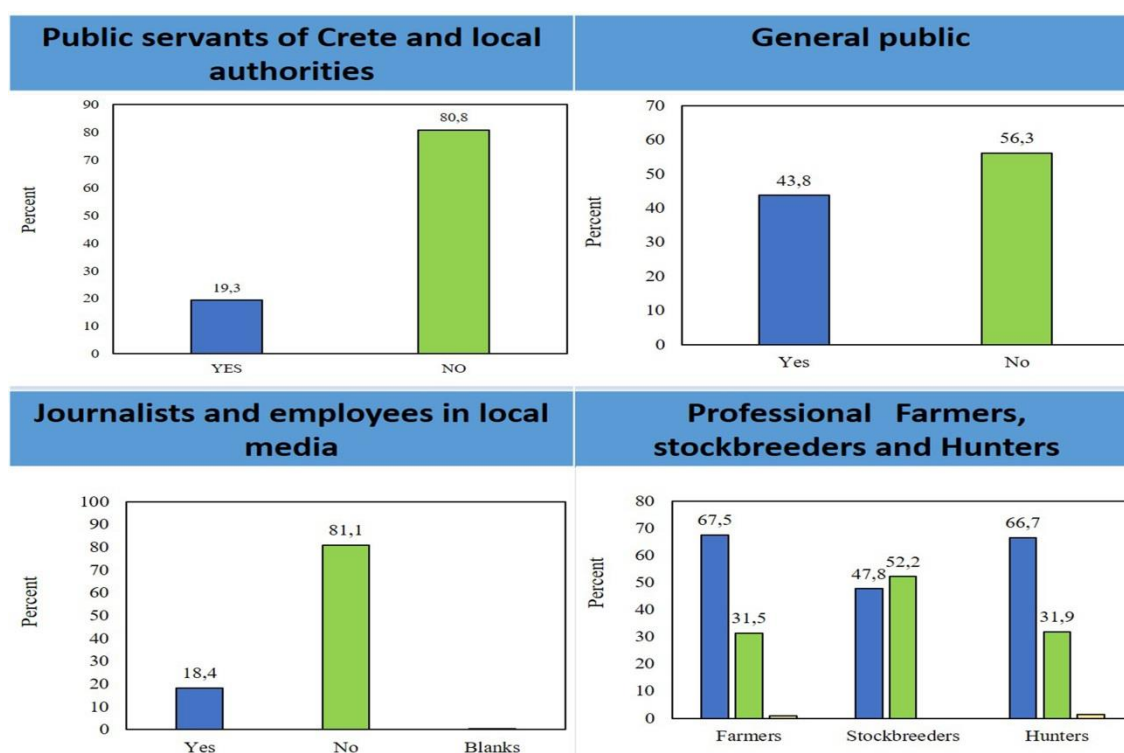


Figure 2: Responses to the question: 'Do you believe you are sufficiently informed about the NATURA 2000 Network in Crete (legislation, limitations, responsibilities, benefits)?'

## Communication campaign

Communication campaign was commenced in 2015. Up until today, all actions have been in full operation. Examples of the actions along with a brief description, aim and results are being displayed below (Tab. 1, Tab. 2).

| Action                           | Number of events | Attendants    |
|----------------------------------|------------------|---------------|
| Workshops & Open events          | 18               | 446           |
| Training Seminars                | 5                | 262           |
| Participation in local festivals | 12               | 6,700         |
| Travelling photo exhibition      | 10               | 12,000        |
| Information Centre               | 1 X 11 months    | 30,000        |
| <b>Total</b>                     |                  | <b>49,408</b> |

Table 1: Selected actions of the communication campaign of the project, number of events and attendants.

| Action                    | Brief description  | Action in numbers                                       |
|---------------------------|--|---|
| Documentary               | Thematic documentary on the N2K Network is being broadcasting in local and national media.   | 30 minutes duration<br>1,000 DVD copies                 |
| Radio spots               | Intend to inform the audience on the ecological, social and economic value of the rural, mountainous and coastal ecosystems of Crete.  | 3 Radio spots   |
| TV spots                  | Each spot informs stakeholders and targeted audiences on the ecological, social and economic value of the rural, mountainous and coastal ecosystems of Crete.  | 3 TV spots  |
| Calendar                  | They include information relevant to the benefits on everyday life from the N2K Network in Crete. Distributed to stakeholders and targeted audiences.  | 3,000 & 2,500 copies for 2016 and 2017, respectively    |
| Booklets                  | They include information related to the ecological, social and economic value of the rural, mountainous and coastal ecosystem services. Booklets are being distributed to the lay public and stakeholders. | 3 booklets<br>(56 pages each)<br>50,000 copies in total |
| Posters                   | Each poster is dedicated to one of the following types of ecosystems: Rural, mountainous and coastal. Booklets are being distributed to the lay public and stakeholders.                                   | 3 types of posters<br>15,000 copies in total            |
| Stickers, T-shirts & hats | Material produced in order to promote the project and its main messages and objectives. Distributed to stakeholders.   | 3,000 T-shirts<br>1,000 hats<br>1,000 stickers          |
| Magazine special issues   | Special edition dedicated to the LIFE Natura2000 Value Crete project. The magazine was distributed to subscribers, stakeholders, collaborators etc.  | 2,500 issues  |
| Press articles            | Published at local networks, released at least once a month and targeted in informing the public about the ecosystem services of the N2K Network in Crete.   | >20 press articles already released                     |
| Environmental Education   | Material addresses to primary and secondary school level and includes: Booklet, CD and teachers booklets with guidelines.  | 1,000 copies  |
| Information banners       | Topics covered: Ecosystem services definition, Natura 2000 Network, rural, coastal, mountainous ecosystems in Crete.   | 5 banners   |

Table 2: Other actions of the communication campaign of the project.

## Discussion

Regarding the preliminary actions, it can be referred that respondents appear not to be sure whether the N2K sites are an obstacle or an opportunity in terms of economic regional growth. Although 44.3% believe that the N2K Networks' benefits the regional economic growth, still 60.6% of the respondents mentioned that infrastructures and/or investments have been limited in their area since its integration in the NATURA 2000 Network. Additionally, they appear to be unaware of the legislation and limitations of N2K Sites. Minor shifts from the initial design on our communication campaign have been implemented in certain actions (i.e. Workshops and Open events). Concerning the Workshops, project management team has decided to decrease the number of presentations and expand the discussion section. Having done so, participants have the chance to pose specific questions directly to the presenters in a more informal and less Academic manner. Expected attendance at actions requiring in person participation such as workshops, were higher than the actual. This could be due to the fact that targeted audience and stakeholders are, in most of the cases, not used to attend events including lectures and other educational and academic-based information events. This was rather obvious in rural areas.

The evaluation of the project's impact on the citizens' perception with regards to the benefits of the N2K Network and the valorisation of its outputs will most probably turn up in the long term. However, the participation of the public to awareness-raising activities and the distribution of informational guides to stakeholders and target groups will provide a clue about its success. Moreover, we hold the ambition that the project has contributed in raising public acceptance of the NATURA 2000 protection framework and in decreasing the misperception on

decision-making and detrimental actions within SACs and/or SPAs due to ignorance of fallacies in the regulations arising from the 'Birds' and 'Habitats' Directives. In the long term, the success of this awareness-raising campaign with regards to the benefits of the NATURA 2000 Network and its value to the local economies should be assessed by the numbers of people influenced by the project not only during its implementation, but also after the end of the project's life-cycle since the media-kits developed (i.e. YouTube channel and TV documentaries) may be considered timeless.

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## Contact

Michalis Probonas  
[mprobonas@nhmc.uoc.gr](mailto:mprobonas@nhmc.uoc.gr)  
University of Crete - Natural History Museum of Crete (NHMC)  
Knossos Avenue Premises  
Office N208  
P.O. Box 2208  
71409, Heraklion, Crete  
Greece

