

# ENVIRONMENTAL EDUCATION C-IN-9 SOUTH CAUGASUS SCHOOLS

## SMB-PROGRAMME IN THE SOUTH CAUCASUS

The "Sustainable Management of Biodiversity, South Caucasus Programme" (SMB-Programme) is a regional technical cooperation programme implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Government.

The biological and agricultural variety of habitats is a vital basis for life and LiveLihoods, which GIZ aims to conserve and protect. The South Caucasus is one of only two regions located in Europe that is internationally acknowledged for its exceptional biodiversity. However, overuse of the forests, overgrazing of pasturelands and poaching jeopardise the richness of the biodiversity and undermine the basis of subsistence and income for the rural population in Armenia, Azerbaijan and Georgia.

This regional programme contributes to political, legal and institutional reforms for the conservation and sustainable use of biodiversity. It strengthens the capacities of the ministries of

# PROGRAMME IN THE SOUTH CAUCASUS





Environment, Agriculture, Territorial Administration, Education and Science and supports human resource development within and outside of the partner ministries. On a local level, it creates conditions and structures for the sustainable management of biodiversity and establishes value chains for biodiversity products to generate additional income for local communities. Local people who benefit from the sustainable use of biodiversity have an increased motivation to conserve the origin of their income an attractive alternative to nature conservation based on mandatory regulation.

In order to foster cooperation with its partners and to win the favour of target communities, the Programme initiates wide public awareness campaigns regarding the importance of biodiversity and the need for its sustainable use. Responsible partners from all three countries expressed their wish to target environmental education campaigns to (secondary) schools in particular.

Therefore the SMB-Programme has created a strong basis for curricular and extra-curricular Environmental Education with a strong focus on outdoor activities. Due to different institutional preconditions and partner interests, a variety of solutions were developed. This book provides an overview of Environmental Education campaigns and projects accomplished by the SMB-Programme and describes the necessary next steps to further establish Environmental Education in the South Caucasus.

# OUTDOOR LEARNING MAKES A DIFFERENCE

Theoretical teaching in classrooms alone is not sufficient to instil in students a profound environmental awareness and appreciation for biodiversity. A better understanding of how nature functions, how it is affected and how it affects us has to be achieved. To create connectedness and to value nature, children need to experience nature in a practical way with all of their senses. Environmental Education can substantially contribute to helping individuals and societies resolve fundamental issues related to the current and future use of the world's natural resources. However, simply raising awareness of these issues is insufficient to bring about change. Environmental Education must strongly promote the need for personal initiatives and social participation to achieve sustainability.

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Therefore, Environmental Education has to be hands-on, interactive Learning that sparks the imagination and unlocks creativity.





Environmental Education provided as outdoor classes is beneficial in many ways. Outdoor Learning helps to develop skills of inquiry and critical thinking. The process of reflection it initiates is necessary for our children and young people to meet the social, economic and environmental challenges of life in the 21<sup>st</sup> century. Environmental Education is active, hands-on and involves Learning from real-life situations in a way that energises and motivates children. Outdoor Learning also offers opportunities for personal development in areas such as communication, problem solving and teamwork. In addition, regular outdoor Learning has positive effects on students' attitudes towards Learning, as well as their emotional and physical health. It generally involves more physical activity, which again supports the efficiency of Learning.

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### ENVIRONMENTAL EDUCATION IN THE SOUTH CAUCASUS



Environmental Literacy among students in the South Caucasus differs greatly. Environmental issues are generally included in natural science, social science and geography lessons. In some cases, special lessons have been created like "Me and the Environment" in Armenian elementary schools and "Disaster risk reduction" in Georgian schools. Knowledge of environmental issues, causes and solutions differs not only among the three countries, but also among students

from private or public schools and universities. The institutional framework conditions for the development of Environmental Education differ in the three South Caucasus countries. In Azerbaijan, the Republican Center for Ecological Training and Experience operates 55 Environmental Education centres for children and youth all over the country. In Georgia, many schools have eco-clubs, some established by international programmes. Existing eco-clubs in Armenia are either organised by schools or by NGOs. Some of the Armenian schools even initiated Green/Eco-School concepts. Most initiatives related to Environmental Education in the South Caucasus have been Launched by NGOs or international organisations. The governments of all three countries recently Laid the groundwork for curriculum reforms with stronger consideration of Environmental Education.

The complete set of materials produced for, and as a result of, the projects is available on the USB flash card attached to this book for future use and dissemination. These materials can only be used for non-commercial, educational purposes.



## THE SMB-PROGRAMME SCHOOL PROJECTS ON ENVIRONMENTAL EDUCATION

As situation reports from teachers show, major concerted approaches to Environmental Education are still lacking in all three countries. Teachers especially expressed a need for training in practical teaching methods and guidance in outdoor classes. Therefore the SMB-Programme developed new Environmental Education teaching units in all three countries and trained teachers accordingly. The teaching units were well accepted by teachers and students alike. This is the first time that such a practical approach has been introduced in the South Caucasus, where school systems are still mainly based on theoretical indoor information transfer. With this approach, the SMB-Programme created a model for practical Environmental Education in secondary schools (9- to 15-year-old students) to raise awareness about the importance and value of the biodiversity of particular ecosystems. The approach actively involves pupils in the analysis of their environment, thereby encouraging the pupils to develop strong feelings of responsibility for and ownership towards their surroundings. A child who is amazed and has the opportunity to combine both his/her own practical experience and the theoretical knowledge received in the classroom has more chances to build stronger links with nature and develop a deep understanding of its significance.

Teaching Units for different environmental topics were developed and implemented in yearly campaigns over six years.

· Exploring Biodiversity in Forests · Exploring Biodiversity in Meadows and · Waste Management · Endangered Species (planned) · International Biodiversity Day · Hour of Garden Birds • Medical Plants in Azerbaijan · Red List Species in Georgia

TEACHING UNITS \_ · Exploring Biodiversity in Rivers and ð..... A second second second second · Environmental Education Concept Shirvan National Park

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Those campaigns were composed of the following elements:

litle of the campaign

Each campaign was selected based on specific national environmental needs or shortcomings. The campaigns focus on raising awareness of the need to Look at nature and biodiversity from a different perspective.

> Elaboration of a teaching unit For each campaign, a teacher's manual was developed. These manuals include, for example:

an introduction to specific ecosystem ecology with practical instructions;

explanations on how to observe biodiversity;

practical ideas on how to conduct excursions with children;

a detailed description of the relevant living environment:

evaluation sheets:

descriptions of outdoor games and pedagogic activities for class excursions.

Participating teachers and eco-club trainers received a set of simple equipment including Laminated identification keys, cups, brushes, strings, etc. for use during the assessments and for future class excursions.

Teachers (e.g. biology and geography teachers) from secondary schools were trained by experienced international experts. Many of them functioned as multipliers and conducted additional trainings for other interested teachers.

Training of trainers and teachers

# Implementation in secondary schools

Trained teachers voluntarily implemented the campaigns with their classes over the spring and summer. In combining both practical fieldwork with academic knowledge received in the classroom, students were able to develop a strong and sustainable appreciation for nature. Furthermore, this initiative increased the efficiency of biology lessons and created a better understanding of the importance of biodiversity for our well-being.

Annual competition and final promotional event

In Armenia, in order to receive feedback on campaign's outreach and the quality of its implementation, as well as to motivate students and teachers, annual competitions were launched by GIZ and its partners. Final annual events publicly promoted the campaigns, their environmental message and their results. Winning classes were honoured and prizes (simple equipment for school Laboratories) were awarded.



# EXPLORING BIODIVERSITY RIVERS AND STREAMLETS ACHERC Rivers are living ecosystems. Like blood vessels they drain the whole country. Their ecological state reflects the healthiness of Armenia's environment! HARMENIA

## EXPLORING BIODIVERSITY IN RIVERS AND STREAMLETS

Within the 2010 Environmental Campaign "Exploring Biodiversity in Rivers and StreamLets in Armenia", the first module for the assessment of river ecosystems, vincluding biological analysis of water quality, was established. The aim was to reach and inspire children and young members of eco-clubs to get enrolled in an adventurous action the exploration of the riverine biosphere and the evaluation of water quality. 120 teachers and eco-club trainers from all parts of Armenia were trained on the methods of water examination and modern environmental pedagogy.

A reported 1,200 children were involved in the exploration of the riverine biosphere and the scientific water assessment. In the framework of the project, classes supervised by their teachers were invited to explore the biodiversity of rivers and streamlets in their communities. They carried out comprehensive water



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assessments using different species of invertebrates (e.g. insect Larvae, snails and worms) as bioindicators in order to determine the quality of the examined water.

An identification key for macroinvertebrates that can be found in Armenian rivers was prepared to ease the water quality classification process for teachers and pupils during outdoor activities. The identification key contains a number of invertebrate species representing each class of water quality, as well as brief explanations.

Species grouped in different columns indicate the quality of water

Testing the smell of water

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Every teacher received a map indicating all rivers and streamLets in the surrounding areas of their schools where they could perform water analysis during school-excursions. Teachers also Learnt to apply a five-step model of different water quality classes that was designed for the classification of water quality in the EU countries. This directive was also adopted in the training seminar in a slightly simplified way.



Assessment reports reflecting the ecological condition of rivers were submitted from more than 200 sites, giving a general idea of the quality of Armenian river ecosystems. Participants of the competition submitted their comprehensive water analysis results together with artwork. From the findings submitted by the participating groups, a map was made showing the water quality of the analysed rivers and streamlets. The map was then distributed to all schools in Armenia.



The teachers' trainings also led Bo many summer activities that youth Willingly participated in. The "Green



Bus", a project of the Foundation for the Preservation of Wildlife and Cultural Assets (FPWC) and supported by the SMB-Programme, toured remote regions of Armenia to disseminate information on environmental topics. The "Exploring Biodiversity of Rivers and Streamlets" campaign was also conducted in the villages that the bus visited.



ASSESSING WATER QUALITY IN RIVERS AND STREAMLETS OF ARMENIA A MODEL FOR ENVIRONMENTAL EDUCATION IN RA SCHOOLS



"This is a model of a New form of education - a bright example of integrated teaching. It gave students an opportunity to carry out small scientic analysis through independent research and make conclusions based on their own experiences. This is a harmonic example of ecological education and upbringing, which leads towards the formation of ecological culture."

Polores Ghaþantsyan, Biology teacher of Yerevan's "Yerevak" Educational Complex



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o Manual for the Training of Teachers on the Biodiversity of Rivers and Streamlets in Armenia Identification Key for the macroinvertebrates of Armenian rivers o "Exploring Biodiversity in Rivers and Stream-Lets in Armenia" an Example for Environmental Education in Armenia. Programme Results o Poster: "Biodiversity as Indicator for Water Quality" o Poster: "Map on Assessing Water Quality in Rivers and StreamLets of Armenia" o GIZ film documentary on Environmental Ed-Ucation Campaign on Rivers' Ecology o Video clip: "Monitoring water quality"

# EXPLORING FOREST ECOSYSTEMS

Forests are an integral part of global sustainable development. 2011 was declared the International Year of Forests by the United Nations in order to raise awareness and strengthen the sustainable management, conservation and sustainable development of all types of forests for the benefit of current and future generations. In conjunction with this, 131 teachers and eco-club trainers in Armenia were trained in forest pedagogy for



131 TEACHERS

# FOREST ECOSYSTEMS

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practical environmental education. Forest pedagogy tries to communicate a comprehensive understanding of this ecosystem. By experiencing research-based and joyful activities, students learn about natural cycles. The students used all senses to become acquainted with the forest.





Children tic 5 strings between 2 trees at different leve Each string represents a layer of "forest regetation."

In this teaching unit, students got involved in the practical exploration of biodiversity. They organised excursions to the woody areas and forests of their communities to search and identify soil creatures, get to know the types and ages of trees, play joyful games and get involved in other research-based activities.

Students explored the forest biocenosis and ecosystem functions through adventur-

ous activities. They Learned about fauna and flora of forests, their ecology and the environmental services forests provide to our society. They analysed invertebrates living in the forest soil layer and learned how to discover and interpret animal traces. The students conducted experiments on how to measure the height of trees and examined plant transpiration.



In 2011 more than 2,000 students throughout Armenia were involved in the Forest Campaign. 35 school classes and eco-clubs submitted a huge variety of self-made artwork, posters, essays, collages, photography, stories, PowerPoint presentations and films. A jury consisting of biologists and forest and environmental education specialists selected the best work for an exhibition and named five teams as the winners of the competition.

The forest campaign was continued by school classes in numerous related environmental events and initiatives, such as special theatrical performances, films about forest ecosystems and visits to state reserves and dendroparks in Armenia.





"I wish that initiatives like this one were organized frequently, since they make our children's everyday life more interesting." Narine Zaqaryan, parent of a pupil from sec. school No 29, Guyumri town,





o Manual for the Training of Teachers on Biodiversity of o Poster: Exploring Ecosystem Services of Forests. Environmental Education in Armenian Schools 07 VEUSB-33

# PASTURES AND MEADOWS

Pastures and meadows are a characteristic feature of Armenia's Landscape and therefore were chosen as the topic for the third model teaching unit in 2012. Different species of domestic stock play an important role for the rural population. Meadows and pastures provide fodder for a number of domestic animals like sheep and cattle. As such, meadows and pastures are an important issue both for sustainable livelihoods and the conservation of biodiversity in these areas.

Meadows and pastures make an ideal framework both to communicate ecologi-



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### MEADOWS AND PASTURES

cal isues and to offer respective activities in nature. These habitats cover major biological and ecological topics and are an ideal place for outdoor activities like games, contests, playful projects and even artistic exercises.

During theoretical Lessons, students were given background information about biodiversity, ecology, species determination and bioindicators. Social aspects were discussed, such as the benefits of nature for recreation and the effects of land use.



During their outdoor classes, students experienced their "classroom" with all of their senses and applied the lessons learned in their surveys. In the first phase of trainings, organised by GIZ SMB-Programme, international experts trained 61 teachers how to explore the biodiversity of pastures and meadows in Armenia. In autumn 2012. National Institute of Education of Republic of Armenia, in cooperation with the SMB-Programme, multiplied the trainings for 299 new teachers through its branches in all provinces of Armenia.

The topic of the competition within the Meadows and Pastures

Campaign was entitled "From Meadows to Kitchen – Grandma's Secrets". Students were asked to interview the senior members of their families and record recipes of traditional dishes made from wild edible plants that generations of their ancestors gathered from meadows.

Students from 70 secondary schools all over Armenia handed in their collec-

tion of family treasures. The result was so impressive that the huge variety of recipes was compiled in the book "From Meadows to Kitchen - Grandma's Secrets". This compilation reflects Armenia's valuable biodiversity and rich cultural culinary roots. The recipe collection is completed by an introduction to the most collected plants, as well as information on how to collect them sustainably. The recipe part contains 265 ways to make a delicious, traditional Armenian meal. Each partici-





pating class or eco-club of the competition got one recipe book as a small prize during the annual closing event. The income generated from the sales of the book will be reinvested by two NGOs (Armenian Cooking Traditions Development and Protection NGO and Armenia Tree Project) into Environmental Education and Armenian traditional recipe collection.



Tabouleh (salad) Ingredients:

120 gr bulgur (cracked wheat), 60 gr tomatoes, 60 gr cucumber, 25 gr oil, bell pepper, garlic, dodder, lettuce, coriander, salt, green onion, pepper.

Soak the bulgur in hot water (let sit for 2-3 hours), drain. Chop the vegetables and mince the greens/herbs listed above and mix all together. Season with salt, pepper, oil and garlic.



o Manual for the Training of Teachers on Biodiversity of Meadows and Pastures

o Identification Keys on Arachnida, Insects, Birds and Plant Families

o Recipe book "From Meadows to Kitchen - Grandma's Secrets!"

Calendar "From Meadows to 0 Kitchen - Grandma's Secrets!"

o Film on the Biodiversity of Meadows and Pastures

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### BIOLOGICAL DIVERSITY IN RURAL AND URBAN AREAS

To complete the series of campaigns on the most important ecosystems, the fourth teaching module concentrated on "Biological Diversity in Rural and Urban Areas". This 2013 module offers teachers the opportunity to start practical environmental education just outside the school building. In this unit students become acquainted with wild species diversity in the cultural landscape and the importance of agrobiodiversity.

Urbanisation and rural depopulation are global trends. Cities are growing constantly, while life in the countryside is becoming harder and harder, often Leaving few opportunities for traditional or ecologically sound ways of agriculture.

Along with these trends, a growing Loss of knowledge in wild species cognition and diversity can be observed amongst pupils. The appreciation for and valuation of nature is being Lost, as well as knowledge and consciousness of the importance of biodiversity, diversity in wild crops and related cultivated forms.

The man-made environment of cultural landscapes offers numerous ways to experience nature. Despite a growing awareness of the conservation of rich agrobiodiversity and care for rare-stock breeding and crop cultivars, the importance of conserving agrobiodiversity is not yet sufficiently present in the minds of the majority of the population.





Apart from many negative effects of man's presence on the natural environment, many plant and animal species show fascinating adaptations to the presence of man. Quite a number of species find secondary habitats in man-made structures or even benefit from man-made changes. The issue of agrobiodiversity is equally fascinating and can be experienced in the countryside, as well as in the city to a certain extent.

Therefore, the direct vicinity of the school in the village or in the city provides ideal conditions for communicating the topic of biological diversity in urban and rural environments. Surrounded by these natural conditions for trainings, 59 teachers from all marzes of Armenia, who had been trained in the rich agrobiodiversity of Armenian urban and rural areas, organised

trainings for schoolchildren in their schools and communities. Like in previously conducted campaigns, the students were motivated to explore the agrobiodiversity in their community and prepare materials for the annual competition.

The competition entitled "Discover Agrobiodiversity in Your Village!" encouraged participating students to explore and find as many different forms of plants and animals used in agriculture and animal breeding as possible and note them down in specific lists. After that, they had to choose one species specific to their area of investigation that they found interesting. In order to get more information about that species, students had to ask family members, gardeners and other professionals, as well as refer to botanical books. Classes from 29 schools created and submitted research posters detailing the information they had learned.



o Manual for Teachers on Biological Diversity in Rural and Urban Environments

o Identification Keys for Fascinating Insects, Arable Weeds and Ruderals





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Waste covers a wide range of environmental issues. Children Learned that waste contains valuable resources that are recyclable, that the environment and man's health face threats due to waste and that they should avoid or reduce waste at home as well as on the large-scale level.

# WASTE MANAGEMENT



The countries of the South Caucasus face serious problems concerning waste in every respect, starting with a lack of consciousness about these problems. Hence, the unit in 2014 was about how to communicate resource, pollution and ecological issues and how to offer respective activities at school. It taught about all different threats caused by waste and the possibilities of avoiding, reducing and recycling waste.



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Children, as the makers of a nation's future, are one of the most important target groups for propagating awareness about the waste problem. Primary and secondary schools, as well as eco-clubs, are the right places to delve into this topic.

Waste is "available" and visible everywhere, produced daily and by everybody. Therefore every individual confronted with the waste issue. Moreover, in many cases it is very easy to improve the per-

sonal waste production by just changing some habits, which can be taught in a playful way.

The understanding of the complex web of waste management can easily be supported at school through activities like games, contests, playful projects and especially creative and artisan approaches. Therefore the waste issue forms an ideal framework for environmental education in Armenian primary and secondary schools.

In order to set up a model for environmental education in Armenian schools, teachers of secondary schools and trainers of eco-clubs were trained in practical ecology and environmental pedagogics. Eight three-day trainings for a total of 121

teachers were organised in the Environmental Center of Armenia Tree Project (ATP) in Margahovit village.

For the competition, students had to submit project proposals for innovative ideas on Waste Management. Selected winners will be provided funds by GIZ for the implementation of their projects in 2015.

### Competition Projects: BeLow are short descriptions of winning projects of the competition:

"Since the plastic bottles are separated from garbage and often stay in the trash bins, we decided to prepare a greenhouse from them. This idea is in the trash bins, we decided to prepare a greenhouse from them. This idea is inter yeasy and cheap to bring to life. The temperature inside the greenhouse will be 10 degrees higher than outside. It will be frost-resistant and will withstand strong winds. We have a nice yard and plot in the Educational Ceniter of Margahovit, where the greenhouse will be used for practical works and as a showcase for arriving teachers and students."

Eco-club at Margahovit EE Center

"In our village, like in other villages of Armenia, we have a problem of agricultural waste: the remains of cattle, kitchen and garden waste eventually turn into a big pile, pollute the air when burning, creating numerous harmful consequences. Each year farmers are spending a lot of money on the purchase of fertilisers. As a result, they get relatively not very pure of vermicompost first in one household, then in all households of the community with the help of leaflets and practical advice.

The project will help farmers receive organic fertiliser from agricultural waste, fertilise their land and receive ecologically well reduce their costs."

Eco-club of Tegheniq secondary school

Project Proposal: Vermicompost (biohumus) production project in Tegheniq community Marz Kotayq, v. Tegheniq secondary school

Endangered Species will be the topic in 2015, with the aim of raising knowledge and familiarising teachers and students with the issue of endangered species and species protection.



The main purpose of the campaign is for school children in Azerbaijan to Learn more about the biodiversity of their country. They learn how to assess and document biodiversity in a simplified way. If done successfully, data are shared on an international platform comprising more than 50 countries.

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### INTERNATIONAL BIODIVERSITY DAY

The United Nations proclaimed May 22 as International Day for Biological Diversity in order to increase understanding and awareness of biodiversity issues. It is celebrated in many countries by school children through educational games, competitions, species-identification exercises and many other activities. International Biodiversity Day is organised within the framework of the UN Convention on Biological Diversity (CBD). The CBD entered into force on 29 December 1993 and was ratified by the Republic of Azerbaijan on 14 March 2000.







In times of increasing urbanisation, knowledge about nature is becoming rare. The project starts with the Biodiversity Day campaign in schools, following the idea that "You only cherish what you know, only what you cherish you protect".

The children become acquainted with the biodiversity of their environment. They Learn how to observe and record their observations systematically. Moreover, they are introduced to the principles of monitoring. By comparing their results with those from

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Every teacher who is interested can participate in the campaign. There are no extra costs for the students or the school, as International Biodiversity Day can be conducted within walking distance from the school.

Prior to International Biodiversity Day, teachers attended a training seminar on the theoretical background and field methods for assessing biodiversity. This has now been replaced by video manuals, which are available online through the educational portal of the Ministry of Education of Azerbaijan Republic (www.biodiversity.edu.az.).

previous years, they Learn to discuss reasons for change. Data will differ for each region and can change from year to year indicating changes in the Local environment or even climate change. If repeated annually, the assessment will become a simple but practical local biodiversity monitoring system.

The basic idea is that the young generation has to Learn how to see the Little valuable treasures around them if the rich biodiversity of the Caucasus is to be protected.



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During a special Lesson, teachers explain the concept of biodiversity and species richness in Azerbaijan to their pupils. Finally, on (or near) 22 May, teachers and students go out into the field to explore the nature themselves.

During a two-hour excursion, students assess animal and plant species in an area close to their school (e.g. a park or green area). The activity also includes environmental games explaining the web of life. The teachers help the students identify and document the plant species they find.

A hundred common animal and plant species were selected and depicted in the student's manual. This helps the children find and identify species in their environment.

A biodiversity teacher's handbook was made available for all schools in Azerbaijan. Additionally, a website has been prepared where working material can be downLoaded. Data, such as the results of biodiversity observations, can be directly uploaded to: www.biodiversity.edu.az.

After completing past excursions, teachers submitted a list of all of the species their classes discovered, complete with drawings or photos, to the regional Centers of Ecological Training and Experience, which forwarded them to their headquarters in Baku. A final report was then compiled with the support of GIZ SMB-Programme.

Campaign reports from the first four years show a slight decline in species, although the underlying causes are still unclear. A comparison of the four years shows how regular data collection under standardised procedures can help detect longterm changes. This is the basic principle of monitoring. The longer data are collected in a systematic way, the better our understanding of environmental changes becomes.

In 2012, experiences were shared and evaluated at a teachers conference. The teachers clearly expressed a high interest in more teaching material for hands-on outdoor classes. The conference also showed that the material given so far has been independently spread among



teachers already. The teachers agreed in a consensus to continue to further expand the campaign.

International Biodiversity Day in Azerbaijan started in 2010 with 12 environmental education centres, more than 100 schools and approximately 1,500 students from different regions and cities. The number of participating schools and students has climbed annually. In 2013, 300 schools with approximately 4,200 students participated.

"This event helps the students know the environment where they live. It makes me happy to see how responsibly they set to work. This shows it is

Mehreliyeva Senuber, teacher at school No. 254 in Baku





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	0	Fanfold: Common Birds
	0	Biodiversity Day - 22 May Final
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- Report 2010
- Report 2011
- Report 2012
- Report 2013





## HOUR OF GARDEN BIRDS

The Hour of Garden Birds started in 1979 in Great Britain, where it is known as the Big Garden Birdwatch and run by the Royal Society for the Protection of Birds. More than half a million people participate every year.

The monitoring methodology - having as many people participate at the same time as possible - became well-accepted in biodiversity monitoring. More countries followed the example, including Germany since 2005. Certainly there are some reporting errors like wrong identification, but it is believed to be balanced over time. After all, getting an exact number of birds is not the aim. The purpose is to see rates and tendencies in populations. This becomes visible when data are collected and compared over years.

Any changes alert experts to the winners and losers in the Garden Bird world. Long-term trends stand out even when year-to-year differences in the weather are taken into account. Bird populations are a good indication of the health of an ecosystem and can highlight problems affecting the wider environment.



The Hour of Garden Birds is a bird-watching campaign designed to be carried out in secondary schools in Georgia. Most garden birds are commonly known, but their existence and frequency is often Less documented than that of rare species. Besides the increase in knowledge about Georgia's common garden birds, the campaign aims to encourage the participants to Learn more about the Local fauna and bring them closer to nature. The recorded information provides insights into the distribution patterns and abundance of a given bird species.

The campaign has been implemented in Georgia since 2009. In the beginning, teachers of the participating public or private schools were provided with a half-day training workshop about how to get involved in the campaign and

how to conduct it. They were also given teaching materials for in-class distribution to prepare pupils for birdwatching. In 2014, a special website was launched (http://biomonitoring.moe.gov.ge/ frinvelebi) where teachers can learn about the campaign, register for participation and download teaching materials. Thus active teachers from any interested school can participate in the campaign without special training. Well in advance of the bird count day, which coincides with International Biodiversity Day on 22 May, teachers explain the main features of garden birds to their pupils and prepare them for the campaign using specially designed teaching materials. On 22 May, teachers and students explore the vicinity of the school (e.g. the school yard or a green square) to observe and note down the birds they see. During bird observation, pupils use laminated identification sheets to help them identify the birds.

The birdwatching lasts for one hour. Afterwards, a teacher summarizes the numbers of each observed bird and submits them electronically, using the dedicated website.

Submitted results are processed, published and returned to the schools.

In the Long-term, the campaign is envisaged to be open not only to schools, but also to

"I felt greatly delighted while watching and listening to birds. I thought to myself, how wonderful the world is with its nature and birds, and how pale it would be without them."

Natia Msuknishvili, student, Tsinandali Public School





### anyone who is interested.

In its first year (2009) around 3,000 students from more than 180 secondary schools participated and counted more than 138,000 garden birds.

The most frequently counted birds were the house sparrow (22,271), the house martin (19,132) and the blackbird (11,767).

Up until 2014, at least 7,000 students had the opportunity to be part of the campaign. Feedback from participants showed that the Hour of Garden, Birds fueled motivation to Learn about the surrounding environment, to get into nature and discover more.

o Teacher's Manual o Bird-Lover's Manual o Classroom posters with 25 birds o Identification Sheet o Counting Sheet o CD: Hour of Garden Birds in Georgia o PowerPoint Presentation: How to get involved o PowerPoint Presentation: How to identify o PowerPoint Presentation: Results o PowerPoint Presentation: What determines bird distribution and abundance o Results brochure for 2009 o Results brochure for 2010 o Results brochure for 2011 o Results brochure for 2012 o Results brochure for 2013 o Results brochure for 2014

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The Caucasus is rich in plants with medical purpose. While the back-to-nature trend in Central Europe and the growing demand for natural resources draws the attention of the pharmaceutical and cosmetic industry to the Caucasus, the tendency in Azerbaijan is the opposite. Not everyone is on the economic rise, and plant-based medicine is an affordable and often healthier alternative not only for the poor. Due to overgrazing and pollution through waste or harvest methods, this resource is critically endangered. To draw the attention to the value of this resource, the SMB-Programme organized a campaign on medical plants in Azerbaijan in close cooperation with the Institute of Botany of Azerbaijan National Academy of Science.

The campaign was based on seminars conducted in six regions for students from different institutes, clinic personnel, rural women, teachers and school children.

A booklet and a poster with 30 common, widespread medical plant species in Azerbaijan were prepared. In addition to drawings, the booklet contains botanical plant descriptions, information on the correct collecting time for medical purposes, and guidance for sustainable harvesting and the preparation of syrups.

The seminars involved the participation of 322 people, the majority being school children and teachers. In addition, 200 booklets were distributed at Baku schools.

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## MEDICAL PLANTS IN AZERBAIJAN





# RED LIST SPECIES IN GEORGIA

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tific institutions. Introduced in 1994, the scientifically rigorous approach for determining risks of extinction, which is applicable to all species, has become a world standard. The IUCN Global Species Programme works with the IUCN Survival Commission (SSC) and members of IUCN to produce the IUCN Red List of Threatened Species™. The IUCN Red List of Threatened Species™ draws on and mobilises a network of scientists and partner organisations working in almost every country in the world, who collectively hold what is likely the most complete scientific knowledge base on the biology and conservation status of species.

## RED LIST SPECIES IN GEORGIA

### IUCN RED LIST OF THREATENED SPECIES TM

The IUCN Red List of Threatened Species<sup>™</sup> is widely recognised as the most comprehensive, objective global approach for evaluating the conservation status of plant and animal species. From its small beginning, The IUCN Red List has grown in size and complexity and now plays an increasing-Ly prominent role in guiding the conservation activities of governments, NGOs and scien-

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The Caucasus is one of the most biologically rich regions on Earth. Home to an unusually high number of endemic plant and animal species, it ranks as one of only 35 biodiversity "hotspots" in the world. Formed by the isthmus between the Black and Caspian Seas, the Caucasus ecoregion is a biological crossroads, where plant and animal species from Europe, Central Asia, the Middle East and North Africa mingle with endemic species found nowhere else on Earth. The Red List of Georgia includes 135 animals and 56 plants.

With this campaign, the SMB-Programme aims to increase the environmental awareness of young people about biodiversity and the threats it is facing. One of the objectives is to show the close linkage between the quality of nature and the well-being of people. The students should be inspired to learn more about the local flora and fauna. The campaign aims to provide the students with opportunities to act for a better environment.

The campaign was started in 2010 in cooperation with Thilisi Zoo and Botanical Garden and provided a teachers' training about the meaning of the Red List, as well as about the species on the list and their threats.

A workbook was handed out with information prepared for students' understanding. Ten animal and plant species from Georgia's Red List were selected and introduced in separate chapters. All chapters were followed by a quiz.

In April or May, teachers introduced the topic to their classes. Students were asked to interview their family members during the summer break about their experiences with species disappearing or declining. After the summer holidays, they presented the summaries of their research at school. The students had to choose one species to create artwork about and then decide which art to hand in together with

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### their research stories.

A compilation of the artwork was put together. The book was enriched by the thoughts the students had provided and some of the stories they had collected. In addition, some facts were included for better understanding. These books were given to every participant.

Moreover, a calendar was prepared from a selection of the artwork.

- o PowerPoint Presentation: Background
- o PowerPoint Presentation: Plants
- o PowerPoint Presentation: Animals
- o PowerPoint Presentation: For children
- o Workbook
- o Book



## ENVIRONMENTAL EDUCATION CONCEPT SHIRVAN NATIONAL PARK

#AZERBAIJAN

# ENVIRONMENTAL EDUCATION CONCEPT SHIRVAN NATIONAL PARK

• Recommendations for elements of an experimental educational programme in the park, including interactive stations and activity packages.

• A website that provides background details and downloadable material for educators. The website (http://shirvan-national-park.az, under construction) provides detailed species lists for specialists, observation tips for naturalists, and tips for an environmental friendly visit and educative, fun activities for general visitors.

Botanical gardens, museums, national parks, nature reserves and zoos can complement concepts learned in school by encouraging connections to real-world examples. They can enrich formal education with their programmes. Particularly in national parks, formal and informal Environmental Education often goes hand in hand.

As Shirvan National Park is one of the partners of the SMB-Programme Azerbaijan, an Environmental Education concept for the park was developed. The concept consists of three elements:





• A handbook on Environmental Education, which provides educators with concepts for outdoor classes and helps them conduct purposeful excursions. The handbook provides background information, sample excursions and a game collection focused on Shirvan's wildlife. The handbook was distributed to schools in communities surrounding the national park.

Shirvan already has an information system for visitors in the form of interpretation boards. These were developed in an earlier stage of the SMB-Programme in cooperation with Ecosfera.

o Environmental Education Handbook Shirvan National Park

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### FROM INDIVIDUAL CAMPAIGNS TO NATIONAL STRATEGIES

In order to promote the value and importance of biodiversity, the SMB-Programme South Caucasus started pilot campaigns in 2010. The objective of these campaigns, in addition to raising awareness, was to evaluate the SMB-Programme's cooperation with the educational system of three countries as a whole and the interest of teachers and students in particular. After the results and positive feedback from all involved partners, the SMB-Programme and its partners in all three countries agreed to continue and institutionalize cooperation on Environmental Education.

In Armenia cooperation resulted in a formal Agreement of Cooperation including a 4-year Action Plan on "Strengthening Environmental Education in the Educational System of the Republic of Armenia" between the Ministry of Education and Science, the Ministry of Territorial Administration and GIZ. According to the Action Plan, cooperation should focus on the assessment of existing environmental pedagogical activities, measures to strengthen Environmental Education in Armenian secondary schools and ways to improve cooperation between Armenian schools and educational institutions.

Armenia, Azerbaijan and Georgia have joined the implementation scheme of the United Nations Decade of Education for Sustainable Development. According to the "Education Development state programme for 2011-2015", the UN strategy on Education for Sustainable Development is one of the milestones of Armenia's education development policy.

In Georgia, the SMB-Programme supported the development of the National Strategy and Action Plan 2012-2014 on Environmental Education for Sustainable Development. The strategy was further incorporated into the Thematic Direction "Communication, Education, Public Awareness and Public Participation" under the second National Biodiversity Strategy and Action Plan (NBSAP) adopted by the Georgian Parliament in May 2014. The Programme is supporting the drafting of cross-curricular standards for Education for Sustainable Development (ESD) 76 for grades one through twelve. The ESD standards refer to all school subjects as a basis for any future curricula. Through this approach, ESD will be mainstreamed into subjects as different as biology, mathematics or languages. Institutionally, the Environmental Information and Education Centre is in charge of promoting ESD on behalf of the Ministry of Environment and Natural Resources Protection and in close cooperation with the Ministry of Education and Science of Georgia.

Given the diverse Legislative environment involving multiple actors, close cooperation is required between state structures and non-governmental organisations, scientific educational institutions and international organisations in order to ensure effective developments in the field.

For this reason, the Environmental Education Network (EEN) was founded in Armenia in November 2014 with an overall goal of contributing to the efforts of the Government of the Republic of Armenia in promoting and ensuring Environmental Education at all school Levels and communities. A group of Environmental Education organisations and experts have formed an open platform for knowledge and best practices exchange and for capacity building among members of the Environmental Education Network (EEN). EEN is open for all interested and active entities and individuals working in the field of Environmental Education in Armenia. EEN is supported by the United Nations Children's Fund (UNICEF), *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) Armenia and the Organization for Security and Co-operation in Europe (OSCE Oiy). It has the Ministry of Education and Science and Ministry of Nature Protection as focal points.

In Georgia a technical working group had been established to elaborate the chapter on "Communication, Education, Public Awareness and Public Participation" under the second National Biodiversity Strategy and Action Plan (NBSAP). The Group is planning the implementation which is being monitored by an inter-ministerial steering/monitoring committee comprising the Ministry of Environment and Natural Resource Protection, the Ministry of Education and Science, as well as four other ministries. The need for the implementation of Environmental Education in Armenia, Azerbaijan and Georgia is one of the priority areas, and connects to the commitments of three countries in a number of international conventions on education and environment.

## ENVIRONMENTAL EDUCATION IN THE SOUTH CAUCASUS: WHAT IS MISSING? WHAT NEEDS TO BE DONE?

A range of Environmental Education projects have been implemented in Armenia, Azerbaijan and Georgia, some of which are presented in this book. However, there is still a ways to go before the objective of providing Environmental Education to every child and wider public in the South Caucasus is achieved.

### School Level:

Integration of Environmental Education into Curricula

Environmental Education is already actively performed by schools and NGOs in the South Caucasus. Still, to reach every child in the region on a regular basis, Environmental Education needs to be institutionalised. Thus, the major objective is to integrate Environmental Education into school curricula by incorporating Environmental Education topics in various disciplines, or by creating a separate module, in every grade in primary and secondary school.

Systematic training of teachers

In order to reach region wide upscaling, regular and systematic trainings of teachers need to be institutionalised by the governments of all three countries. An increasing number of qualified trainers and institutes that are able to offer relevant teachers' trainings needs to be established.

### Teaching Materials

Following the integration of Environmental Education into school curricula, there is a need for the development of contemporary teaching materials such as:

- guidelines and manuals for teachers,
- schoolbooks.
- integrated working modules for students,
- online applications including educational games.

### Equipment

Hands-on outdoor Environmental Education does not need expensive equipment. First, nature provides many observations and Lessons for free. Secondly, as demonstrated in the previously described campaigns, educational experiments and analysis can be conducted with very cheap and simple household material or even waste. Nevertheless, environmental lessons would benefit from indoor laboratories with equipment such as:

- binoculars,
- sets of simple lenses or stereo lenses,
- microscopes,
- computers for internet research.

Landscape Level:

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Establishment of Environmental Education Centres

Experience in other countries has shown that Environmental Education can substantially benefit from civil society cooperation.

Environmental Education Centres established by NGOs can:

- support the education of teachers.

Existing Environmental Education Centres in Azerbaijan and Georgia need support to be further developed. Especially in Armenia, where only a few institutes like the Michael and Virginia Ohanian Centre for Environmental studies exist, a programme for the country-wide establishment of such centres is required. Existing institutions such as national parks, museums, zoos or eco-clubs could be integrated as Environmental Education centres.

Promotion of Environmental Education Campaigns for kindergartens, schools and Universities

Environmental events such as International Biodiversity Day and other international environmental days can stimulate outreach campaigns, engage students and involve parents, as well as the wider pub-Lic. By supporting Environmental Education campaigns, international donors can contribute to further raising public awareness.

• offer Environmental Education courses and activities for school classes to book and visit. • attract and teach the wider public about environmental issues.

THE MICHAEL AND VIRGINIA OHANIAN CENTER FOR ENVI-RONMENTAL STUDIES IN MARGIAHOVIT, ARMENIA The Michael and Virginia Chanian Center for Environmental Studies, named after its sponsors, was inaugurated by the Armenian Tree Project (ATP) in 2012 with support from GIZ. Located in the village of Margahovit near Dilijan in the Lori region in Armenia, the Ohanian Center is a regional destination hosting school classes, teachers, farmers and professionals from Armenia and abroad. The centre offers various lessons and field-based learning for its visitors. Hands-on training includes, for example, composting, humus production, rainwater capture for irrigation and pesticide-free vegetable production.

Environmental Education activities with communities, municipalities and government representatives

It is often not enough to focus on younger generation when it comes to Environmental Education. It is vital to include community members and authorities, municipalities, government representatives and politicians in order to achieve substantial environmental literacy among public.

Integration of Mass Media and its representatives

There is a strong need in all three countries to integrate and provide opportunities for mass media representatives to explore and Learn about Environmental issues and illustrate environmental topics in a literate manner. Development of video materials and TV programmes and shows for all age groups on Environmental issues could come together and contribute to raising public awareness.

Projects and Campaigns with Local branches of International Corporations

Branches of multinational enterprises often organise responsible actions towards the community and environment in which they operate by contributing educational and social programs within their Corporate Social Responsibility (CSR) actions. Creation of public awareness on Environmental Education can become a sustainable part of those actions.

### International Exchange

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The international exchange of approaches and information provides a successful measure to easily spread and adapt promising ideas and innovative methodologies of Environmental Education among professionals from various countries. In addition to existing activities on international exchange in South Caucasus (e.g. SPARE, IDEA, INEPO-Eurasia), as well as online platforms (e.g. eTwinning Plus), further international programmes (e.g. Eco-Schools, Real World Learning Network, etc.) can contribute to the development of high-level Environmental Education in the South Caucasus.

### Conclusions

All three countries in the South Caucasus have prepared the ground for scaling up Environmental Education. There are already many exciting ideas in the region. Plenty of schools with motivated and qualified teachers support the introduction of Environmental Education, and there are thousands of students who will gratefully participate in Environmental Education activities in order to enrich their education.

There is a need and many opportunities of providing Environmental Education to wider public, including kids from kindergarten and their parents, schoolchildren and university students, journalists, authorities and others.

**Published by the** Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Registered offices Bonn and Eschborn, Germany

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