

**Form B: Overall Project Assessment**

<b>Name of the M&amp;E organization:</b> Picher Allan Associates LLC		
<b>Project reviewed:</b> Reducing the use of hazardous chemicals in developing countries: potential of implementing safer chemicals including non-chemical alternatives - tools for Georgia and the EECCA region	<b>Country:</b> Georgia	<b>Reporting period:</b> 01 August 2010 - 31 July 2012

**1. Methodology**

This report is a final evaluation of the project, following up on the mid-term evaluation report done in August 2011. It covers the entire two year life of the project.

The evaluation is an independent assessment of the results of the project. It is based on written reports from the implementing organizations and review of the final written products. It is also based on a series of interviews in and around Tbilisi in May 2012. The evaluator conducted interviews with staff of WECF and Georgian partners, Georgian government staff, and Georgian private sector representatives and farmers. The report assesses progress toward the goal and makes recommendations for follow up action.

**2. Narrative report on the monitoring and evaluation of the project**

The project laid out a plan for producing the following products.

**- 1 Short summary report with the main finding of the assessments on non-chemical solutions of hazardous construction materials and pesticides and biocides**

By the end of the first year, the project had produced a brief draft report on the current situation of toxics management in Georgia, including a review of compliance with international agreements. The report covered a range of hazardous chemicals and their management, with particular attention to pesticides. While the research had already been done, the report did not yet cover the current situation in the construction industry, only an inventory of natural construction materials in use across the country, broken down by region.

The project produced the final inventory report in May 2012, and translated it into English in June 2012. The report summarizes well a wide range of chemical safety issues. Most importantly it documents that very little information is available, and that there are major gaps in both government monitoring of hazardous chemicals and in the legal framework regulating them. The primary reasons for these gaps are

1. the weakening of the main chemical safety law since 2003 in order to liberalize the economy, and
2. the decline in resources available to government departments responsible for monitoring and enforcing the laws and regulations that do remain.

The legal framework for regulation and registration of pesticides is still intact, though the staff needed to implement it have been reduced drastically in the last decade. For non-agricultural chemicals, the legal framework is confusing and often unenforceable.

The report was presented at a high level conference in May 2012 with participants from government, private sector plant protection firms, farmers and NGOs. Participants agreed that the report correctly identified the gaps in legislation and practice, and that the agriculture and construction sectors were two of the highest concern. Many government staff noted that the issues were not new to them since they were already working on them, but added that this was one of the first times that this information was collected together and presented to all stakeholders in a consolidated way.

All partners recognized the value of the report, and thus have translated the entire 30 page report plus attachments, rather than just the summary called for in the project document.

### **- 1 Replicable training tool on non-toxic construction materials adapted to national situation**

The project developed a series of PowerPoint presentations for use in future trainings. These were:

1. Alternatives to Asbestos – by RCDA
2. Asbestos true cost, and alternatives to chrysotile asbestos – by WECF
3. Straw and Clay Building – by Harry Capiou and Olivier Capiou
4. Straw Bale Wall Building PowerPoint in Georgian documenting the July 2011 workshop with photos of the step-by-step process
5. Video "House of Straw" in English, German and Russian -- by German Straw Bale Association

In addition, Harry and Olivier Capiou developed a six page document, "Frequently Asked Questions about Straw Bale Building in Georgia," for briefing people on the basics of the subject.

These materials are all of excellent quality as training tools. They cover a variety of perspectives, from the hazards posed by toxic materials to practical how-to advice on construction. As Power Points, they do not stand on their own. Rather, they serve as tool that staff can use for future trainings in Georgia and elsewhere in the region.

### **- 1 Replicable training tool on substitutes to pesticides and biocides adapted to national situation**

The project developed PowerPoint presentations in Georgian, Russian and English. These were:

1. Introduction to Pesticides and Alternatives
2. Phytosanitary Situation in Georgia
3. Perspective and Opportunities for Developing Organic Agriculture in Georgia
4. AWHHE on alternatives in Russian
5. Pesticides -- Needs and Risks. Sustainable Agriculture - Chance for a Clean Environment
6. WECF Pesticides 1
7. WECF Pesticides 2

8. WECF Pesticides 3

9. Bio Organica photos of typical biodynamic methods in use in Georgia

SEMA developed one booklet with practical instructions how to prepare plant tinctures for crop protection, as safe alternatives for pesticides. The booklet can be used by farmers, NGOs and training and extension services with the aim to show methods to improve plant protection without using hazardous chemical pesticides.

In addition, SEMA and the German NGO Logo E.V. developed a training module on how to do organic agriculture in Georgia.

As with the tools on construction, these Power Points are clear and effective training tools. They cover perspectives from the overall view of the hazards of pesticides, to the current phytosanitary situation in Georgia, to practical advice on how to make and use alternatives to toxic pesticides in Georgia. They must be used by experience trainers, and do not stand on their own.

**- 1 National training workshop "Alternative eco-friendly construction materials" will take place in Georgia.**

The training took place at the RCDA Training Center in Misaktseli from July 1-4, 2011 with a team of trainers from the Netherlands. The 12 participants included private builders, farmers, architects, government officials, and academics. The workshop experimented with different mixes of local clays and sand to find the right proportions. Participants built a wall for the Training Center. There is a report in English with photographs on the WECF website at <http://www.wecf.eu/english/articles/2011/12/strawbale-building.php>.

This training was followed by an Information Day on July 4. About 30 people, include architects, government reps (including local authorities), university architecture faculty and conservation faculty participated.

Feedback from the workshop showed that:

- a. Straw bale techniques require slight modifications for the Georgia context, especially in developing the appropriate material for plaster. The workshop was useful for working with participants to find the right materials and mixture.
- b. Participants agreed that straw bale construction is an excellent alternative in Georgia.

The combination of presentations and hands on work are appropriate for this kind of training. There were no post-training assessments to show how much participants learned, so it is not possible to make an independent judgment of training quality. The evaluation did inspect the wall built during the training. It was of good quality, and as good as the rest of the training center that was built by skilled artisans.

The workshop generated considerable follow up interest. The Energy Efficiency Center will show the possibilities of straw bale building in their 'Energy Bus', constantly touring through Georgia. They committed themselves to translate the 40 minute German film on straw bales shown at the workshop to Georgian to show in their Energy bus.

A 7 minute TV broadcast covering the workshop on the national TV channel Rustaveli 2 also produced further interest. RCDA staff report that at least 20 interested people visited the RCDA training center to inspect the wall within two weeks after the workshop.

### **- 1 national workshop on alternatives to pesticides, biocides will take place in Georgia**

The original plan called for a single five day training. Project staff realized that it would be more useful to break the training up into parts.

1. The first took place July 28-9, 2011, just after the end of the first year. The training presented an introduction to the subject: “Pesticides - the need and risks, sustainable agriculture - a chance for a Healthy Environment.” This workshop presented an overall view of the hazards of pesticides and the current state of pests and pest control in Georgia. Participants included NGOs, a private sector plant protection specialist government occupational health staff, farmers and farmer leaders, and university students from organic agriculture dept. Many were surprised to hear about the current state of pesticide regulation and legislation. Report in English on website at <http://www.wecf.eu/english/articles/2011/09/pesticides-georgia.php>.
2. The second training took place September 24-5, 2011. This training -- “Alternative biopesticides - sustainable agriculture - a chance for a clean environment” – focused more on the practical aspects of appropriate techniques of alternative agriculture in Georgia. Staff reported that the training covered alternative pesticides, the results of the demonstration plot, and agro-technical measures having an impact on the spread of vermin and various diseases. Experts on plant protection and alternative agriculture came together to share their experiences, participants set up composting pile and visited the demonstration plot. There were about 20 farmers and NGOs participating.
3. The third and final training on pesticides was organized on June 17, 2012 in the target village Ereda at the demonstration farm. All 26 participants (of which 11 women) were farmers. The topic of the training was ‘New technologies and innovation on plant protection, seeds treatment, etc.’, with the aim to help the farmers reduce the use of chemical pesticides and implement more (cost) effective alternatives for ensuring a healthy crop.

### **- 1 demonstration sites for alternatives to pesticides, in Georgia**

Although not planned until the second year, the project has already set up an 800 square meter demonstration plot in the first year. Using a combination of Integrated Pest Management and natural pesticides and fertilizers, a local farmer is producing a wide variety of vegetables and grains. Plantings include corn, cucumber, tomato, beans, carrot, beet, potato, as well as the perennial legume esparcet. The borders between the crops is sown by Georgian corn, pumpkin, marrow and saffron in minor quantities to create a barrier for pests and a favorable micro climate, and as ground cover against weeds. The neighbor crops were chosen to have a favorable impact on each other.

Project staff reported that a number of pests attacked some of the crops, giving them a chance to test alternative treatments. Colorado beetle attacked potato, cabbage bleak and greenfly attacked broccoli, fleas attacked the beets, the powdery mildew attacked cucumber. Staff imported the bio-pesticide Neem-Azal from Germany for Colorado beetle with permission of the Ministry of Agriculture. The preparation was also efficient against the cabbage bleak, greenflies, flea and other parasites. The farmer and staff also prepared different vegetation tinctures to fight green

flies, such as datura tincture and garlic tincture. Other tinctures used include horsetail tincture and Hyoscyamus tincture.

Results with powdery mildew on the cucumbers were less encouraging. Staff and the farmer used the copper-containing preparation KOSAID 2000. However, excessive rains, and an error in applying the preparation (during the heat of the day rather than morning or evening), limited its effectiveness.

For fertilizer on the demonstration plot, the farmer and staff experimented with a 3:1 solution of urine. They reported the maize harvest was twice as much as the control harvest without any fertilizer, and cucumber flowering time and harvest increased significantly. There was no comparison with commercial N-P-K fertilizer.

The plot also used residue from the farmer's bio-gas tank to fertilize the soil. No application rates or results were reported, though the farmer reported a significant increase in harvest. Neighbor farmers obtain the biogas fertilizer from the demonstration farmer to use in their own gardens.

No data were available to assess the success of the plot versus conventional techniques. The results reported are certainly encouraging, and suggest that alternative techniques are effective in the Georgian context.

The demonstration plot was useful during the trainings to see actual techniques in practice. In addition, local farmers frequently visit the farm to exchange ideas and monitor the new techniques.

In addition, the demonstration farm has been useful for creating awareness for a wide variety of visitors. The following is a record of visits to the demonstration site for 2011:

1. participants of different practical trainings: 105 people
2. participants of different seminars: 75 people
3. middle school children: 23 people
4. guests: farmers from different regions of Georgia: 18 people
5. foreign guests: 16 people

### **- 1 demonstration sites for non-chemical local construction materials, in Georgia**

The site for the demonstration is at the existing demonstration center of RCDA, just outside Tbilisi. This location allows the organization to integrate this demonstration into its other work on passive solar power, solar agricultural dryers, urine diverting dry toilets, urban agriculture, and other similar ideas. Construction of the demonstration building took place as part of the national training event in July 2011 as a practical solution to both the training and the expenses of construction.

The mid-term report and evaluation documented that one unexpected output was the development of a new business in support of straw bale construction. Due to a shortage of natural insulation materials, RCDA purchase reed panels produced by women near the RCDA Resource Center in Western Georgia, using an abundantly available material. The project did not originally envision this business. Since the first year, the women have been unable to meet demand, so it remains to be seen if this will be a sustainable business for them. The quality of the construction at the center appears quite good, so it serves well to demonstrate the practicality of the method for Georgia. While the wall constructed during the training is not quite a year old, and the center itself has

been only completed recently, it is impossible to say how the construction will hold up over time, though construction experts from France gave project staff a positive evaluation of the construction in summer 2012. Given the fact that this technology has been in use for a century, and has been easily adapted to many countries around the world, the value of the technology itself is not a great concern.

**- 1 Brochure “Affordable solutions for house construction in rural areas using locally produced renewable materials” in English, Georgian**

Rather than a brochure, RCDA produced three publications:

1. Poster: Asbestos: A Hidden Killer (also suitable for A4 format)
2. Poster: Places in the House where asbestos can be found (also suitable for A4 format)
3. Straw Bale Frequently Asked Questions (FAQ)

All three products are well done and can stand alone. The posters generate awareness about health hazards of construction materials, and thus are designed to motivate people to learn more. The Straw Bale FAQ covers the range of issues: principles and history of straw bale construction, durability and reliability, how to construct it, energy efficiency, and resources in Russian and German for further information.

**- 1 Brochure “Substituting pesticides, biocides and synthetic fertilizer with safe alternatives” in Russian, Georgian**

SEMA produced the following print materials:

1. Brochure “Substituting pesticides, biocides and synthetic fertilizer with safe alternatives” in, Georgian
2. Leaflet “Biopesticides – a chance for a clean environment” in Georgian

**- 1 Press release in Georgia announcing the publication, which will be made available also as download from the websites of the local partner NGOs.**

Rather than sending press releases on the occasion of the publication of the brochures and fact sheets, project staff from the Greens Movement put out a variety of press releases publicizing several milestones of the project. These included:

1. Announcing the Alternative Construction Information Day
2. Summary of March 30, 2012 Roundtable on chemical safety
3. Summary of the High Level Meeting held in addition, even though not in project text
4. Declaration of the conference/recommendations of the project

As a result, the project generated a fair degree of publicity. Following the High Level Conference in May 2012, a staff member from the Greens Movement was interviewed on Patriarch Radio, which has a large national audience. Another was interviewed on state radio about the conference, and the conference itself was covered on TV on Channel 9. When the Greens Movement posted a press release on data about number of pesticides imported on the CENN (Georgian Environmental NGO Network) list serve, the report was picked up on the radio.

- 4 letters<sup>1</sup> to relevant Ministries and other relevant decision makers to present policy recommendations

In the second year of the project, staff realized that while writing letters to the relevant Ministries with policy recommendations would be useful, it would be far more effective to engage all stakeholders in a consultation about the state of chemical safety in Georgia. As a result the project organized two events not foreseen in the project text:

- a. A Roundtable of stakeholders to discuss possible recommendations that would be included in the inventory report to come later in the year. This session was held in Tbilisi in March 2012.
- b. A High Level conference inviting a wider set of stakeholders, held in Tbilisi in May 2012. In addition to presentations and discussion of the current state of chemical safety in Georgia, this conference also reviewed a draft declaration that would be issued later by the NGOs in attendance.

The result was a far higher level of engagement of all stakeholders in the process. In addition, the declaration was able to go in far greater depth than letters would have been able to. This declaration was supported by the extensive inventory report. The declaration has been sent to all relevant ministries and through the CENN and REC newsletters.

## **1. Assessment of past and current practices and information needs**

- a. Surveys of rural population conducted, existing knowledge, information needs, and networks assessed – The surveys have been completed both for construction materials and pesticides. The results have not been written up formally, but the conclusions are included in the inventory report. Typical of the results are the following conclusions from a report by SEMA of a focus group of 11 vintners:
  - “The farmers have extremely superficial knowledge and they experience the lack of information on the rules of application of toxic chemicals, including pesticides in agricultural sector;
  - There are quite big problems associated with purchase of toxic chemicals, including pesticides. The customers demonstrate strong mistrust with regard to the quality of the products, as well as to the instructions attached to them;
  - Both, the quality and the prices of the pesticides are extremely important for the farmers;
  - The awareness of village population on environmental issues, as well as on the issues related to ecological quality of their crops is low. The target group partially realises the harm caused to the environment, as well as the harm their products cause to humans.”

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<sup>1</sup> The approved project text lists four letters, which is an error left over from an earlier draft of the project when it included similar activities in two countries. When the project was narrowed to Georgia only, the second two letters dropped out.

b. Inventories of products and programmes completed – The inventory report has been written and finalized, and was distributed in a day long High Level meeting of all stakeholders in Tbilisi. As noted above, the report is an excellent summary of the current situation of chemical safety in Georgia, covering the legislative framework and its gaps, legal and illegal imports of chemicals, current hazards in the construction and agriculture sectors, and an introduction to alternatives for these sectors.

## **2. National trainings**

- a. Two training modules developed – The training modules are completed. They are of high quality, and have been tested and modified.
- b. Two training kits developed -- The original concept of the training kits is that they would be a box of sample materials for non-toxic construction materials. On further reflection, project staff realized that the concept made more sense in Western Europe where natural materials are commercially available and specialized. In Georgia they are so common -- sawdust, clay, straw, sheepswool, pumice -- that there is no point in giving people materials they already know well.
- c. Two trainings conducted<sup>2</sup> – Eight trainings were conducted – three on pesticides one on construction materials, and five community workshops on construction materials.
- d. Solutions offered in trainings are cost effective and safer than traditional methods – The project did not do systematic analyses of the cost effectiveness or safety of the solutions offered. For the issue of safety, the hazards of the pesticides and construction materials in conventional use are well documented, as are the safety of the natural materials that replace them. So there is little question that the proposed techniques are safer.

The question of cost effectiveness is more complex. The evaluation sought information on financial comparisons between conventional and alternative approaches. While the information was provisional, it suggests that the alternatives are in fact more cost effective.

For construction materials, the evaluation compared costs for conventional construction versus straw bale construction per square meter. Based on these preliminary numbers, the straw bale construction costs only 40% of the cost of conventional construction: 19.4 GEL/square meter for the straw bale versus 47.6 GEL/square meter for conventional construction. These figures are summarized in Table 1.

These figures are only preliminary, and should be subjected to more thorough investigation in the future. In addition, they reflect only costs, and are not amortized over the life of the building to compare long term maintenance and replacement costs. At the same time, the most thorough analysis would take into account the life cycle costs of all materials, as recommended by the SAICM Overarching Policy Strategy. In all likelihood this analysis would only make the conventional methods more expensive, given the health and pollution effects associated with many of them such as asbestos, cement, and volatile organic compounds in paint and adhesives.

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<sup>2</sup> The approved project text lists four trainings, which is an error left over from an earlier draft of the project when it included similar activities in two countries. When the project was narrowed to Georgia only, the second two trainings dropped out.





**Table 1: Costs of the materials for buildings from Conventional and Natural Materials (Straw) per square meter**

		Conventional		Natural materials			
<i>Name of materials</i>	<i>Amount/square meter</i>	<i>Cost/unit Gel</i>	<i>Total cost</i>	<i>Name of materials</i>	<i>Amount/square meter</i>	<i>Cost/unit Gel</i>	<i>Total cost</i>
<b>Cement</b>	70 kg	0.24	17	<b>Cement for foundation</b>	10 kg	0.24	2.4
<b>Sand</b>	0.2 m3	45	9	<b>Straw bales**</b>	3 units	1.5	4.5
<b>Gravel for foundation</b>	0.2 m3	30	6	<b>Sand</b>	0.1m3	4.5	4.5
<b>Cement Block</b>	13	1.2	15.6	<b>Clay</b>	0.02m3	1	2
<b>Transportation***</b>				<b>Wooden posts</b>	6 meters	1	6
<b>Total</b>			<b>47.6</b>				<b>19.4</b>

\* Conventional buildings are constructed by hired craftsman, while the straw bale buildings can be constructed by the owner after some training

\*\* In case the straw bales are made locally the price will be GEL 0.70-0.80

\*\*\* Transportation costs depend upon the distance. In case the straw and clay are brought from local fields or local clay deposit the prices are minimal

For pesticides, preliminary data suggests that some alternatives to pesticides are more cost effective while others are not.<sup>3</sup> The comparison is complicated by the fact that most alternative agricultural practices in fact involved an entirely different system and philosophy than conventional agriculture. It is not just a matter of substituting a bio-pesticide for a chemical one. Most alternative agriculture techniques call for crop rotation, intercropping, rebuilding health soil structure, use of natural boundaries and natural pest enemies.

Nonetheless, one of the most direct comparisons is for wheat, where similar cropping systems are used and yields are similar. Table 2 shows data provided from trials done by the private firm Bio Organica Georgia. This data shows that for trials on six hectares of wheat, the alternative fertilizers and pesticides resulted production costs that were less than 75% those of conventional methods – GEL 4094 for organic methods and GEL 5594 for conventional.

<b>Table 2: Bio-Organica Georgia Cost Comparison</b>		
Six Hectares of Wheat	Cost (GEL)	
	Organic	Conventional
Land lease	600	600
Cost of seeds	1,720	1,720
Fertilizing	120	1,440
Plowing and Fertilizing	640	640
Cultivation 1	260	260
Cultivation 2	44	44
Seeding	50	50
Herbicide		120
Pesticide	120	180
Harvesting	540	540
<b>Total Cost</b>	<b>4,094</b>	<b>5,594</b>

For other preparations and crops the picture is mixed. For example, an industry plant protection specialist pointed out that Dimilin, which is used for controlling moths and flies, is three times more expensive than the competing conventional pesticide. Yet Neem-Azal, available in Germany, newly registered in Georgia, and successfully used in Georgia in this project, costs half as much to use as the chemical that it replaces.

The project only promoted solutions that were cheaper to use than chemical preparation, thus avoiding much of the uncertainty over the issue of cost effectiveness. As with construction materials, a more thorough financial analysis would compare actual costs with yields, and would take into account the full life cycle costs including health and environmental effects. Such an analysis was beyond the scope of the project and this evaluation.

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<sup>3</sup> Project staff note that the plant tinctures described in the booklet can be made free of charge by any farmer, though they are not as effective as pesticides. However, if used in time they can prevent harvest losses as well. Because there was no data on results, no meaningful financial comparison is possible here.

### 3. Demonstrations and awareness raising activities

- a. Two<sup>4</sup> demonstrations produced which are cost effective and safer than traditional methods – The discussions above show that both demonstrations showcased methods that were safer methods, and most likely more cost effective.
- b. Two awareness raising publications produced, two press releases issued – The project over performed on these indicators, as the discussion above documents.

**4. Policy recommendations developed and communicated to policy makers** – The main policy recommendations are summarized in the inventory report. They are:

- Developing a new legislative frame for regulation of the harmful chemicals and chemical substances harmonized with the European legislation and mechanisms for actual enforcement of these legislative norms;
- Regarding full exclusion of the conflict of interests, the rights and obligations should be clearly distributed between the state structures with the functions of regulation of the harmful chemical substances;
- Both, legislative and institutional basis of flexible testing, registration and monitoring system of the dangerous chemicals and chemical substances subjected to import into the country should be improved and activated to maximal possible extent;
- Coordinated action of all authorized state regulating structures should be achieved and all kinds of departmental interests should be excluded;
- Material and technological basis required for testing, approbation and monitoring of the dangerous chemicals and chemical substances should be established urgently;
- Approaches to the system of collection and dissemination of information about dangerous chemicals and chemical substances, as well as the compounds and materials containing thereof, should be drastically changed and as the landmark should be the goal of achieving of full and in-depth awareness of each individual and especially child dealing with the said substances;
- Common information base should be established with the information posted in the format clearly understandable for the wide population;
- The strictest regulations of marking and labeling the harmful chemicals and chemical substances or the compounds and materials containing thereof should be established, providing maximum information about harmful properties of such substances;
- Current regulations of storage, packaging and distribution of harmful chemicals and chemical substances should be reviewed and strict administrative and criminal requirements for violation of these norms; such norms should be applicable to the users as well;
- Requirements, with respect of consumption of the harmful chemicals and chemical substances should be made stricter for the purpose of better awareness of the population;
- Government should investigate in details lawfulness of the harmful chemical substances imported into Georgia in 2010-2012 and apply the measures provided for by the law;
- To achieve full transparency of turnover of the harmful chemicals the codification system and mechanisms should be improved<sup>7</sup>

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<sup>4</sup> As with the training, the approved project text lists four demonstrations, again an error left over from an earlier draft of the project when it included similar activities in two countries. When the project was narrowed to Georgia only, the second two demonstrations dropped out.

- Mechanisms necessary for implementation of monitoring of turnover of the harmful chemicals within the country should be introduced urgently;
- The system of study of the arable lands in Georgia for measuring of the soil and atmosphere pollution resulting from consumption of the harmful and other chemicals and permanent monitoring of these parameters;
- Unconditionally, without any reservations, urgently and unambiguously import of asbestos containing construction materials and other materials should be prohibited and simultaneously, the stocks available at the market should be utilized in full compliance with the regulations;
- List of the pesticides permitted for import into Georgia should be reviewed and their number should be minimized, taking into consideration their reasonability;
- Stocks of unused pesticides available on Georgia should be re-registered and transported to the countries of origin;
- Mechanisms for financial support to the farmers should be developed and adopted to allow them application of though expensive but effective and proven pesticides instead of cheap pesticides of low effectiveness of doubtful origin, causing significant damages both, with respect of pollution and crops protection;
- Strict obligatory legislative requirements dealing with recording, collection and utilization of the pesticides' packaging should be adopted;
- Significant steps should be made with respect of legislative and economic support to the bio-farms;
- Production and import of personal protection equipment for dealing with the chemical compounds should be supported in legislative and economic respects, for the purpose of achievement of their distribution at low prices;
- During current year government of Georgia should conduct special study in relation with environmental safety of the construction, repair and installation materials, as well as domestic articles, materials and substances sold in Georgia and relevant measures should be taken for publicity of the results of such study;

### **Unexpected Results**

Beyond the foreseen results, the project also produced a number of results that were not expected.

- a. Concept note on promoting sustainable building materials and techniques accepted by EU -- Euro 90k
- b. Proposal to EU to promote banning of asbestos and promoting alternatives and informing population -- Euro 150-200k will ask for
- c. Architects who participated in 2011 workshop have proposed straw bale construction to clients including a large restaurant, also one who was not there but saw presentation and was convinced
- d. Roundtable in March 2012 and High level meeting in May 2012 organized by Greens Movement
- e. Nascent women's business producing reed insulation mats. Not yet able to meet demand.
- f. 2 construction block producers near Misaktsieli provided safety masks for workers after visit from RCDA
- g. the addition of community workshops that RCDA implemented as part of the survey process. They served not only as a collective means of information gathering, but also to raise awareness of toxics issues among community members. 110 representatives of the target communities Misaktsieli and Khamiskuri (local households, school teachers,

medical staff, local authorities) took part in the workshops and raised awareness about hazardous construction materials.

### **3. Links with QSP objective and strategic priorities**

The project contributes to the following items from the SAICM Global Plan of Action:

17. Promote exchange of information on successful experiences and projects related to chemical occupational safety and health.

The project developed many tools for education and alternatives to hazardous substances, including both local information and information from other countries. In particular, the emphasis on alternatives in both the construction industry and agriculture promoted successful experiences.

20. Protect workers from chemicals causing asbestosis, other asbestos related diseases and occupational cancers, those chemicals included in the Rotterdam Convention because of their occupational risks and other hazardous chemicals based on their occupational health risks.

Six community trainings have been carried out, raising awareness and teaching the population on how to protect themselves against asbestos. A silica exposure plan has been developed by RCDA and is implemented by pilot cement factories in two target communities with the aim develop protection measures for workers from hazardous and cancerogenic dust particles that are appearing during the production process. In addition, the introduction of safer and cheaper alternatives provides both workers and employers with other options.

27. Promote the use of low-risk pesticides and biocides including non-chemical alternatives and the substitution of the highly toxic, persistent and bioaccumulative ones.

The project not only set up practical demonstrations for farmers, but also produced numerous educational publications in Georgian explaining the hazards of agricultural chemicals and how to use alternatives. The project also cooperated with a private sector company to test its products and educate farmers about its availability.

51. Provide training in alternative and sustainable agricultural practices, including the use of nonchemical alternatives.

The project provided numerous training events, and produced several training modules that will continue to be used in the future.

67. Apply life-cycle management approaches to ensure that chemicals management decisions are consistent with the goals of sustainable development.

WECF and its partners approaches are integrated with the aim of a healthy environment and sustainable development for all. The SAICM building materials part takes into account expertise from energy efficiency. Insulation materials used in buildings are natural and grown without the use of pesticides and can be re-used after they have served as building material. The agricultural part is connected with marketing approaches to improve livelihoods for project farmer. WECF's demonstrations are built without the use of toxic chemicals (e.g. no asbestos on ecosan toilets' roofs, no toxic paints for solar fruit dryers and solar collectors.) The link with water protection and biodiversity conservation is highlighted when addressing the reduction of pesticide use.

Straw bale building is promoted, using an agricultural by product, clay and wood. When the house will be dismantled, there will not be any waste to be removed, but the products can be used as soil conditioner/compost, or to build new houses (the clay).

164. Work to ensure broad and meaningful participation of stakeholders, including women, at all levels in devising responses to chemicals management challenges and in regulatory and decisionmaking processes that relate to chemical safety.

WECFs overall strategy is inclusive and taking into account all stakeholders. Partners have close contact to local communities and women groups, taking into account their considerations, but also with the ministries, different politicians and scientists. Meetings with business, architects, scientists and experts, politicians are taking place.

Stakeholder involvement is one of the corner stones for political and behavioral change aimed for in this project. The national trainings attracted a variety of stakeholders, from farmers and builders to mid-level government officials, policy makers, and the media.

It is early days for most chemical safety issues in Georgia, and the project has done an excellent job of reaching out in all sectors. Having said that, there is a limited number of people, organizations, companies, and government officials who recognize the scope of the problem and the urgency of alternatives. So work like this will need to continue for some time to continue to raise awareness and introduce new practices.

242. Promote the transfer of technology and knowledge for cleaner production and manufacture of alternatives.

This issue has been addressed in activity 3 and 4. The trainings were focused on alternatives and most took a practical and hands on approach. The participants often learn by doing while getting theoretical background using lectures and participatory approaches suitable for adult learning. After the training on construction materials the participants are able to apply alternative building materials themselves and train their peers.

The agricultural stakeholders also learned new technologies, and are now able to follow them at a farmer managed demonstration plot throughout the growing season.

The project has taken advantage of technologies developed in other countries, in particular Germany, the Netherlands, and Armenia. At the same time, the project took the time to adapt these technologies to Georgian realities, thus promoting adoption.

### **3. Main conclusions**

The project has been a major advance in promoting chemical safety in Georgia. The vacuum in policy created by political and economic transitions in recent years has created a situation in which there is little awareness of chemical safety issues, and public ability to regulate chemical use and protect workers and the public has declined. This project has raised awareness both among policy makers and the public, built alliances among government, private sector, and non-governmental staff, demonstrated viable alternatives to the most hazardous chemicals in the construction and agriculture sectors, and raised the capacity of public officials and NGO staff to continue to deal with the daunting issues of chemical safety across the country.

#### **4. Lessons learned**

The project has produced the following lessons

1. Changes in public policy require the reengagement of government, civil society and the private sectors in dealing with chemical safety issues.
2. There are experienced people in all three of these sectors willing to work together on chemical safety.
3. The lack of a sound legislative framework hampers the ability of all sectors to make meaningful progress on policy.
4. There is an openness in all sectors to dealing with chemical safety issues in a mutually constructive way.