



## HUMUS: THE PROJECT (English Version)

**"The liberation of the nuclear energy has changed everything at the point that our natural way of thinking has become obsolete. We have to face the risk of a tremendous catastrophe. Humanity will have to adapt a new way of thinking in order to survive".**  
**Albert Einstein**

This letter is addressed to anyone who's closed to Chernobyl' subject matters and more in general to international co-operation. Lately in the whole world a great spirit of solidarity has developed especially towards Chernobyl children. There are thousands of them now coming from Russia, Ukraine and Belarus who are hosted every year. These children thanks to a nourishment based on healthy food during their stay abroad lose some of their radioactivity accumulated in their body and responsible of many diseases linked to contamination due to radionuclides and immune-stress. According to some ONU experts the worst part (eventhough the victims are more than 100.000) still has to come and it's foreseen around 2004/2006 when those who were little children at the moment of the accident will start procreating. Only at that moment consequences on the genetic heritage of the population will be evident. Consequences which in part have been shown already during studies carried on birds, swallows and rodents who lives in the contaminated areas of Chernobyl (we now that men and rodents behave genetically almost in the same way). These experiments, some of them led by a group whose head is prof. Jeffreys (Nobel winner in Genetics) have led prof. Hillis (from Texas University) to conclude an article published on "Nature" the 26<sup>th</sup> of April 1996 with these exact words: "today we know that the alteration power of a nuclear accident can be much more serious than what has been expected so far and that the genoma of eucariotes can present mutation rates which no one had never expected to be possible until now".

### **The Chernobyl accident is just starting now to show its tragedies.**

After 17 years the awareness of how the foresights, which wanted to go back to the accident consequences and explain it only as a dramatic irradiation syndrome, has been the result of a minimilization philosophy or negation of the effects of the nuclear disaster (only the cases of thyroid cancer, those which go back to the high irradiation syndrome ) show this aspect: **within the beginning of the new millennium 1500 cases of children thyroid cancer had been foreseen 6600 within 2600. Today instead they are even more than 11000.**

Now many scientists and experts are demonstrating that weak doses or claimants without any link with radioactivity are assuming new re-considerations. The neurological disorder of adults caused the increasing number of colon, rectum, lung, breast and urinary ways cancers, heart problems and diabetes.

Not only sanitary problem emergency needs to go back to this under esteem of the reality of contamination but also all the problems concerning economic, demographic and social aspects.

Indeed Alexander Lukashenko himself, standing as ONU belarusian president, last Sept 2000, asked the world community to face all the catastrophe consequences.

### **What shall we do?**

Every association, group working in the welcome field or in twin and local co-operation projects with the countries affected by the nuclear disaster has developed a series of exciting initiatives.

All the projects try to intervene on the variety of aspects of the people who live in the contaminated territories: humanitarian helps (food, medicines, sanitary apparatus, clothes, stationery, toys, computer instruments,..) distance adoptions, Kolchoz economy development,...

### **Each project has its own dignity, legitimacy and its strong motivations.**

They are always criticised though because they do not get at the bottom of the problems of the population who live in contaminated areas, that is the need to abandon definitively these territories which don't and won't grant for years sufficient conditions of life quality. Apart from the social and psychological problems linked to this modality, all the projects are (with different results) the expression of a solidarity participation which tries to conciliate feelings and intelligence in a way of concreteness.

The approach is not that of looking for answers to questions like: "why people keep living over there?". Such a question presumes an implicit accusation act as the people who live in these contaminated territories was responsible for it. As everybody knows, especially those who spend their time with passion and idealism, personal, human and material resources in the Chernobyl areas afflicted by the accident, the contamination responsibility of the territories is not the people's who still live there.

To overcome the prejudice point of view or the guilt assignment means to ask ourselves the following ethical questions:

**"Since the acceptance and the observation of the present reality is known to everybody how can it be possible to help effectively those who live in contaminated areas ? How can it be possible to find solutions to pull down the risk and raise in the reality and levels of life quality?"**.

The considerations which come up are the following:

- The interventions to hit the target must be contextual within the action range. To intervene consequently at the effects caused by the nuclear accident means to look for the real causes which depend on the present contamination. To intervene on the contamination effects means to intervene directly and/or indirectly on the social, psychological, sanitary, economic, ecological aspects linked to the contamination reality; to intervene, instead, on these aspects without giving account to the contamination reality means most of the time to create the conditions for a "masking" of the real problems or for the construction of alibis to enter the action' subject (who helps and who's helped).
- The co-operation must overcome the optic of assistencialism without the taking of possession of the reality on the supporter actors 'side (that is the population who live in the contaminated areas) each action remains prisoner of the contingency and of the urgency of dictating the way for a real change. Surely the way for a co-operation is much more difficult than the undifferentiated help but it's the one that, with humility and patience it is worth to look for.

- It is statistically and scientifically proved that beyond all the hypothesis and considerations that can be legitimated **the reality of the contamination is linked especially and directly to the nourishment**. Other suggestions lead to the wrong track. **70% of the irradiation dose coming from Cs 137 and from Sr 90 goes from the soil to the food.**
- The contamination nourishment chain is the following:
  - soil-plants-animals-meat-milk-man
  - soil-man.

From these assumptions the **HUMUS PROJECT** was born which in the following paragraph is presented in its general features. The **HUMUS PROJECT**, like many other projects, **wants to be an instrument of shareness in order to intervene in a concrete way on the contamination reality**. An instrument which tries to react on the primary prevention soil of the accident consequences.

**The HUMUS PROJECT is a Legambiente Solidarity project.** This is an intervention field of Legambiente the most important environmental voluntary association of Italy. Who the project belong to it's not very important though. What's important is to belong to values and motivations and to researches which look for a common horizon to share.

**All the collaborations and contributions that people will be able to give will only help and advantage populations who live in the contaminated territories and all the heritage (knowledge, data, contacts, materials) that the HUMUS PROJECT has developed in 2 years of researches on the territory is available to everybody and it's a support for other projects without any specific field choices or presumption behaviour and without invading somebody else's areas or field.**

**The project is presented with these aims:**

**an instrument available to everyone and open to any collaboration or suggestion; a constant "work in progress" where all the individuals have a full legitimacy and the same participation dignity; an instrument to share common ways with other associations and to build an informative and co-operative interchange which will to overcome unproductive fragmentations.**

The HUMUS PROJECT wants to compare itself with other projects, initiatives and interventions (not only in Belarus, but also in Russia and Ukraine) believing that beyond singular purposes there are common actions and ways that can direct mutual utilizations and can offer adequate modalities and behaviours to the social, political, economical and cultural reality of the areas which need interventions.

**The HUMUS PROJECT is a project on the "nourishment risk".**

70% of the radioactive fall out after the Chernobyl nuclear accident on April the 26<sup>th</sup> 1986 has contaminated the 23% of the belarusian territories which based their economy on agriculture. After 17 years from the blowing up of the reactor N°4 the effects on the environment and on the inhabitants have revealed to be more dramatic than ever.

If on one side we assist to aggravity of oncological diseases and to immune depression due to the constant actions of low doses, on the other the presence over radioactive isotopes and of their by – products (v. americium) it remains constantly in the environment ( the giving back of the soils to their original conditions needs) only for Cs 137, a period of 300 years. In this situation of dramaticity actions which account for contamination primary causes gain relevant meanings. **It's unanimously recognized by all scientists that the 70 – 90 % of the human contamination derives from the ingestion of contaminated products through a process which has in the soil "the key of transmission " . To break this key it is fundamental.** So far mechanisms (soil acidification, deep breakings up, competition with fertilizers or substances similar to isotopes) have proved to be insufficient or even totally inefficacious.

**The HUMUS projects wants to act on this key through two main ways:**

- **a way of reality in agreement** (the agronomic experiment)
- **a way of a supporting solidarity** (the cohesion between a socio-pedagogical and an agronomic intervention)

## **THE WAY OF A REALITY IN AGREEMENT**

This process will be realized in a crush in kolchoz "10<sup>th</sup> anniversary for the OCTOBER REVOLUTION" in MOLCIANY (Recitsa province, Gomel region, Belarus).

The crush found after 2 years of research it's a grass and metal structures of 10.000 mq with an heater able to maintain a minimum internal temperature of more than 15°C when outside there are –35°C. Inside of it cucumbers are cultivated twice a year (harvest in June and Sept). 26 people work on it.

**In the crush the main experiment of the HUMUS project will be led in order to produce non-contaminated products in a contaminated area.**

2000 crush mq will be used. The agronomic technique that is proposed is the so called **"soilless "** technique. It consists of the possibility of producing plants without its traditional component which is the soil. We have already in ancient times examples of cultivation without soil (there are tracks in egyptian hieroglyphs before Christ examples in Babilonias gardens and in Mexico (Atzechi).

This technique allows the development of plants without the utilization of the soil, using more or less inert means as a substratum (sand, peat, vermiculite, pumice – stone) in which a solution containing all the nutritional elements necessary for the plants is added.

**As far the Chernobyl accident contaminated areas are concerned, the "soilless " cultivation is now the only one which answers to the need of freeing cultivation from the soil radioactive contamination and ecologically it's justified by environmental conditions which are not suitable for traditional cultivations.**

**The proposed methods are the "substratum cultivation" and the "floating system".**

For the **substratum cultivations** a peat will be used (a non – contaminated peat of course) which is present in all belarusian territories. The use of a substratum method is relatively easy and economically sustainable at a local level. The HUMUS philosophy wants to use local resources both human and technological in order to create new forms of "economic colonialism" and not to allow, with illusion of rapid solutions or through co-operation and strong contingency, the rising of conditions which could not permit on adequate course and on autonomy of scientific potentialities, human and cultural present in Belarus. The use of a peat in a vase concerns the cultivation of cucumbers and tomatoes with he aim of respecting nourishment habits (it is the cucumbers case) and giving impulses to cultivations previously present but not yet adapted to the contamination reality (it is the tomatoes case).

The **floating system** or the cultivation system in deep waters it's instead a cultivation technique in " hydroponic " relatively easy which allows to grow plants on movable floating supports inside tanks built in a very simple way and filled in with water

and nutritional solution. Leaf species will be cultivated (lettuce) which represent new element looked for the deficiency of present nutritional contribution in a vegetable field in Belarus.

**Before starting the real experiments belarusian technicians and agronomists will be formed with specific stages in italian institutes of research.**

**The aims and the results of the Molciany agronomic experiment are the following:**

- the first result will be valued according to "life quality". As we have already mentioned the soilless cultivation is the only one which allows to free cultivation from the soil radioactive contamination and to give back to inhabitants.... once expropriated by the nuclear accident. The parameter of valuation will be the harvesting of " clean vegetable"
- the impulse to kolchoz micro-economy may be valued, using the off soil technique with a productive growth of about 40 – 45%.
- The chosen cultural species allow in protected cultivation more annual cycles.
- The initial low costs, the utilization of substratum and the floating system and their non – complexity, the utilization of local materials grants a management and financial autonomy of the techniques proposed at Molciany and their exportation
- The attention on kitchen-garden cultivations represents in a way a restitution of traditional and cultural elements . We have to consider, indeed, that the Gomel region (like many other areas in Belarus) it's an authentic steppe converted into cereal cultivation according to soviet planned economy which transformed traditional farmers into state workers. The kitchen-garden cultivation was born in a slavy area and it's part then of this cultural tradition and of this ethnic instinct while corn is not a local product but comes from south-east.

## THE WAY OF THE PARTICIPATION SOLIDARITY

This way will be realized in the **Dubovy Log village** (Dobrush province. Gomel region, Belarus).

**Dubovy Log is the heart of the HUMUS PROJECT.**

Dubovy Log is the result if a research which lasted 2 years on 174 villages which based their economy on agriculture in an area of high contamination (Gomel, Mogilev, Brest in Belarus) for a total of 26 provinces, 131.081 inhabitants and agronomically of 200.044 pasture hectares and of 453.592 of cultivation hectares. The total has progressively narrowed to 121 villages of the Gomel region and subsequently to 13 villages with the following features:

- radioactivity >15ci/kmq
- minimum n. of inhabitants between 200/250
- presence of a school
- presence of Kolchoz or Sovchoz.

All villages have been visited during 2 following missions . For each of them a cognitive file has been made in order to obtain the following information:

demographic data, present structures and services, data on the present levels of radioactivity and contamination (private and public field), sanitary employment and school, situation climate data, agronomic data (cultivation and pasture in the public and private field, data on waters and lands), data on state intervention, on nourishment risk and on forms of active co-operation.

**Dubovy Log is an area of compulsory escape with radioactivity levels >40 ci/kmq.** There are 281 inhabitants (67 of them between 0 and 14 years old) for a total of 121 families .There is a kid-garden, a school an obstetrics-nurses ambulatory, the Kolchoz and the house of culture.

The **first phase of this way towards Dubovy Log (the socio-pedagogical intervention)** foresees actions on the social field of human relationship re-constructions and on the creation of better conditions for a conscious management of the risk and for the improvement of life quality. The acquisition of a radio-protection culture on the "nourishment" risk will allow the population to minimize the radioactive contamination effects (adequate nourishment behaviours and life styles - choice of undergrowth products according to the radioactive accumulation capacity, milk skimming procedure preparation and preservation of nourishments, behaviour regulations for the use of game and fishes, utilization of wood and ash... -, management of kitchen-gardens and cattle farms in the private field and so on...).

**The foreseen actions are:**

- constitution of a local co-ordination équipe with self-formative, formative and management aims.
- realization for the village of constant instruments (informative sheet every 3 months and info-counter).
- radio-protection courses for school and young people with didactic tools and equipment in order to help the formation of a radio-ecological culture (audio-visual aids for schools and geiger measurements for young people of the village).
- survey on the contamination reality (questionnaires for families, radio-metrical analyses of food samples, realization of a territory contamination map of the village divided according to the concentration and the type of present isotopes).
- WBC (whole body counter) spectro-metrical analyses on a group of volunteers of the village.
- the starting of local research groups (ash management group, pasture management group, nourishment management group) and execution of radio-metrical and comparative surveys.

This phase is indispensable and absolute for the HUMUS Project success: **without the involvement and the awareness of the contaminated area inhabitants, every act (which wants to solve problems linked to the contamination reality) will probably risk to fail or to produce benefits for few people because of the lack of con-division only during the period of the project realization.**

The **2<sup>nd</sup> phase (the agronomic intervention)** functionally and chronologically dependent than before will concern the Molciany experiment transposition at Dubovy Log through the **construction of a glasshouse of 2000 mq in which each family of the village will be able to grow "clean" vegetables.** Experiments and surveys will be also realized to intervene

on the cultivations and to find out the ones more reluctant to radionuclides and pasture analyses in order to furnish tools for the families and for Kolchoz.

In this way putting together life styles adequate to the contamination reality (capacity of directing individual and collective behaviours towards everyday actions in a family, school and working sphere which minimize the risk in a nourishment field) with a practical tool in its "clean" cultivation production partiality, the aims of creating the best possible life conditions will be reached in a contaminated area.

The comprehension and the summary of the 2 ways can be deduced in the following scheme.

<b>WAY OF THE SOLIDARITY REALITY MOLCYANY GLASSHOUSE</b>	<b>WAY OF THE SOLIDARITY IN AGREEMENT DUBOVY LOG VILLAGE</b>
<b>1.st year:</b> experiment of the substratum	<b>1.st year:</b> starting of the socio-pedagogical way for the risk management
<b>2.nd year:</b> local agronomic process	<b>2.nd year:</b> reinforcement of the risk management culture, evaluation Molciany results, construction a Glasshouse for the village
<b>Aim:</b> completed experiment of the agriculture production	<b>Aim:</b> social risk management on the nourishment one
<b>3.th year: "HUMUS" realization: socio-pedagogical and agronomic process in the Dubovy Log village</b>	
<b>Exportation of the project in other villages (2 years of monitoring)</b>	

The final foreseen aims and results of the project are the following:

**In the sanitary field:**

- measurable and progressive percentage cut on the nourishment radioactive risk in the people living in Dubovy Log.
- reduction of health negative consequences especially diseases caused by immune-depression; children, the subjects more exposed to the mutations and to immune-stress, thanks to the rapid cellular growing will be the first beneficiaries.

**In the economic field:**

- reduction of the state sanitary expense referring to the secondary prevention of the Chernobyl nuclear experiment in Dubovy Log.
- annulment of the provincial and regional transformation expenses for the removal of radioactive isotopes concerning the soilless cultivated species.
- demolition of the costs linked to the vegetable production analyses in question in the Dobrush and Gomel institutes and in the accumulation companies.
  - reduction of the supply-costs of "clean" food in the school and in the cafeteria of the kolchoz.

**In the social field:**

- reinforcement of the nourishment risk culture for the Dubovy Log inhabitants.
- possibility of evaluation of the curing periods of the residents of Dubovy Log according to real local radioactive contamination and to the life styles modalities led to the awareness of the "nourishment risk"(rationalization of the resources and qualitative homogeneity of the interventions).
- re-proposal and adaptability of the agronomic techniques over the ranges linked only to the radioactive contamination.

**In the international and co-operative field:**

- all the data deriving from the combination and from the comparison of the agronomic and socio-pedagogical way will be put into the net.
- possibility of transferring the global project to other contaminated villages with a great extension to other near russian and ukrainian realities.

The HUMUS PROJECT can be a flexible model , reviewed and adaptable to other interventions and to other subjects which want to intervene in the areas contaminated by the nuclear accident or an opportunity to develop new projects with the aim of creating the best possible life conditions for the people who live in the contaminated territories.

Considering, as far as Belarus is concerned (also Russia and the Ukraine) villages and the inhabitants in the high radioactive risk areas, **it's possible to build 200 glasshouses for a total of 60.000 beneficiaries with an investment of a maximum esteemed incidence about 100 \$ USA per inhabitant.**

Creation of the Chernobyl children welcoming politics.

**The latin term Humus (soil) evoke the double aim of the project: "HUMUS" is the contaminated soil which we**

**must intervene on with an agronomic plan to make the restitution possible to those expropriated populations; "HUMUS" is the social field of the reconstruction of human relationships of the creation of favourable conditions for the conscious risk management of the improvement of life qualities.**

**The beneficiary subjects** of the HUMUS project are all the 600 Molciany and Dubovy Log inhabitants.

**The project duration** is of about 3 years plus 2 of follow up.

**The starting is foreseen in July 2001.**

**The Humus Project has been approved by belarusian ministers of public education, agriculture and sanity. An official text has been written about the co-operation of the Chernobyl committee with the emergency situations department of belarusian Republic. In Italy it has been recognized by the agriculture and the foreign affairs department and a preliminary inquiry has been carried on by the state corps of foresters in order to establish the congruence and the technical supporting (many radio-metrical analyses have been done at Molciany and Dubovy Log to evaluate the water quality - drinkable, from well and obtained resulted non-contaminated in its chemistry/ physical and soil features) and the economic supporting of the project in Belarus.**

**The International Sakharov Environmental University of Minsk, the Gomel radiological Institute (NII RADIOLOGHI), the clinical Institute of medical and radiological research in Gomel (NIKIRM), the vegetable production research Center (CRPV) in Cesena, the experimental horticulture Institute in Montanaso Lombardo (LODI), the regional environmental protection Agency (ARPA) in Piacenza, the sociology chair of mass-communication of University in Siena are also collaborating scientifically to the project.**

The project even if in need of public and private financing has always been supported by free donations especially in the voluntary field.

**The challenge of the Humus Project needs everyone contribution.** If anyone wants to help the following current counters are available:

- C/C post 18046151 (Italy)

- C/C bank 10/100382 Istituto bancario San Paolo di Carmagnola (TO)-Italy DIP 194 CAB 30261 ABI 01025

The first expenses for the 3 years realization and for the other 2 of follow up are estimated around 300.000 \$ USA (realization of 2 glasshouses, expenses of initial investment, training expenses, local materials and labour expenses, etc...).

In order not to scatter financial resources the project has been realized in sheets (each sheet represents a pursuable and completed intervention).

The project foresees local management expenses for the glasshouses (not more than 6.000 \$ a year) and for new glasshouses constructions in other villages (initial investment 20.000 \$). To these costs we must subtract all the earnings coming from the quantitative and qualitative return of the agriculture productions and the adjunct value deriving from better life qualities.

**The project will have a statement of accounts available to everyone.**

Any information on the project (the complete drafting and the enclosures) can be asked to the project co-ordinator:

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We confirm the availability for anyone to get all the scientific documents (data on the villages and radio-metrical analyses), info and material regarding Chernobyl reality and the availability of co-operating to support other projects taking advantage not only of data bank but also of relationships created by the HUMUS PROJECT with institutions both at a local and a peripheral level.

The aim of this letter is not only to confirm and obtain approvals about the project but to start at an international level an exchange of ideas and if it's possible of common intervention synergies.

**If the project thanks to you, will become a very big international intervention any relationship between different associations, the intervention congruence, the possibilities to intervene in a specific way, the enrichment of knowledge and competences and more in general the attempt to finalize actions in the contaminated territories whose beneficiaries are the children and the people who live there will all get benefit from it. HUMUS will have more chances of success it will be a project with equal dignity and ideas will recognize themselves in it.**

Waiting for other projects to come up, initiatives or contributions for useful comparison (why don't we create a map of interventions useful to all of us?) and thanking you in advance for your efforts and for your future initiatives I wish you all the best.

**Massimo Bonfatti**

(Humus Project Co-ordinator)