

The Integrated Land Use Design (ILUD) Process

Reconnecting school communities to nature, culture and their history for abundance and resilience.

ILUD is a whole school participatory design process for school communities that is facilitated by the Regional Schools and Colleges Permaculture (ReSCOPE) Programme and the SCOPE Programmes in Kenya, Malawi, Uganda, Zambia and Zimbabwe. This whole school approach takes a holistic view of the school environment and involves multiple stakeholders who include the learners, staff, parents, community leaders and local organisations

For further information visit: <http://seedingschools.org> or write to rescope@seedingschools.org



Using ILUD in landscape regeneration

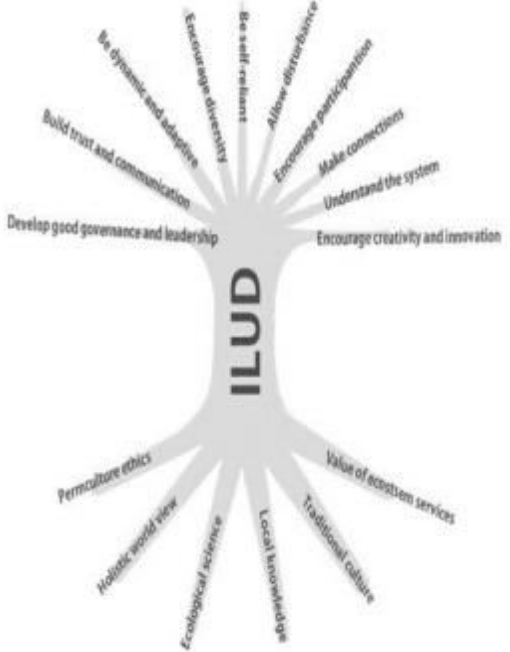
The ILUD process has been evolving since 1989 and it has been informed by developments in Permaculture, Holistic Management, Participatory methodologies, Community mapping and Ecovillage development among other influences. This toolkit can therefore be useful in landscape regeneration work for a number of reasons which include:

- ❖ It is most likely that every inhabited landscape has institutions such as schools, churches and clinics which have premises that need to be integrated into the regeneration work. Community development facilitators may use the ILUD methodology to ensure this integration.
- ❖ It has been our experience that ILUD work helps participants to develop supportive mindsets that are in tune with regeneration work. We have seen that negative attitudes and the colonial and neo colonial impacts can be major barriers to sustainable development. The grounding exercises in ILUD help participants to experience mindset shifts which are assets in landscape transformation work
- ❖ The situational analysis tools used in ILUD can enhance the collection of baseline data in community mapping exercises.
- ❖ The ILUD approach places an emphasis on integrated land design which is key in getting communities to transform their land use starting with the homestead all the way to the broader landscape.

Understanding ILUD


QUESTION	INTEGRATED LAND USE DESIGN (ILUD)	NOTES/ILLUSTRATION
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<p>1 What is ILUD?</p>	<p>It is a tool developed and continually updated by the SCOPE and ReSCOPE Programmes in east and southern Africa. School communities (learners, teachers and parents) can use the ILUD tool to improve land use and environmental consciousness at their schools.</p> <p><i>It is a method that school communities can use to implement Permaculture and transform minds and landscapes in contributing towards the building of community resilience.</i></p> <p>It is a transformative step by step process for school communities to demonstrate agro-ecology in their schools for the benefit of the whole community.</p> <p><i>It is an inclusive and participatory process that school communities can use to develop whole school land designs and food forests to meet their needs.</i></p> <p>It is a way of implementing whole school orchard gardens or food forests by involving all relevant people right from the planning stage.</p>	 <p>ABOVE: Learners and teachers at St Margaret's primary school in Hwedza, Zimbabwe holding some of the produce from their food forest. The land where the group is standing was bare and dusty when they started implementing ILUD in 1994. School communities can use the ILUD process to revisit their designs from time to time to learn from practice in order to improve their designs as well as to inform the further development of the continuously evolving ILUD tool.</p>
<p>2 What is it made up of?</p>	<p>ILUD consists of five key steps which are :</p> <ol style="list-style-type: none"> 1. Grounding – reconnecting the school community to nature, culture and the past 2. Situational analysis – identifying locally available resources and developing a common understanding of these resources; unpacking the current situation together. 3. Visioning – Thinking into the future 	 <pre> graph TD G[GROUNDING] --> SA[SITUATIONAL ANALYSIS] SA --> V[VISIONING] V --> ID[INTEGRAL DESIGN] ID --> IMP[IMPLEMENTATION & MONITORING PLANS] IMP --> G </pre>

	<p>and developing long term goals that are shared by the school community and that cover ecological, social, cultural and economic dimensions</p> <p>4. Integral design – using Permaculture design skills to re-design the whole school land to create a multi-functional landscape that meets the needs of the stakeholders at the school</p> <p>5. Implementation and monitoring – developing work plans for implementing and monitoring their new whole school land design in a genuinely participatory way</p>	
<p>3 What are some of the issues that ILUD is responding to</p>	<ul style="list-style-type: none"> ✚ Hunger both in schools and their communities. Many children in the target communities come to school without having had breakfast and yet they are asked to sweep and maintain the dusty, bare or ornamental school grounds ✚ Undernourishment of children who are having the staple food but not much else resulting in protein and micronutrient deficiency ✚ Poor educational delivery in under resourced schools ✚ Dusty and hot school environments that are unhealthy and uncomfortable ✚ Low status of Agriculture in the minds of the children ✚ Underutilisation and degradation of the land and other resources ✚ Climate change ✚ Academic focus in the education system with little or no attention to food production/farming in the curriculum ✚ ‘Boxed’ curriculum that is also too examination oriented ✚ Schools are islands in their community ✚ Mindsets which are disconnected from nature, culture and the past 	<p>Maize is the staple food in most of the target communities. It is both a thirsty crop and a heavy feeder. Yields are falling because of</p> <ul style="list-style-type: none"> ✚ Depleted soils – many farmers burn crop residues and do not feed the soil adequately ✚ Maize is being grown in areas that have too little rain and without using methods that conserve the little moisture available. Climate change is making this situation worse ✚ Maize is grown as a monocrop and so every time something happens to it a food crisis is created <p>The maize is increasingly being consumed in a very refined form with all the fibre and micronutrients removed and thrown away or given to the chickens. The resultant simplified diet is creating new challenges and is strengthening the vicious cycle of poverty.</p>
<p>4 What are the expected</p>	<ul style="list-style-type: none"> ✚ Increased participation of the parents, teachers and learners in the development of the school grounds ✚ Increased biodiversity in the school 	<p>In the participatory re-design of the school grounds by the learners, teachers and parents, they set aside the areas for sports and access routes and they use the rest of</p>

<p>outcomes of an ILUD programme</p>	<ul style="list-style-type: none"> ✚ Improved conservation of soil and water with reduced soil erosion ✚ Increased access to food by the children and teachers ✚ Increased retention of teachers and children in school – reduced drop-out rates for the children ✚ Increased teaching and learning using locally available resources (TALULAR) across the curriculum ✚ Cooler micro-climate in the school ✚ Stronger school community links ✚ Increased use of local knowledge in teaching and learning ✚ Creation and use of outside learning spaces ✚ Adoption of farming methods that help in climate change adaptation and mitigation ✚ Adoption of a culture of caring for the environment and for all forms of life. ✚ Creation of a carbon sink in the form of an organic food forest 	<p>land to develop a food forest with fruits, staples, legumes, herbs, spices, vegetables and small animals. Rain water is harvested into the ground and a soil cover is maintained throughout the year. Outside classrooms are created by using umbrella shaped trees with seating around them.</p> <p>The food forests are developed without much sweat and capital as zero tillage is employed and a generous soil cover made from local wastes creates new fertile top soil. The parents donate the seeds and seedlings as well as some of the labour required. Mulching is used to control weeds further reducing the requirement for labour. Natural inputs are used for soil improvement and pest and disease management further reducing the need for financial resources to implement the programme at school level.</p> <p>All these interventions help the schools to become examples of much greater resilience to climate change.</p>
<p>5 What are the essential elements of an ILUD Programme?</p>	<ul style="list-style-type: none"> ✚ Inclusiveness – inviting all stakeholders to be involved ✚ Participatory - involvement of all stakeholders right from the planning stage ✚ Holistic - Whole school land – the whole school environment is put into the design ✚ Needs driven – The design should meet the needs of the people who use the land ✚ Experiential learning – hands on approach that values learning by doing ; trying things out and learning from the experiences ✚ Resilience – the new design should be ecologically sustainable, socially just and economically viable and build community resilience ✚ Uniqueness – There is no standard design that is carried from school to school. Each school comes up with its own unique design that best meets their own needs 	<p>The school community in ILUD is taken to include the pupils, teachers and the parents and the structures in the community. Each school community uses the ILUD process to assess its resources and to develop an integrated design for the school environment that best meets their needs.</p>
<p>6 What informs ILUD?</p>	<ul style="list-style-type: none"> ✚ Permaculture ✚ Holistic management ✚ Participatory methodologies 	<p>ILUD draws on various thinking and practice models and is continuously reviewed to ensure that it remains responsive to</p>

		<ul style="list-style-type: none"> ✚ Ecovillage Design Education ✚ Eco community mapping ✚ Indigenous Knowledge systems ✚ Systems thinking 	changing situations.	
7	What is different about ILUD?	Conventional school garden projects	ILUD school community programme	<p>The world as a system. We must realise that our world is made up of systems which are networks of social, economic and ecological interactions. Information, energy and resources flow through systems.</p> <p>We are all part of a system... examples include a forest, a school orchard garden, a wetland, the school management system etc. Many connections make for a stronger system. The more different elements in a system (diversity) also make it stronger.</p> <p>Adaptive cycles Systems are not simple or stable, they are complex and they evolve and adapt. Most new systems follow a cycle (as opposed to the linear growth model which we are used to).</p> <p>Learning to live with abundance and resilience</p>
		A teacher is assigned responsibility for the school garden	The school Head, Parents Teacher Association and the School Management Committees take joint responsibility for the Programme	
		A school club made up of a group of learners take are responsible for developing the garden	All learners, teachers, parents and the school leadership are responsible for implementing their new ILUD design	
		A piece of land is allocated for the garden	The whole school environment is redesigned and utilised to scale up multi-purpose production in the ILUD programme	
		A high input approach is usually used with almost daily watering	A low input with high output approach is used. Organic products are produced.	
		A few vegetables are produced in one corner of the school	A food forest with a wide range of fruits, herbs, spices, vegetables, staples and legumes is established in all areas outside the buildings, sports grounds and the access routes	
8	Why ILUD?	<ul style="list-style-type: none"> ✚ A response to the unsustainable western model of land use and development ✚ A response to cultural erosion caused by colonialism and globalization ✚ Many school communities are disconnected from their culture, nature and their own history. ✚ Most schools are bare while hungry children are asked to sweep and maintain ornamental landscapes 	Indigenous communities are labelled primitive, old fashioned, poor, rural, traditional, uneducated, unscientific and are under pressure to climb the ladder to get certificates, jobs and to join the mass consumption. The truth is however that much more valuable and relevant knowledge resides in these communities which is specific to their environments. This includes knowledge of the seeds and useful plants	

	<ul style="list-style-type: none"> ✚ The education system is reductionist, too academic, examination oriented, teacher centred, classroom centred and book centred ✚ Children are prepared to be employed in white collar jobs that are not there. ✚ Hidden hunger or undernourishment is rampant with over 40 percent of the children in some eastern and southern African countries being stunted ✚ Most schools have become islands in the community; parents just send their children to school without being involved in what is going on in the school ✚ Problem oriented development approach which has created poverty of the mind 	<p>which is being lost.</p> <div style="text-align: center;">  </div> <p>The current education system is all about climbing the ladder; moving from rural traditional situations to academic certificates and white collar jobs that lead to mass consumption and high carbon footprints.</p> <p>People have come to the communities for a long time now asking them ‘what do you want?’ This has created a poverty label in the minds of the people as they now believe that they have nothing. They are good at listing the things that they do not have and not at recognizing the resources that they have.</p>
<p>9 Why schools?</p>	<ul style="list-style-type: none"> ✚ Schools are generally an underutilised resource in community development ✚ Schools are natural centres in the community: community members visit their local schools for a variety of reasons which include a wide range of meetings, church services, open days etc. ✚ Schools are an entry point into the community. Messages reach communities from the schools through the daily link by the children, the parents ✚ Schools have land which is often substantial and is mostly underutilised and does not carry much risk; School land is often used purely for ornamental purposes and is often largely bare ✚ It is easy to use schools as venues and demonstration centres in promoting farmer field schools ✚ Schools are unique in being an 	<p>If you go to a farmer and ask him or her to try out a new innovation he or she will be hesitant because of the risk of losing livelihood and the only source of food for the family</p> <p>Schools have a high standing in communities and so innovations that are successfully demonstrated on school land stand a good chance of being adopted.</p> <p>We have seen learners starting their own small gardens to demonstrate newly acquired techniques within the family garden</p> <p>Our future leaders and farmers are in school today</p>

		<p>intergenerational interface between the present and the next generation. Schools are agents of socialisation and present massive opportunities for shaping the future</p> <ul style="list-style-type: none"> ✚ What goes on in school is being taken for granted and is not being questioned much; ILUD presents opportunities in contributing to the re-shaping of our education system ✚ Children are much better learners than adults and so it is very efficient use of training resources to work with children; Adults are inhibited by the 'I know it all attitude' ✚ Experiences from the World Food Programme, ReSCOPE and others working with schools have shown that improving access to food improves attendance and retention of both teachers and learners in schools 	<p>Community members respect schools and will likely want to associate with a school that demonstrates new innovations</p>
			<div style="background-color: #e0e0e0; padding: 10px; border: 1px solid black;"> <p style="text-align: center;">GLOBAL CRISIS</p> <p style="text-align: center;">Economic crisis Energy crisis Phosphate crisis Climate crisis Food crisis Political crisis Water crisis Ecological crisis Over-population Health pandemics</p> </div>
10	<p>Who is involved?</p>	<p>At school level the learners, teachers, parents, school administration, PTA and SMC committees, local community leadership and representatives of local government structures are involved in the ILUD process. At national level the Ministries of Education, Agriculture, Health and Environment are engaged and sensitised on ILUD. Schools and Colleges Permaculture (SCOPE) programmes have been established as autonomous country chapters that are operating in several countries</p>	<div style="text-align: center;">  <p>SCOPE Zimbabwe, SCOPE Kenya, SCOPE Malawi, SCOPE Uganda, SCOPE Zambia</p> <p>ReSCOPE is a network of the SCOPE country chapters.</p> </div>
11	<p>With whom?</p>	<p>The local Community Based Organisations and NGOs are capacitated by ReSCOPE to use the ILUD tool for work with school communities in the areas where they work</p>	<p>There are more than 50 local organisations being groomed to offer training in ILUD in the region and of these 18 are in Malawi, 17 in Uganda, 15 in Kenya and 7 are in Zambia</p>
12	<p>Where and when?</p>	<p>ILUD has been implemented in schools in Zimbabwe since 1989 and in Malawi since 2007. It is now also being implemented in Kenya, Uganda, Malawi and Zambia. Over 200 school communities in the region have participated in the ILUD programmes. On the right is Butale primary school in Masaka district of Uganda</p>	

<p>1 3</p> <p>How is ILUD Implemented?</p>	<p>The first step is to hold a one day sensitization workshop for the leadership in both the school and the community in order to explain the programme and get their buy in. The second step is to get key implementers in the form of selected teachers and farmers to attend a two week residential training in ILUD and the techniques of agro-ecology.</p> <p>This is followed by a one week participatory design workshop that is held at the school and is attended by representatives of the learners, teachers, parents and other relevant stakeholders who then go through the five step process to redesign their school land. These representatives who include 10 learners, 6 teachers, 6 parents will share with the larger groups that they represent the outputs of the ILUD workshop and invite them to participate in the implementation and monitoring of the new holistic design at their school.</p> <p>Finally a participatory implementation and monitoring system is agreed upon and followed. The ILUD facilitators provide ongoing follow up support and back up. Fixed point monitoring with photographs is one of the tools used to document land use changes and field days are held to promote sharing of lessons and dissemination to wider communities.</p>	<p>SEE: social, ecological and economic dimensions</p> <p>We came from the environment and we depend on it. The three circles below represent the place of humans in relation to our environment.</p> <div data-bbox="938 539 1506 920" data-label="Diagram"> </div> <p>Note that the biggest circle is the most important one and yet in our current world view it is the most ignored, abused and neglected. This shows a holistic world view. This world view will lead us to a sustainable, resilient way of life.</p>
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<p>Our vision and mission</p>	<p>Our vision is to see school and college communities living in abundance using their whole land creatively to produce a diverse range of nutritious food and other useful products; providing countless learning possibilities for the curricula; serving as resource centres within communities; and contributing to community resilience and to the development of the whole person.</p> <p>Unfolding image of Rescope as an institution: We see Rescope leading the way as facilitator of country chapters across the eastern and southern African region. As these country chapters become stronger, so will a regional voice arise for whole school land-use design and all that goes with this approach. The vibrant country chapters will drive this voice and in this way Rescope will gradually play more of an advocacy role on issues and challenges facing young people and the environment. Furthermore, Rescope will become a hub of information on practical solutions. It will also play a significant part in contributing to pre and in-service education for teachers and others on issues of sustainability and resilience.</p> <p><i>Mission</i></p> <p>Our core purpose for the short to medium term is to facilitate the establishment and strengthening of SCOPE country chapters. At the country level we would like to see dynamic SCOPE chapters with a good geographical spread of membership and partnerships, showcasing grounded and well documented examples in schools and communities and responding creatively to opportunities.</p>	<p><i>Core principles</i></p> <p>Our core principles which we will use to evaluate ourselves are:</p> <ul style="list-style-type: none"> ✚ Promoting deep and thoughtful care for the environment and everything in it, based on a wholesome view that understands the interconnections between all things. ✚ Promoting a needs based integrated land design practice that creatively weaves together the building of resilience within the ecosystem while moving communities towards food sovereignty, nutrition and income security. ✚ Emphasize the identification and creative use of local and indigenous resources and knowledge while rooted in our culture and celebrating intergenerational learning. ✚ Genuine and wide participation of young people at all levels of our activities. ✚ Make learning fun, practical and relevant for everyone, while having an integrated approach across the curricular and promoting the inclusive and active participation of whole communities. ✚ Ensuring systematic and regular reflection and learning from experience, and planning ahead strategically at all levels, in partnership with our stakeholders. ✚ Ensuring user friendly, regular and systematic documentation and transparent information sharing. ✚ Always start small, ensure quality and grow organically.
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ILUD Implementation guidelines

General

1. The best way to start is to start. Do not wait for the design workshop to start. Get started and learn as you go
2. Start small, focus on quality and grow organically and document as you go.
3. Take pictures of the land from selected and recorded points before you start
4. Involve all stakeholders in the planning, implementation and monitoring of the work

Key result areas

Divide your work into manageable portions. The following are listed in the order in which they should be done:

1. Stakeholder involvement
All parents, teachers and learners must be involved and should have specific roles and tasks. The PTA, school administration, grounds staff, office staff, community leaders must also participate in ILUD implementation and monitoring.
2. Nursery establishment
A large tree nursery must be established in a secure place under some trees near a water supply. The seedlings to be produced in 1 year at each school must be in their thousands. Legume trees, fruit trees, indigenous trees, local vegetables, herbs, spices, hedges and trees for live fencing, medicine, timber, pest control must all be raised at the nursery.
3. Access layout
Decide on the main entrance and a few side entrances. Mark the carpark near the main gate and establish shade and parking bays. Mark one and a half metre wide footpaths across the entire school trying to avoid straight lines and going down the slope. Mark and label the sports fields and children's playground.
4. Rain water harvesting
Mark and dig the swales; harvest water coming from outside the school, from roads, from roofs into the ground. Establish mandala beds and pit beds and banana circles. Make plans for rain water harvesting tanks
5. Live fencing
Plant 3 lines of the following closely together right round the perimeter of the school:
 - 5.1 On the outer line plant sisal at about 70cm spacing
 - 5.2 Along the middle line the any of all of the following trees at 1 metre spacing – kie apple/ dovyalis affra, moringa, mulberry, jatropha, prickly pear, etc.
 - 5.3 Along the inner line plant vetiver grass at half mere spacing
 - 5.4 The distance between the lines should be half a metre at most
6. Waste management
Establish several waste collection points in the school grounds. Get or make many waste collection receptacles / containers which are labelled as follows:
 - 6.1 Compost material
 - 6.2 Paper only
 - 6.3 Plastic only
 - 6.4 Other: bones, bottles, metals etc.

Recycle, reuse, reduce and refuse the waste.

7. Soil improvement
Establish an all year round composting program. Make liquid manures when top dressing is needed.
8. Crop diversification, seed collection, seed multiplication, seed saving and banking
Identify crops that are not available but can grow in that area especially the indigenous crops. Source the foundation seeds and multiply them. Save seeds and protect them.
9. Intercropping
Mix the main staple crops with legumes, cover crops, decoy and repellent plants. For example maize, cowpeas and pumpkins; Sorghum, beans and cucumbers; tomatoes, marigold and peas; Amaranth, garlic and onions
10. Agroforestry
Plant legume trees in lines across the field. For musangu/faidherbia albida the spacing should be 7 to 8 metres; for acacias the spacing should 5 to 6 metres; for calliandra 6 metres; for leucaena 5 metres; for perennial sesbania 4 metres, for tephrosia and pigeon peas 3 metres. You plant your crops in the alleys created by the lines of trees.
11. Ground cover
Use any of the following to make sure that the soil is covered all year round: crop residues, grass, leaf litter, rocks, quarry stones, gravel stones, card board paper, cover crops such as pumpkins, cowpeas, sweet potatoes, cucumbers, melons etc.
12. Animal integration
Integrate animals into your system. Start with small animals such as rabbits, free range chickens, pigeons, guinea fowls, ducks, geese etc.
13. Natural pest and disease control
Plant the following for use in natural pest and disease control: neem, tephrosia, marigold, chillies, onions, garlic etc.
14. Outdoor learning spaces, talking landscape and assembly point
Create outside classrooms and an assembly area under large umbrella shaped trees. The outside classrooms should have seats /benches/ stools. Each species and variety of plants in the school should be labelled with the names and uses of the plants. The assembly area must have shade and marked curved lines
15. Curriculum integration and TALULAR
Integrate Permaculture principles across the curriculum. Teachers to use the diversity of living organisms in the school food forest to enhance teaching and learning.
16. School feeding
The first priority for the food produced at a school should be to feed the children in school.

Pre-defined quality criteria for demonstrations of ILUD

1. Evidence of stakeholder participation
Who is involved and how much are they involved? Is there evidence of local ownership?
2. Presence of access layout
Is there a clearly marked and shaded car park? Are the pathways clearly visible and designed across the slope to some extent? Is there a design map?
3. Presence of rain water harvesting structures
Are there swales? Are there diversion channels and pit beds? Rain water harvesting containers and or tanks in use? Ponds and dams? Mandala beds?
4. Use of natural soil improvement techniques
Are there composts? Are there other soil improvement techniques in use?
5. Use of natural pest and disease control methods
Are there repellents, decoy plants, predator prey systems etc in use?
6. Use of a sustainable waste management system
Is the waste being separated? Is there a recycling system?
7. Presence of intercropping systems
How much of the cropped area is intercropped?
8. Presence of agroforestry system
Is there an alley cropping system with legume trees?
9. Presence of soil cover/ ground cover / mulching practices
How much of the land is mulched? What are the different types of mulch in use?
10. Presence of a woodlot
Presence of bush or forest with indigenous trees
11. Presence of animals integrated into the system
Are there small, medium or large animals that are integrated into the farming system?
12. Evidence of integration into the teaching and learning system
Is there evidence of teaching and learning using locally available resources? Are lessons sometimes held outside to make use of the food forest and other elements in the environment? Are there outdoor classrooms?
13. Diversity of food sources across the food groups
The range of edible plant and animal food sources that are on site and that cover the food groups that are essential for a balanced diet, good nutrition and health

Permaculture – what it is and what it is not

Permanent culture

A tool for sustainable living

An approach to life and land -use that takes a long term (permanent) view of production systems

What it is about

It is about planning the use of the land before we actually use it so that we develop a land use that mimics and is locked into the natural cycles

It is about creating numerous and ecologically sustainable links between all the elements on the land

It is about working towards sustainable lifestyles for all

It is a holistic approach to working with the environment

It is about sustainable use of all natural resources

It is about designing our lives and livelihoods so that they are in harmony with nature

It is about using our local resources in a way that will not compromise the ability of future generations to live off the same resources.

It is about applying few inputs into production systems while getting high yields through the help of nature

It is the creative use of the local resource base for high output without destroying its ability to sustain future production

It is about designing farming systems that reduce the use of expensive external inputs and human labour while increasing the free contribution of natural processes and inputs to the farming system

It is about putting the RIGHT element in the RIGHT place i.e. it bases on accurate understanding of a particular situation and what it demands.

Promoting the health of all communities of living things in the one ecosystem we call home

It is about marrying the need to protect the health of the environment with the need to provide for human needs sustainably

Permaculture aims at developing an environmental management system that is ecologically diverse, stable and resilient. A set of techniques that are used to get more out of the land while protecting the health of the people and that of the environment

Producing more and diverse food, medicines and other environmental products and functions to service the needs of the people and those of future generations

Using the land, the water, the plants, the animals and the atmospheric resources to obtain the needs of the people without causing harm to both the people and their environments

It is about people care and earth care. Caring for the health of all people and all living organisms and the resource base that sustains them

It is about creating land-use systems that are ecologically sound, socially just and economically viable

It is about designing agro-ecological production systems

It is about designing production systems that meet the needs of today without compromising the ability of future generations to meet their own needs

An approach and set of practices that people use look to after their needs while at the same time protecting the health and cleanliness of the environment

What it is not

It is not about leaving /surrendering our agricultural land to nature

It is not organic gardening and neither is it organic farming

It is not limited to agriculture

It is not about protected areas and merely protecting the environment

It is not about hands off the environment or protecting the environment from human activities

It is not about letting things go wild

Permaculture defined...

Permaculture is a design-based framework for sustainable living and resource use.

'It is a design system for creating sustainable human environments' Bill Mollison, 1991.

Permaculture (PC) is an holistic design science that is being used as a tool for promoting sustainable living by a growing number of people worldwide. It is an ecological design science that outlines an approach to living, which takes its inspiration from nature. Its goal is to feed, house and create economic opportunities in an inspiring and environmentally responsible way.

It is a philosophy and development strategy that weaves together climate, plants, animals, building design, soil, water and energy management into cohesive sustainable social systems.

Permaculture applies techniques and principles from ecology, cooperative economics, appropriate technology, sustainable agriculture, and the wisdom of indigenous people to create sustainable human environments, at home, at work, at play, and in our communities. As such, the promise of Permaculture extends far beyond food production systems to explore new potentials and horizons for a sustainable life on Earth.

Principles of rain water harvesting, The “S” Principles

The “S” Principles of rain water harvesting	Actions to be done
1. Slow down the rain	Plant trees, establish food forests, practice agro-forestry and intercropping, Mulch the soil throughout the year
2. Keep the soil soft or well structured	Keep the soil covered by mulch all year round. Add organic matter to the soil
3. Stop the flow of run-off water down the slope	Make swales. Make pits inside the swales. Make pit beds and mandala beds.
4. Shade the water or spread it across the land or slope	Make swales. Make pits inside the swales. Make pit beds and mandala beds.
5. Sink the water into the soil / Increase infiltration	Plant trees; Mulch all planted areas all year round. Make swales. Make pits inside the swales. Make pit beds and mandala beds.
6. Store the water in the ground /Raise the water table	Make swales. Make pits inside the swales. Make pit beds and mandala beds.
7. Bring back the springs	Plant trees; Mulch all planted areas all year round. Make swales. Make pits inside the swales. Make pit beds and mandala beds.
8. Store water in household containers	Use buckets, dishes and other container to catch rain water for domestic use whenever it rains
9. Store water in tanks	Buy metal or plastic tanks; build brick and ferro-cement tanks and use gutters to direct rainwater into surface and underground tanks
10. Save water	Use only the basic amount of water needed for each task. Avoid wastage, mulch all your gardens, reduce watering; Use the shower rather than the bath tub; Turn off the shower while applying soap and cleaning your body; Repair leakages timely; Recycle grey water, stop polluting water,

Principles of waste resource management / The ‘R’ Principles

1. Refuse plastic containers
2. Reduce consumption and purchase of waste generating materials
3. Use the regenerative approaches to energy, agriculture and other activities
4. Reuse resources
5. Repair broken items
6. Recycle wastes
7. Return plastic and bottle containers to the manufacturers / shops
8. Make, buy and use reusable bags, containers, sanitary pads etc
9. Separate wastes at point of origin; Make separate waste collection receptacles for plastics. Paper, compostable materials, glass metal and bones

Opportunities for scaling up food production by school communities.

It is a great irony that people go hungry in many African communities and yet it is so easy to produce food naturally across the continent

Social and Environmental impacts; the current situation

- Large scale environmental degradation
- Deforestation
- Soil erosion; Siltation
- Climatic changes
- Global warming
- Flooding; Droughts
- Dusty bare grounds
- Poaching; illicit trade in wildlife products
- Land pollution; Litter
- Water pollution
- Air pollution
- Poisons in the environment
- Loss of biodiversity; mono-cultural landscapes
- Loss of soil life, productivity
- Deaths and extinctions
- Hunger and hidden hunger in schools
- Poverty in the mind
- Low interest in agriculture
- Disconnection from nature and culture
- Schools have become islands in the community
- Ornamental and or bare school grounds swept daily
- Theoretical education centred on books, the teacher and the classroom
- Examination oriented, academic and reductionist education
- Poor educational delivery and underperformance

Opportunities

- Access to arable land
- Climatic – all year round crop growing temperatures
- Substantial rainy season
- Moderate to high annual rainfall
- Deep well drained soils
- High biodiversity with local OPV seeds still available
- Agriculture recognised as a key sector
- High profile given to food security issues
- Farmers are the majority of the voters
- Supportive international protocols such as the outgoing Millenium development goals
- Relevant farmers organisations such as the East and Southern Africa Small Scale Farmers Forum supported by the PELUM Association
- Farming is the means of livelihood for the majority
- High demand for food in the cities and on the international market
- Improving infrastructure eg roads
- Potential for agro-industries to preserve and add value
- The grouping of farmers in villages
- The strong spirit of cooperation among farmers
- Knowledge of traditional farming techniques
- Traditions that respect the natural environment

- Organic Agriculture
 - Permaculture design skills
 - Relevant techniques such as agro-forestry
 - Team of trainers
- Interested local organisations
 - Agriculture extension services
 - Agricultural colleges like Kasisi Agric Training Center

Lessons learnt

- Inclusive planning & implementation,
- Genuine and wide participation
- Plan for the whole school but when implementing start small and scale up gradually and significantly
- Personal and professional relevance
- Practical orientation
- Low input approach
- Use of local resources
- Living example is the best teacher

Guidelines towards a healthy diet:

Unfortunately, in nutritional terms, diets for many people across the world have become much worse during the last century as people everywhere have abandoned their traditional diets in favour of a 'Western' diet. If one looks across Africa, Zimbabwe is one of the countries that has most abandoned its traditional diets for a Western diet. There is a need to reverse this trend and return to healthy diets. There are no hard and fast rules and everyone has to re-learn what a healthy diet is. The following are simply suggested 'guides'; please don't take them as gospel.

- The first suggestion is that you take full responsibility for your diet and keep learning about what is healthy and what is not and apply this to yourself and your family. There are many sources of learning: old people in your community who are healthy and are still eating at least something like a traditional diet, those with knowledge of what was a traditional diet in your area (your home area if you are living in town), nutrition specialists, reports on research carried out, and the media.
- Eat carbohydrates in relation to how much exercise you do. Smallholder farmers eat quite a lot but are very rarely overweight. This is because they do lots of exercise. If you don't do much exercise eat few carbohydrates. And the carbohydrates you eat should be whole because much of the nutrition is removed when grains are refined into 'white' flour or the skin is removed from tubers. Rather eat small grains where possible as these are more nutritious than maize.
- If you are frying anything, it's preferable to use animal fat; heated vegetable oils are not good for you. If you only have vegetable oil add it at the end of cooking rather than frying the foods first. Cold-pressed vegetable oils are much healthier than commercial, processed cooking oils but even many of those ideally shouldn't be heated. If you ask very old people (100+) what they ate, you will usually find that they ate very little if any fried foods in their lifetime and never used processed vegetable cooking oils.
- Vegetables are very healthy for you and are the centre of a healthy diet. Eat as much of a diversity of them as possible/practical. You can hardly go wrong with vegetables, though of course too much of anything is not good for you.

- Fruits are a good source of vitamins, and also minerals. But they are often quite acid and so don't eat too much fruit.
- Avoid all processed sugar and anything containing it if you can. It has no nutritional value at all and is harmful to health, especially in the quantities people eat it these days. One good way of reducing sugar is to stop all soft drinks.
- What we call 'salt' is in fact only sodium chloride and is not good for you. Proper rock or sea salts contain many minerals and are much healthier. They are more expensive and difficult to get, but you only eat a little of them. If you only have 'sodium chloride' salt available then use small amounts of it. People tend to use far too much in cooking.
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- Avoid all processed foods with chemical additives. Nearly all these chemicals have no nutritional value and may be harmful to your health.
- Meat where animals have had a more natural life and thus are not injected with all sorts of things like antibiotics is much healthier than meat from mass-produced intensive feedlots or batteries; avoid the latter. Meat is full of nutrition and a particularly good source of Vitamin B12. But many middle-class people eat far too much meat; it then probably becomes bad for you.
- Try to ensure that your drinking water is clean and doesn't have harmful micro-organisms.
- Above all, take full responsibility for your diet, keep learning about what is healthy and what is not, and apply this to yourself and your family. As with growing food, the development of knowledge and understanding has been taken away from us by so-called experts. Unfortunately many of these experts have very strong vested interests or are misled by those with vested interests. One can trace through history how a shift to processed foods (e.g. margarine is a classic example) has been driven by these vested interests. The same in farming – sale of fertilisers and pesticides. We need to take back responsibility for the development of this knowledge.

Good food, healthy food

Introduction

We need to walk the talk as regards healthy eating and cooking.

My good food wheel

Local	Organic	Good qualities
❖ Home grown is best where possible	❖ Produced using natural inputs only	❖ Tasty
❖ Low carbon footprint	❖ Grown from local	❖ Fresh
		❖ Original/natural

<ul style="list-style-type: none"> ❖ Fresh ❖ Trusted source and supporting local farmers 	<ul style="list-style-type: none"> ❖ traditional seeds ❖ Natural methods used in the preservation of stored seed and food 	<ul style="list-style-type: none"> ❖ qualities ❖ Biodegradable natural packaging
<p>Traditional</p> <ul style="list-style-type: none"> ❖ Rooted in our history ❖ A carrier of our culture ❖ Tried and tested food preparation methods ❖ Local appropriate technologies used ❖ Grown from local seeds ❖ Part of our heritage from previous generations and to passed on to future generations 	<h1><u>Good</u> <u>food</u></h1>	<p>Nutritious</p> <ul style="list-style-type: none"> ❖ Crops and animals fed naturally and cared for responsibly ❖ Produced from soils that are fed with a wide range of organic elements and not just NPK ❖ Food preparation methods that preserve the nutrients in the food ❖ Micro- nutrient rich
<p>Wholesome</p> <ul style="list-style-type: none"> ❖ The whole food is eaten ensuring multiple benefits from all the components ❖ No refining, no additives and minimum cooking 	<p>Variety</p> <ul style="list-style-type: none"> ❖ A wide range of foods are eaten ensuring a balanced diet ❖ Food changes with the seasons ❖ Foods eaten in their right proportions with some of it eaten in raw form 	<p>Healthy</p> <ul style="list-style-type: none"> ❖ Food used to support all the functions of the different parts of the body leading to a preventive health management system

The guiding principles

1.	What to eat	A wide range of local, traditional, wholesome, nutritious and healthy organic foods.
2.	The choices	Eat what your great grand parents used to eat; eat local; eat plenty of raw food; eat the colours of the rainbow; eat mainly what is in season; eat a large variety of foods; eat a balanced diet; Practice what you teach and be a role model
3.	Where to shop	Mostly from farmers and agricultural produce markets, very little from supermarkets and the big business food industry
4.	What to grow or buy or get	Staples in their whole form such as whole meal maize flour, brown rice and millet; sorghum; sweet potatoes; pumpkins; cassava; yams/arrow roots/taro
		Orange/yellow/red , light green, white, and dark green vegetables including and especially the local traditional varieties such as amaranth, cleome, pumpkin, black jack, cassava, black night shade, cowpea, bean, sweet potato, chickweed and moringa.
		A variety of fruits in season enough to give at least 3 servings per person per day including and especially the local wild fruits
		A variety of protein sources including beans, peas, lentils, nuts, sprouts, white meats such as free range chickens and fish, sour milk, moringa, edible insects such as mopane worms, white ants, soldier termites. some species of crickets and beetles and seeds such as pumpkin, chia, sesame e.t.c.
		Herbs and spices such as ginger, turmeric and garlic; honey, natural or sea salt
		Popcorn, nuts and ground nut flour or peanut butter

4	How to prepare	Wash your hands first! Wash all fruits, vegetables and tubers thoroughly on arrival from the market as well as before serving, Keep dairy products, meats and other perishables well refrigerated. Serve some raw foods.
5.	How to cook	Traditional menus, less frying – not more than one fried meal per day, more variety in cooking methods ie. Roasting, stewing, boiling, grilling, baking and steaming of vegetables. Use <i>minimum</i> amounts of salt and sugar. Avoid using/ heating cooking oil and use it sparingly if you have to use it. Vegetables must not be overcooked. Green vegetables must be served while they are still in the colour that they had in the garden. Replace cooking oil with raw olive or moringa oil.
7.	What to avoid	GMO and hybrid foods, Sodas and other artificially flavoured sweetened drinks and squashes; tobacco, margarine, cooking oil, refined products such as processed sugar, white bread, white flour products, refined maize meal. Foods with chemical additives, big industry foods
8.	What to reduce	Salt, oils and fats, eggs, red wine, red meats, high calorie carbohydrates – if your lifestyle is sedentary and foods from the big food industry; Frying
9.	What to drink	Lots of clean water, herbal teas, non alcoholic local brews like <i>thobwa</i> , <i>chibwantu</i> , <i>munkoyo</i> and <i>mahewu</i> , real fruit juice, sour milk, red wine in moderation
10	When to eat	Small frequent meals are better than a few large meals. Eat breakfast like a king, lunch like a labourer and dinner like an orphan. Eat breakfast at least after an hour after waking up and dinner at least one and a half hours before bed time. Drink most of your water during morning hours from at least one and a half hours after the meal to up to 40 minutes before the next meal; during meals have a quarter of a glass for sipping when necessary. A slice of lemon with its skin in the water is a bonus especially first thing in the morning. Eat fruits before the other foods.
11	Grow your own	Whenever possible grow some of your own food and prepare it yourself. Support local farmers by buying from them targeting organic farmers.

	FOODS TO BE REMOVED FROM THE DIET	REPLACEMENTS
1	White bread	Sweet potatoes, taro/arrow roots, pumpkins, popcorn, nuts, yams, boiled maize grains with cowpeas, whole wheat bread etc.
2	Refined maize meal, white rice, chips	Whole meal maize flour, millet flour, cassava flour, jacket potatoes, <i>mutakura</i> (boiled grains with pulses), sorghum flour, arrow roots/taro, sweet potatoes/ <i>futali</i> etc
3	Flavoured, sweetened drinks	<i>Thobwa/ Mahewu/ Chibwantu/Munkoyo</i> , fruit juice, herbal teas, herbal juices, water,
4	Sugar	Honey, molasses
5	Fried eggs	Boiled eggs, poached eggs, soya chunks
6	Sausages	White meats, beans, peas, raw nuts, edible insects etc.
7	White flour fritters	Banana and <i>mugaiwa</i> fritters, raw or roasted sweet cassava etc.
8	Broiler chickens	Free range chickens, guinea fowls, crocodile meat, quails
9	Sodium chloride	Natural salt, sea salt. Himalayan salt
10	Cooking oil	Butter, Moringa oil, olive oil, peanut butter, ground nut powder
11	Margarine	Peanut butter, Avocado, honey, home made jams and marmalades
10	Factory foods	Home made foods, foods from your community

MEAL SAMPLES			
	Breakfast	Snacks and refreshments	Lunch or Dinner

1	Boiled egg, beans/peas/sprouts, green salads and fruits	Herbal teas with roasted cassava/potatoes and fruits	Wholemeal maize <i>nshima/ugali/sadza</i> with fish and local vegetables in peanut butter sauce
2	Millet porridge with soya flour, peanut butter, fruits and boiled egg	Herbal teas with pumpkins, fruits and seeds	<i>Futali</i> (sweet potatoes in ground nut flour) with beans, kapenta with steamed moringa leaves
3	Oatmeal porridge with sour milk or yoghurt and fruits	Herbal teas with <i>mutakura</i> and fruits	Millet <i>nshima/ugali/sadza</i> with sour milk and pumpkins and fruits
4	Cheese, mixed vegetables and banana <i>mugaiwa</i> fritters	Fresh juice with popcorn, nuts, fruits	Brown rice with local chicken and mixed green salads
5	Edible insects that are locally acceptable with a boiled mixture of grains and pulses	<i>Munkoyo/thobwa/maheu/chibwantu</i> and banana <i>mugaiwa</i> fritters	Roasted or boiled Jacket Andean (Irish) potatoes with bean or lentil curry and mixed vegetables.

The dangers of depending on food from big food industry	Glossary
<p>Usually loaded with chemicals, salt and sugar</p> <p>Excessive outflow of money from your family, your community and usually from your country as well</p> <p>Dependence syndrome</p> <p>You cannot be too sure of what you are eating</p> <p>Not fresh, high carbon footprint</p>	<p>Mugaiwa – Straight run mealie meal</p> <p>Mutakura – A traditional African staple made from boiling a mixture of grains and pulses</p> <p>Mahewu/thobwa/chibwantu/munkoyo – traditional non alcoholic brews</p> <p>Futali – Boiled sweet potatoes cooked with ground nut powder</p> <p>Ugali/nshima/sadza – thick porridge</p>