

# Ecological Games as a tool of Education for Sustainability: evolution of our activities

Ukrainian Ecological Club “Green Wave”  
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**ECOCLUB**  
Green wave

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# Why EcoClub “Green Wave?”

1. About 100 events covered in 2009-2019 ([more info here](#))
2. Target groups: schools, universities, NGOs
3. 4 new eco-games developed; about 10 translated from English and adapted to Ukrainian context.
4. About 25 games conducted within [NaUKMA](#) study course “General Ecology”
5. 2-days all-Ukrainian [Climate Education Forum](#) carried out in 2016 for organizations working in ecological education.

# Shortly about games

1. **Fish Banks**: a simulation board game where teams manage and operate their own fishing companies. The main goal is to lead into a natural discussion on a **problem of common pool resources**.
2. **Keep Cool**: a role-playing, board game where 3-6 teams represent the world's countries compete to balance their own economic interests and the world's climate in negotiation.
3. **Future Green City**: a board game for 7-14 years-old school pupils on **sustainable decisions in every-day life of teenagers** (in school, at home, in entertainment area, in urban green zones, in transport).
4. **Network of Life**: a card board game about **trophic chains and interrelations in different ecosystems**; shows the importance of biodiversity, the main ecosystems of Ukraine, and endangered species.

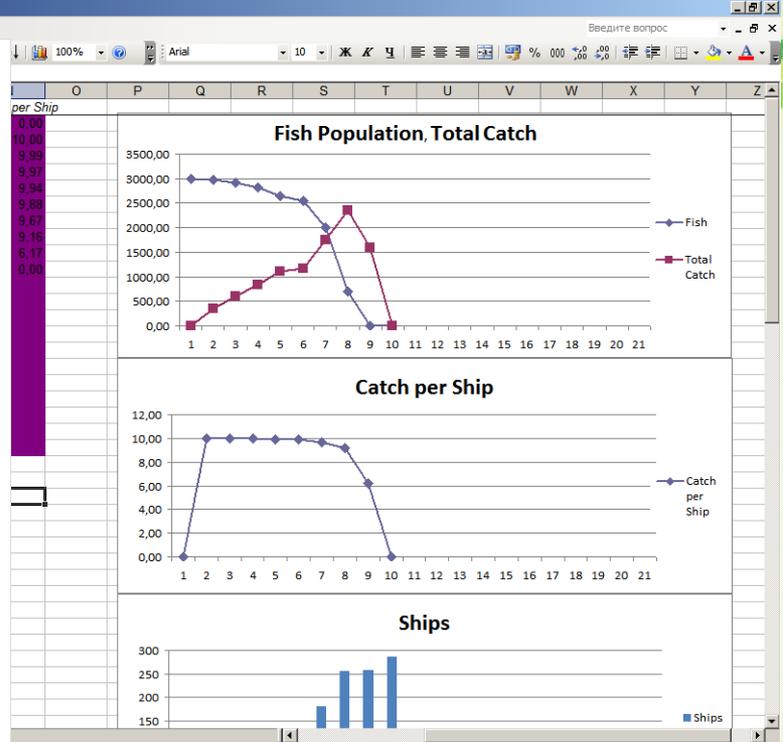
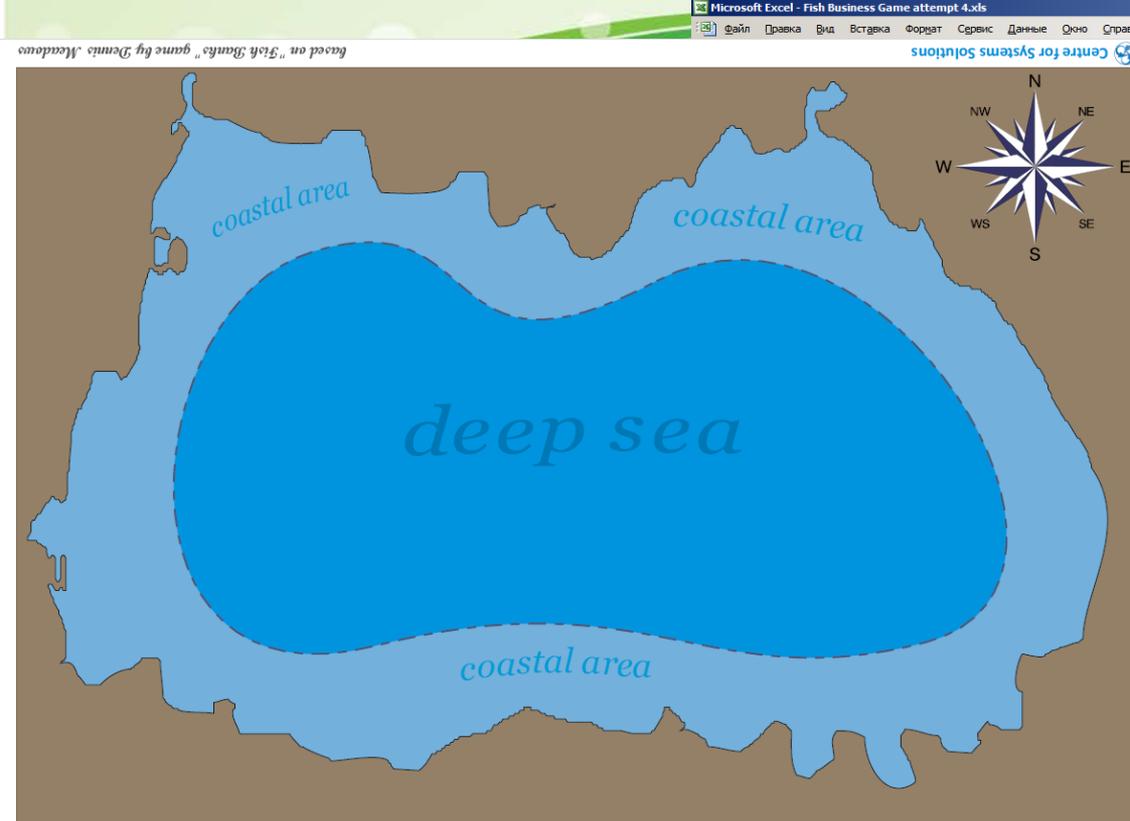
# Fish banks



- Developed by Dennis L. Meadows © **2001**
- Adapted by NGO [Centre for System Solutions](#) (Poland) in **2008**
- Trained and translated in Ukrainian by EcoClub “Green Wave” in **2009** (with permission of CSR)

## The game:

- Allows participants to experience many of the decisions and problems that **“real life”** fishing companies must face.
- Like real business executives, the teams of students need to **seek out and make strategic use** of available information.
- A **computer program** calculates all their financial transactions and tracks the status of the fish population, based on fish catch, births, and deaths.
- The company managers must contend with **ecological, economic, and psychological forces**.
- In the process, the students are actively engaged in **higher-level thinking, cooperative learning, and group problem solving**.



Centre for Systems Solutions based on "Fish Banks" game by Dennis Meadows



# Project (2009): Sustainability education for Youth

- Challenges of Sustainable Development Summer course (Krakow 2009), The Sendzimir Foundation
- 4 partner countries: Poland (Tarnów), Ukraine (Dnepropetrovsk), Moldova (Kishinev), and Lithuania (Kaunas).
- Period of realization: October, 20, 2009 – February 20, 2010
- Financial support: Centre for System Solutions (Poland)



**The general aim** is to develop, apply, and evaluate a **new working method** in the field of sustainability education for youth.

**Specific goals:**

1. Educational (to inform youth of age 16-18 about the sustainable development concept; to show the link between people's economic activity and ecological also social problems; to involve pupils in the decision-making process with taking the responsibility for decisions made);
2. Technical (to develop the simulation game for youth of age 16-18 on the basis of Fish Banks Game with the proper theoretical support and further evaluation of results);
3. Scientific (to analyze and compare the results of the games evaluation in four countries with further recommendations providing for those who will conduct simulation ecological games for teenagers).
4. To promote the game as a tool for sustainability education among professional pedagogues, educational institutions and academic network.
5. To treat this project as a pilot one for further application for the European Funds and running it on the larger scale.

# Fish banks game: training in CRS



- Centre for System Solutions, Wroclaw
- November 2009
- The Fish Banks game (developed by Dr. Dennis Meadows):
  - Allows participants to experience many of the decisions and problems that **“real life”** fishing companies must face.
  - Like real business executives, the teams of students need to **seek out and make strategic use** of available information.
  - A **computer program** calculates all their financial transactions and tracks the status of the fish population, based on fish catch, births, and deaths.
  - The company managers must contend with **ecological, economic, and psychological forces**.
  - In the process, the students are actively engaged in **higher-level thinking, cooperative learning, and group problem solving**.

# Fish Banks game in Chisinau, Moldova

<b>Date:</b>	December 20, 2009
<b>Place:</b>	Kishinev, the Republic of Moldova
<b>Participants:</b>	20 pupils from 4 lyceums of Kishinev (V.Lupu, G. Asachi, D.Cantemir, A.Russo)
<b>An average age of the participants</b>	16 years old
<b>Volunteers:</b>	4 students from National Medical Institute of Moldova; 2 biology teachers (lyceums V.Lupu, A.Russo). Republican Children and Youth Centre "GUTTA-CLUB"
<b>Duration of the game:</b>	3,5 hours
<b>Number of periods:</b>	10



1





# Project (2018): A climate change board game

- Common project initiated by [NGO EcoVisio](#) (Moldova), supported by the Humboldt University Berlin
- Moldova + Ukraine + Romania
- Project time period: 04/18 - 12/19
- Ukraine: 3 one-day trainings for trainers (autumn 2018) on facilitation of



## [Board climate negotiation game "Keep Cool"](#)

- 3 cities of Ukraine; 45 experienced eco-educators; a platform to test on-line version of the game <http://www.keep-cool-mobil.de/>

# About the game

- First created in **2004** in the Potsdam Institute for Climate Impact Research
- 3-6 players representing the world's countries compete to balance their own economic interests and the world's climate in negotiation.
- The goal of the game is to promote the general knowledge on climate change and the understanding of difficulties and obstacles.
- **Since 2016**, it is available in the following versions: Russian & Romanian, English & Romanian, English & Russian, Ukrainian & Russian, Ukrainian & English.
- **In 2016-2017**, a new edition of the game was printed in the framework of project ["Dialogue for Change"](#)



The game was played multiple times in Moldova:

during EcoVisio events such as the Renewable Energy Day 2016; on the seminars of activEco and activePeace program; in the framework of activEco and activePeace projects - at trainings, in schools and universities; at alumni meetings; at the annual meeting of Theodor-Heuss-Kolleg coordinators, etc.

And in Ukraine:

at the [Енерджайзер Кемп](#) 2016, on Science Day 2016 in Kharkiv, at the EcoFest 2016 in Lviv, and at other events with support of the [Society Initiatives Institute](#)



# Future Green City



- Developed under support of a partner network [Education for Sustainable Development in Ukraine](#) and GEF Small Grants Programme
- Authors: Oleksandra Khalaim & Olena Kosak
- A table game kit for 3-4 participants; duration: 20-30 min.
- Participants should solve typical problems of their city; more sustainable solutions bring them more scores.





Організувати  
екологічні  
просвітницькі заходи  
для громади



# ЕКОЛОГІЧНА ГРА «ЗЕЛЕНЕ МІСТО МАЙБУТНЬОГО»

Користуватись  
багаторазовою  
торбою з тканини



Брати книжки  
у бібліотеці



Полагодити  
парасольку



Використовувати  
велосипед



Замовлення: ГО "ЗЕЛЕНИЙ ОБЕРІГ"  
Друк: ФОП "ЗДОРОВИЛО О.В."  
Тираж: 3000 екз.

# Estimation of decisions made

5. Покупки				5. Покупки	5
5.1	Як забрати з собою всі покупки?	5.1.1	Купити пластиковий пакет	Пластик у природі розкладається не менше 300 років, тому варто скоротити кількість куплених виробів із пластику	0
		5.1.2	Відвезти їх візком до машини	Таким чином ми зменшимо кількість сміття із пластику, але вплинемо на ситуацію із чистим повітрям.	1
		5.1.3	Взяти з собою пластиковий пакет	Пластик у природі розкладається не менше 300 років, тому варто скоротити кількість куплених виробів із пластику. Якщо ми будемо використовувати пластиковий пакет декілька разів, то це дозволить зменшити кількість накопичено пластикового сміття.	3
		5.1.4	Взяти з собою багаторазову торбу з тканини	Використання багаторазових торб, дозволить зменшити кількість відходів з пластику. Подумайте тільки: скільки разів в місяць ви здійснюєте покупки? Скільки пакетів при цьому ви купуєте? Скільки з них ви просто викидаєте?	5
5.2	Як обрати один варіант товару з запропонованого асортименту?	5.2.1	Обрати найдорожчий, адже він точно найкращої якості	Найдорожчий товар – не завжди є найкращим. Деколи товар місцевого виробника або товар на вагу є дешевшим і якіснішим, адже виробник не витрачає додаткові ресурси на доставку або пакування.	1
		5.2.2	Обрати товар місцевого виробника	Місцевий товар може бути якіснішим і дешевшим, адже виробник не витрачає додаткові ресурси на доставку	4
		5.2.3	Обрати найдешевший товар, хоч він і не дуже якісний	Коли ми купуємо дешевий товар, то в результаті викидаємо більше грошей, адже такий товар швидко псується або ламається.	0
		5.2.4	Обирати товар, уникаючи зайвої та шкідливої для довкілля упаковки	Товаровиробник упаковуючи свій товар у нешкідливу упаковку, вочевидь дбатиме не тільки про якість упаковки, а й про якість товару. Уникаючи зайвої упаковки ми тим самим зменшуємо кількість сміття, яке отруєє нашу планету.	5

# GEF SGP final conference, 07.2015



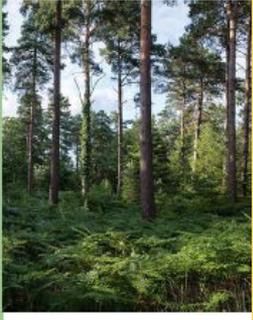
# Network of Life

- Developed by Olena Kosak in 2017 under support of a partner network [Education for Sustainable Development in Ukraine](#) and GEF Small Grants Programme
- Helps to reveal the **natural laws** for the preservation of **biodiversity**.
- Introduces key **concepts in the field of biodiversity**, such as "ecosystem", "food chain", "biocenosis", etc .;
- Shows amazing and unique **species of our planet and Ukraine** and different interrelationships in nature; gives an idea of the main threats to biodiversity and ways to prevent it.
- Players can build food networks, create a stable ecosystem, sabotage the ecosystem of their opponents. The one who creates **the most complex ecosystem** wins.

# 3 types of cards: ecosystems, species, human actions

## Сосново-дубові ліси

## Субальпійські луки



## Низинне болото



## Очеретянка лучна

*Acrocephalus schoenobaenus*



Для збереження виду необхідне впровадження пермакультурних методів с.-г., охорона водно-болотних угідь, відмова від пестицидів. Охороняється Бонською та Бернською конвенціями.

Консумент 1-го та 2-го порядку  
0.13 м  
3 бали

Заплавні луки  
Низинне болото

## Водолуб чорний

*Hydrophilus piceus*



Один із найбільших жуків Європи.

Консумент 1-го та 2-го порядку  
0.02-0.05 м  
3 бали

Низинне болото

## Нерозень

*Anas strepera*



Включено до Червоної книги України, Боннської та Бернської конвенцій.

Консумент 1-го порядку  
0.48-0.56 м  
2 бали

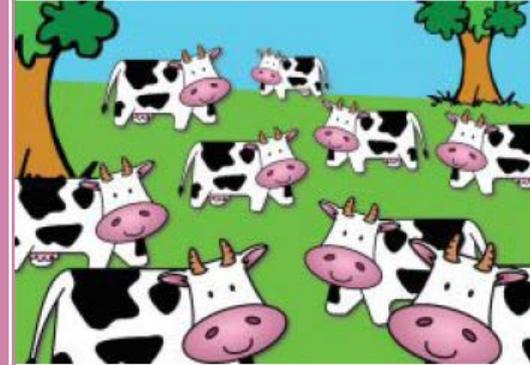
Заплавні луки

## Збереження видів



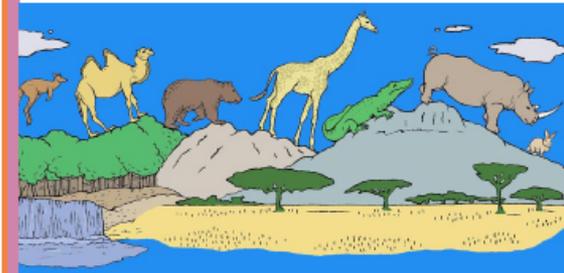
**Застосування:** Може бути використана негайно після застосування опонентом картки «Подія» з негативним впливом на один із видів. Захищає лише один вид від специфічного негативного впливу.

## Надмірний випас



**Застосування:** Вилучається один вид рослин.

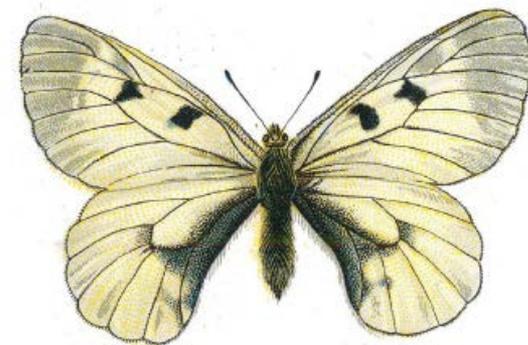
## Міграція видів



**Застосування:** Опонент по відношенню до якого застосована картка повинен віддати вам одну карту «Види» на вибір.



**Мнемозина**  
*Parnassius mnemosyne*



**Болотна черепаха**  
**європейська**  
*Emys orbicularis*



# Project (2016):

## While playing, change the world

- Period of realization: March 2016 – August 2016
- Financial support: National Ecological Centre of Ukraine, Climate Forum East project



The project activities:

1. Translation, adaptation, and distribution of a [handbook of ecological games](#) considering regional features of adaptation to climate change with specific examples.
2. 2-days [Climate Education Forum](#) for organizations working in this field, active educators, and other stakeholders.



Small grants program CFE II

# Project (2009): School sustainability contest in Moldova



- Period of realization: Nov., 02, 2009 – January, 30, 2010
- Financial support: Centre for System Solutions (Poland)
- Organizational support: Republican Children and Youth Centre “GUTTA-CLUB” (Moldova)

## The **aim** of the project:

- Spreading the general information about SD issues throughout the Republic of Moldova by carrying out **an informational campaign**;
- Awakening interest to sustainability concepts and attracting the young generation of Moldova by organizing **a republican school contest** between Moldavian pupils in the field of SD;
- Showing the opportunities of the further education in the field of SD to Moldavian youth by providing **a set of informational materials** about SD educational international programs to each participant of the republican school contest;
- Shifting the priorities in the Moldavian school educational programs on ecology and environmental protection by **raising awareness of school biology and ecology teachers** in SD.

Выполнено в рамках проекта  
“Школьная олимпиада по  
устойчивому развитию в  
Молдове”

При активном содействии:  
**РДЮЦ “GUTTA-CLUB”**  
s. Pelivan 15, 99 Chisinau, Moldova  
www.gutta.md



Финансовая поддержка:  
**Центр Системных Решений**  
(Centrum Rozwiazan Systemowych)  
ul. Josefa Becka 18/2, 51-672  
Wroclaw, Poland  
www.crs.org.pl



**Фонд Сендзимира**  
(Fundacja Sendzimira)  
ul. Wiarusa 11/3, 32-087 Zielonki  
(Krakow), Poland  
www.sendzimir.org.pl



**Dorești să afli mai multe?**

**Scrie-ne:**

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### Trei componente ale dezvoltării durabile:

1. Plasarea resurselor – **eficientă** →  
bunăstarea **economică**.
2. Repartizarea veniturilor – **echitabilă** →  
stabilitate **socială**.
3. Utilizarea bunurilor naturale de către om – **durabilă** →  
durabilitate **ecologică**.

### Три составляющих устойчивого развития:

1. Размещение ресурсов –  
**эффективное** →  
**экономическое** благосостояние
2. Распределение доходов –  
**справедливое** →  
**социальная** стабильность
3. Использование человеком природных благ –  
**устойчивое** →  
**экологическая** устойчивость

### Referințe utile:

„Agenda-21”:

<http://www.un.org/russian/conferen/wssd/agenda21/>

*Materiale informative:*

<http://www.ihst.ru/~biosphere/03-2/concept.htm>

[http://www.dadalos.org/nachhaltigkeit\\_rom/index.htm](http://www.dadalos.org/nachhaltigkeit_rom/index.htm)

[http://www.societatedurabila.ro/Revista „Dezvoltarea durabilă. Știința și practica”:](http://www.societatedurabila.ro/Revista_„Dezvoltarea_durabila_Știința_și_practica”)

[http://sdo.uni-dubna.ru/journal/view\\_pub.php?id=69](http://sdo.uni-dubna.ru/journal/view_pub.php?id=69)

## DEZVOLTAREA DURABILĂ: CE ESTE ACEASTA?



## УСТОЙЧИВОЕ РАЗВИТИЕ: ЧТО ЭТО ТАКОЕ?

Moldova 2010



Introduction to the game "Fish Business"

Awarding of winners



## 2010-2011 events where the game “Fish Banks” has been conducted by NGO “GUTTA-CLUB” (Moldova):

1. March, 12 2010 – the National Meeting of Ecoclubs , Kishinev (23 game participants, youth)
2. May, 9-10 2010 – the final Conference of the national competition “Energy and Environment 2010”, Kishinev (62 game participants, pupils and teachers from all regions of Moldova)
3. June, 26-July, 05 2010 – the national summer ecological camp “Energy saving island 2010”, La Popas village (75 game participants, pupils and teachers from all regions of Moldova)
4. April, 14 2011 – a game within the school study course “Education for SD”, lyceum of V.Lupu, Kishinev (21 game participants, pupils)
5. May 8-9, 2011 - the final Conference of the national competition “Energy and Environment 2011” (75 game participants, pupils and teachers from all regions of Moldova)
6. July, 25 – August, 06 2011 – the national summer ecological camp “Energy saving island 2011”, Kongazchik village (75 game participants, pupils and teachers from all regions of Moldova)
7. August, 08-12 2011 – the International Summer Camp of Sustainable Energy “Clean Energy – Clean Baltic 2011”, Belorussia (36 game participants from 5 European countries)
8. In September, 2011 a group of our volunteers initiated the adaptation of the “Fish banks” game to Romanian-speaking schools in Moldova.

# Khotiv gymnasium, Kiev oblast, 27.03.2010



# Lyceum # 145, Kiev, 09.2010



# Kiev business entrepreneurs, 06. 12.2009



# Gymnasium in Vorzel, Kyiv oblast, 09.2010



# Ecological summer camp, Desnyansko-Starogutsky National Park, 08.2010



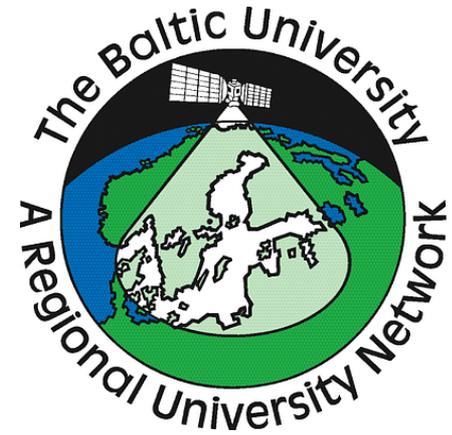
# SPARE training, Myrgorod, 07.2010



# Climate Forum East, training for school teachers, Carpathians, 07.2014



# Sustainability Applied in International Learning course for teachers (SAIL) 2014



# YES: Young Energy Specialists (energy-saving school project), FORZA, Mukachevo, 25.12.2015



Збільшення  
біорізноманіття



**ЕКОКЛУБ**  
Зелена Хвиля

**Thank you for your attention!**  
**Let's cooperate for a common green future!**

Збереження видів



Створення об'єкту  
ПЗФ

