

# PRACTICAL ECOLOGY

Training Course

To 15 From 25 July 2013

BEDEILLE - France

## TECHNICAL BOOKLET



Association SOLAFRIKA  
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# STATEMENT OF INTENT

## PRACTICAL ECOLOGY

The purpose of this TC 4.3 was to promote a healthy way of life and respectful of the environment, for students and young workers of the education and social work fields.

The aim of this project was to inform, transfer some know-how and give tools to the participants and their organization to lead ecological actions.

Our aim is to help the young European to be aware of the environmental issues.

To do so, we tried to create discussions and debates about ecology but also cooperation between people of different culture and way of life.

## THE ACTIVITIES

We started with practical activities.

Participants were led to build different alternative systems :

- clay oven
- economical wood cooker
- dry toilets
- every day life objects with waste material.

Those workshops allowed the participants to become aware of their abilities and they got enough knowledge to be able to reproduce the devices made in other conditions and other places for their own use or projects.

This two first days of workshop allowed the creation of a group dynamics and developed cooperation between the participants.

During the following days the group had the opportunity to do :

- a botanic discovery workshop
- pottery
- land'art
- building of a biogas system.

Those workshops have emphasized the richness of the possibilities given by nature and the environment.

## GIVING VALUES AND TRANSFERING KNOW-HOW

The last part of this project consisted of practising the ability to explain and do with others what had been learnt during the TC.

A group of children of a local 'centre de loisir' came to visit us. This way, the participants could show and explain all the devices and activities done during the TC.

This part was very important to us because, it made the most of the work of the participants, and also allowed the transmission of the knowledge to the children.

This moment was an intense cultural exchange between the children and the young Europeans. It was also a way to increase the participants' self confidence.

## THE TECHNICAL BOOKLET

The technical booklet that you have in your hand was entirely written and built (except for the page setting) by the participants of this TC.

Every workshop is described in this booklet except the pottery one.

One supervisor was chosen in every group, and was responsible for the writing and the pictures of the technical booklet.

This booklet was sent to every participant, for them to use as a tool to reproduce and improve the devices described and the knowledge acquired in the development of their projects in the youth field.



## CLAY BREAD OVEN

### MATERIALS LIST :

- Clay Ground
- Straw
- Nails
- Sand
- Wood Tablet (75\*80cm)
- Tarp

### MANUFACTURING STEPS :

- 1) Draw a circle of 75 cm diameter on the wood tablet. (Choose the bigger side for the oven opening.)
- 2) First, coating layer of 4 cm of the following mix : 1 bucket of clay ground for 6 buckets of straw, of the size of the circle on the wood board.



3) Second coating : 1 bucket of straw + 1 bucket of clay ground. Put it on the first layer, removing 3.5 centimeters on the sides comparing to the first circle.

4) Third coating : 1 bucket of clay ground + 3 buckets of sand. Remove 3.5 centimeters comparing to the second coating. Do an overhang for the opening. The door, large of 30 cm, will be located between the circle and this overhang. Cover with «Barbotine» (liquid clay ground) on the last layer.



## CLAY BREAD OVEN

5) Door to cut. Half a circle 30 cm large and 16 cm high. Put a piece of wood in height to allow wedging it and seizing it, and put plastic paperboard or piece of sheet metal on the top of the door to support the following layers.

Let's this basis structure to dry for a day.

6) Do a rounded roof with sand 21 cm high (fill the void with something else like glass bottles...). This will be used as a pattern for the following layers and will be removed at the end.



7) Mix of 1 bucket of clay ground for 4 buckets of sand. Layer of 3.5 cm Do marks with your fingers at the end to prevent him from bursting.

8) Mix of about 1 bucket and a half of straw for 40% of a bucket of clay ground. Layer of 3.5 cm.

9) Mix of 1 bucket of clay ground for 1 bucket of straw, layer of 3.5 cm.

10) Finishing stage: mix of 1 bucket of straw for 1 bucket of clay ground for half a bucket of sand. Possibilities of adding completions according to what you want: shapes, colors, lime coating...





# ECONOMICAL WOOD COOKER

## TECHNICAL CHARACTERISTICS:

Energy Used: Wood

Optimal Saving: 80% Saving

Real Saving: 50% Saving

## BENEFITS:

- Cheap material for making
- Easy to make

## DISADVANTAGES:

- Not easy to recycle

## MANUFACTURING STEPS:

1) First we need metal elbow - draw around a template, cut out it. Make holes with hammer and nail.

2) Put together both sites of the template to make a circle with corks.



3) Put together vertical and horizontal parts to make an elbow; use corks again.



4) Draw around a vertical end to a cover of a metal box; a horizontal end to a side of the metal box.



# ECONOMICAL WOOD COOKER

5) Cut out the holes into the box and put the elbow into it.



6) Cut out a metal gate and put it into a cooker.



7) Cut a long metal slice; make it together in the ends and put it on the top of the cooker.





# DRY TOILETS

## TECHNICAL CHARACTERISTICS:

Real Saving : 8 liters of water each time you use it !

### MATERIALS LIST :

- It depends of your own dry toilets you want to build, but principally Wood !

### BENEFITS :

You save 8 liters of drinking water each time you use it !

You can use the compost for your garden and help your vegetables and flowers to grown up !

You can realise that nothing is lost, nothing is created, everything is transformed !

### DISADVANTAGES :

You need to empty it when is full ! (But if you have big garden and if you're not afraid about the smell, it's not really a problem !)

You need to put a lot of woodstuck in it, because it smells bad if you're not !

You need to go to collect woodstuck often !

## MANUFACTURING STEPS:

1) You will need 4 big pillars: two measuring, more or less 2.5 meters and other two measuring 2.75 meters. They will be the frame of the toilet.



2) Dig 4 holes 30 cm deep in the ground in the form of a rectangle, measuring 1 meter and 1.3 meters on the sides.



3) Fix the pillars in the way that the bigger ones stay in one side (left or right). Use rocks to fix them until the job is finished.



# DRY TOILETS

4) Now you will fix the bottom (floor) and the top sides of the toilet.

5) Using flat angled brackets, fix the four sides of wood connecting the 4 sides of the toilet.



6) Repeat this process in the top part of the toilette.

7) To avoid that the floor breaks, fix one piece of wood in the middle of the shrotest face.





## DRY TOILETS

8) To build the floor, fix the extremities of pieces of wood perpendicularly of this piece of wood you just have fixed.



9) Now you will fix the planks to build the walls. Fix the first one from the bottom. The second plank must be fixed 3 cm overlaid from the first one. Repeat the process to build the other walls.



## DRY TOILETS

10) Now you will build the door of your toilet. Measure the size of the insides between the pillars. Then, fix the planks accordingly with this measure and fix them with a "Z". Fix the door with brackets.



11) To build the toilet seat, take a bin and measure the height. Do a hole in a piece of wood to give space to the bin.





# DRY TOILETS



# DRY TOILETS

12) BUILD TWO "ARMS" TO HOLD THE SEAT.



13) TO BUILD THE ROOF, FIX IT IN THE FOUR PILLARS.



14) FIX THE PILARS USING CEMENT.



ET VOILAAAAAAA !!!





# CREATIVE RECYCLING

## MATERIALS LIST :

- All kinds of waste
- Glue
- Scissors
- Duct tape
- Coloured paper
- Imagination :D

## BENEFITS :

- Reutilize waste

## DISADVANTAGES :

- None!

## MANUFACTURING STEPS :

FIRST IT'S IMPORTANT TO NOTICE THAT WE DEVELOPED LOTS OF OBJECTS DURING THIS WORKSHOP.

So, the general steps are quite easy to enumerate:

1) Look closely at the materials and formulate several ideas, in order to choose one really good.

2) Think about which materials you will need to develop your idea, and build a precise model of what you want to do. This step prevents you from making mistakes and wasting precious time.

3) Create your recycled object. The good thing is that you can keep adding things that you haven't think when you defined the model, if there's time for that.



# BOTANIC DISCOVERY WORKSHOP

The participants to the training course could discover, with a qualified trainer, the wild plants and flowers in the surroundings, their different possible uses, their qualities and the way they should be gathered.

## THE FLOWERS...

Flowers or Wild Plant	Use	Comments
St John wort	- as oil is good for healing wounds, itches & good after sun exposure - as alcoholic solution, is good for depressed people	
Marjoram	- it can be eaten and it is good for digestion - it can be also used to make tea, good for throat pains	-there exist several types of marjoram and they have different qualities (energizer, sleep helper...)
White stonecrop	- it can be used raw, in salads - it is good when you are thirsty	
Great braken	- you can use only the young plants to eat, boiled - when dried, can be used to chase the parasites	- it is toxic when it is old - it needs lots of water to grow - it is a plant that reproduces by spors, it does not have flowers with polen
Small burnet	- it can be used in salads, tastes like cucumber	- same family as the rose, sometimes called the « hippie rose »





# BOTANIC DISCOVERY WORKSHOP



# BOTANIC DISCOVERY WORKSHOP



## THE FLOWERS...

Flowers or Wild Plant	Use	Comments
Blackberry bush	- the leaves can be used for tea, very good because of the tanin, used for throat pains and problems with the intestines	
Plantain	- as juice it is good for curing insects bites and rashes	- it resembles the foot of humans, and it's name comes from the latin word that means foot (it is soft, elastic).
Small daisy "always beautiful"	- as oil it can be used for skin's firmness - it can be eaten	-has a composed flower
Hawthorn	- flowers, berries and leaves mostly used for sleep issues	- has red fruits, white flowers in the past they dried the leaves and ate them
Black bryony « beaten women's plant »	-it can be eaten only when young, otherwise is toxic- -it is helpful for bloodstream -good for reumatism	



## THE FLOWERS...

Flowers or Wild Plant	Use	Comments
Wild cherries	- it can be used for tea for kidney problems	
Ash tree « the tree of 100 years-old people »	- it is good for cleaning the body so it is good for reumathism	- grows in humid places - has black roots
Dwarf mallow	- the flowers and the young leaves are eatable - prepared as tea (without boiling!) is good for throat paind, constipation - it is used for calming babies's pains of teeth growing	- are similar to capers
Burdock	- the root is good for treating acne - it can be eaten boiled, just as carrots	- it is better to use the root in spring, before the appearance of the flower
Elderjudas tree	- in the spring has lots of flowers that can be used to make syrup or lemonade - jam can be made out of the fruits	- it can be mistaken very easily with a bush that has the same fruits (but can't be eaten!)
Nettle	-it is very very rich of vitamin C and iron	



# LAND'ART WORKSHOP

WORKSHOP IS LED BY EVA JERA HANZEK FROM SLOVENIA.

LAND ART STARTED IN 60-15, WHEN ARTISTS WENT OUT OF GALLERY AND STARTED TO DO ART IN THE NATURE. ARTISTS MAINLY USED NATURAL MATERIALS. LAND ART WORK IS USUALLY QUITE TEMPORARY, BECAUSE WEATHER IS CHANGING ALL THE TIME AND DESTROYING IT.

WE CAN SAY THAT LAND ART EXIST UNTIL ANCIENT TIME (CAVE PAINTINGS ETC.), BUT WHEN IT APPEARED IN 60S AS PART OF ART SCENE, IT CREATED QUITE A REVOLUTION.

LAND ART MELTS ART WITH NATURE. IT USES MATERIALS FROM ENVIRONMENT AND IT PUTS THEM IN NEW FORMS TO REMIND US ON SOMETHING OR EMPHASIZE SOME PROBLEMS (ECT. ECOLOGICAL).

SOMETIMES LAND ART ARTISTS BROUGHT ALSO UNNATURAL MATERIALS INTO THE NATURE TO SHOCK PEOPLE AND MAKE THEM THINK ABOUT THE CONSEQUENCES OF OUR WAY OF LIVING.

AFTER WE DIVIDED INTO SEVERAL GROUPS OF PEOPLE, EACH ONE MAKING ONE PIECE OF LAND ART.



# LAND'ART WORKSHOP

Our group made a circle with five small wood statue to mark five of us that participated in the group. Everybody paint its own "statue" with its initials of patterns to make its a symbol.

In the circle we make a spiral of wood dust. Spiral is going into the infinity and on the end is disappearing.

In the middle of the circle we putted a bone of some dead animal like a totem.



Another group made a portrait of Albert, made only from natural materials found around the house.





# BIOGAZ PRODUCTION SYSTEM

At the beginning of the workshop, the participants got a theoretical introduction of how biogas is produced.

The main things are:

- Biogas can be produced by various substrats such as : sheet, organical wastes, waste water, farm sludge, food industry wastes ;
- The biogas includes 55% methan, 43% carbon dioxide and 2% other gases ;
- The volume of waste does not change after the digestion process ;
- In comparisson with bio diesel you use waste, not food ;
- The biogas process lasts 1 month with the maximum production reached within 2 weeks (normal conditions) ;
- It's produced in an environnement whithout oxygen (oxygen free).

## MATERIALS LIST :

- 2 blue barrels in plastic airtight/hermetic
- 2 hermetics balloons
- 1 plastic bottle
- 1 bunsen burner
- 1 gas pipe
- 4 connectors (in T and simple)
- Silicone and clamp
- Steel wool

The group was divided into three subgroups having the following tasks:

- To build up the digester (where the substrats produce gas);
- To build the balloons to catch the gas ;
- To build the pipes between digester and baloons;

## MANUFACTURING STEPS :

### 1) Preparation of the two barrels :

1. Connected the gas pipe ;
2. Fool the barrels with organic waste and hot water.



### 2) Gas Storage :

1. Preparation of the balloons, use the silicone to be sure the entrance is hermetic.
2. Connect the balloons with the gas pipe to the digester.



# BIOGAZ PRODUCTION SYSTEM

### 3) Checking of the sealing :

With dishwashing liquid and water, spread on any possible place where the sealing could be a problem and look if they are bubbles.



### 4) Safety valve :

1. With a T, fix the mane pipe to another pipe of 50 cm.
2. Dive this pipe in the bottle fool of water.



### 5) Connecting to the burner :

1. Connect the pipe to the burner.
2. To turn on the flame, put some pressure on the balloons.
3. To provide some flashback, put steel wool in the main pipe.

