

Magazine on Low External Input Sustainable Agriculture



# LEIS INDIA



**Agroecology**  
*Measurable and sustainable*



September 2016 Volume 18 no. 3

LEISA India is published quarterly by AME Foundation in collaboration with ILEIA

Address: AME Foundation  
No. 204, 100 Feet Ring Road, 3rd Phase,  
Banashankari 2nd Block, 3rd Stage,  
Bangalore - 560 085, India  
Tel: +91-080- 2669 9512, +91-080- 2669 9522  
Fax: +91-080- 2669 9410  
E-mail: leisaindia@yahoo.co.in

#### LEISA India

Chief Editor : K.V.S. Prasad  
Managing Editor : T.M. Radha

#### EDITORIAL TEAM

This issue has been compiled by T.M. Radha  
and K.V.S. Prasad

#### ADMINISTRATION

G.G. Rukmini

#### SUBSCRIPTIONS

Contact: G.G. Rukmini

#### DESIGN AND LAYOUT

S Jayaraj, Chennai

#### PRINTING

Nagaraj & Co. Pvt. Ltd., Chennai

#### COVER PHOTO

*Groundnuts are one of the several harvests for a farmer in Kolar district, from his diversified farm.*  
(Photo: S Jayaraj for AME Foundation)

#### The AgriCultures Network

LEISA India is a member of the global Agricultures Network. Seven organisations that provide information on small-scale, sustainable agriculture worldwide, and that publish:

Farming Matters (*in English*)

LEISA revista de agroecología (*Latin America*)

LEISA India (*in English, Kannada, Tamil, Hindi, Telugu, Oriya, Marathi and Punjabi*)

AGRIDAPE (*West Africa, in French*)

Agriculturas Experiências em Agroecologia (*Brazil*).

The editors have taken every care to ensure that the contents of this magazine are as accurate as possible. The authors have ultimate responsibility, however, for the content of individual articles.

The editors encourage readers to photocopy and circulate magazine articles.

[www.leisaindia.org](http://www.leisaindia.org)

# Dear Readers

There is an increasing recognition that sustainable resource management and sustainable livelihoods are inseparable. If neglected, everyone's future is threatened. While exotic, expensive alternatives for every problem faced by the world, keeps emerging, also, there is increasing attention to what seems to be working in pockets. Not necessarily operating on desired scale, in some contexts, these bright spots are living examples of how the farming knowledge of the communities based on agroecological principles needs to be understood.

While farmer's distress stories are shocking everyone's conscience, first time celebrations like International Year of Family Farming, emerging health consciousness among consumers, is putting farmers production practices in the focus for right reasons. Also, the mainstream international agencies are voicing that agroecological approaches are the way forward.

While the purpose of agroecological approaches are based on meeting diverse household needs needs of the farmer, sustainably and in a dignified way, they still remain complex from research perspective. There is a need to understand the 'indicators' with a wider lens, a different sensitivity, and diverse perspectives.

The issue highlights some experiences highlighting processes rooted in promoting agroecological perspectives, practices and knowledge co-creation.

## The Editors

**LEISA** is about Low-External-Input and Sustainable Agriculture. It is about the technical and social options open to farmers who seek to improve productivity and income in an ecologically sound way. LEISA is about the optimal use of local resources and natural processes and, if necessary, the safe and efficient use of external inputs. It is about the empowerment of male and female farmers and the communities who seek to build their future on the bases of their own knowledge, skills, values, culture and institutions. LEISA is also about participatory methodologies to strengthen the capacity of farmers and other actors, to improve agriculture and adapt it to changing needs and conditions. LEISA seeks to combine indigenous and scientific knowledge and to influence policy formulation to create a conducive environment for its further development. LEISA is a concept, an approach and a political message.

**ILEIA** – the centre for learning on sustainable agriculture is a member of AgriCultures Network which shares knowledge and provides information on small-scale family farming and agroecology. ([www.theagriculturesnetwork.org](http://www.theagriculturesnetwork.org)). The network, with members from all over the world - Brazil, China, India, the Netherlands, Peru and Senegal, produces six regional magazines and one global magazine. In addition, is involved in various processes to promote family farming and agroecology. The ILEIA office in The Netherlands functions as the secretariat of the network.

**MISEREOR** founded in 1958 is the German Catholic Bishops' Organisation for Development Cooperation. For over 50 years MISEREOR has been committed to fighting poverty in Africa, Asia and Latin America. MISEREOR's support is available to any human being in need – regardless of their religion, ethnicity or gender. MISEREOR believes in supporting initiatives driven and owned by the poor and the disadvantaged. It prefers to work in partnership with its local partners. Together with the beneficiaries, the partners involved help shape local development processes and implement the projects. This is how MISEREOR, together with its partners, responds to constantly changing challenges. ([www.misereor.de](http://www.misereor.de); [www.misereor.org](http://www.misereor.org))

**AME Foundation** promotes sustainable livelihoods through combining indigenous knowledge and innovative technologies for Low-External-Input natural resource management. Towards this objective, AME Foundation works with small and marginal farmers in the Deccan Plateau region by generating farming alternatives, enriching the knowledge base, training, linking development agencies and sharing experience.

**AMEF** is working closely with interested groups of farmers in clusters of villages, to enable them to generate and adopt alternative farming practices. These locations with enhanced visibility are utilised as learning situations for practitioners and promoters of eco-farming systems, which includes NGOs and NGO networks. [www.amefound.org](http://www.amefound.org)

#### Board of Trustees

Sri. Chiranjiv Singh, IAS - Chairman; Dr. Vithal Rajan - Member; Sri. B.K. Shiva Ram - Treasurer; Dr. M. Mahadevappa - Member; Dr. N.G. Hegde - Member; Dr. T.M. Thiagarajan - Member; Prof. V. Veerabhadraiah - Member; Dr. A. Rajanna - Member; Dr. Venkatesh Tagat - Member; Dr. Smita Premchander - Member

## 6 Farm to systems

### *Where is our measuring tape?*

Anshuman Das

Besides yield, nutrition and income, a family farmer harvests several other benefits from an agro-ecologically designed farm. So, we need to have a different set of parameters to capture impact of an agro-ecological system. Measuring the impacts of agro ecology over several parameters of different kind has encouraged farmers in India, Nepal and Bangladesh to move towards diversified farming systems.



## 11 How peasants read their farm

Jan Douwe van der Ploeg

Whereas yield increases are considered central in modernised agriculture, they can be seen as just one element of impact in peasant farming. In assessing their farms, peasants depart from the specificities of their farm, the ecosystem in which it is embedded, the society and the markets in which they operate, and the possibilities and limitations entailed in their own families. This holds even truer when peasants work with agroecology.



## 21 Agroecology

### *Conserving biodiversity, nurturing ecology*

Kulaswami Jagannath Jena

Agroecology approach is a way to make farming sustainable. It is also a way to resist the corporate agriculture model pushed through the green revolution and gene revolution. Besides technologies, it is important to create an equitable food system for the people who actually produce the world's food.



## 28 Building knowledge on agroecology

### *Impact of systematic documentation*

K V S Prasad

Systematic documentation plays a key role in enhancing practical knowledge sharing on agroecology influencing practice, practice based policy, evidence based debate and new development partnerships. The case of GEAG illustrates this.

# CONTENTS

Vol. 18 no. 3, September 2016

*Including Selections from International Edition*

- 4 Editorial
- 6 Farm to systems  
*Where is our measuring tape?*  
Anshuman Das
- 11 How peasants read their farm  
Jan Douwe van der Ploeg
- 14 Knowledge exchange on agroecology  
*Does it influence practice?*  
T M Radha
- 18 Interview: Clara Nicholls  
*"Impact studies are crucial for the amplification of agroecology"*  
Diana Quiroz
- 21 Agroecology  
*Conserving biodiversity, nurturing ecology*  
Kulaswami Jagannath Jena
- 24 Creating a sustainable food future  
*Indicators of sustainable agriculture: a scoping analysis*  
Katie Reytar, Craig Hanson and Norbert Henninger
- 27 Farmers Diary
- 28 Building knowledge on agroecology  
*Impact of systematic documentation*  
K V S Prasad
- 31 New Books
- 32 Sources
- 33 How to amplify agroecology  
Janneke Bruil and Jessica Milgroom



# Agroecology

## *Measurable and sustainable*

The Sustainable Development Goals, recently endorsed by the United Nations, explicitly mention the need to transform our current input heavy food systems in order to make them more sustainable. Agroecology driven by family farmers is clearly seen as a way to achieve this and a number of experiences on the ground in countries like India stand as evidence to this. In a country like India, where majority of the population still depend on farming for their livelihoods, farming by agro ecological methods is no more a choice. As agro ecology contributes towards mitigating very many challenges which the country is facing, like hunger and malnutrition, poverty, climate change, environmental degradation, loss of biodiversity etc., it is more of a necessity, to adopt such approach.

### Measuring sustainability in agro ecology

Practising agro ecology, around 1500 farmers in 150 villages in Odisha have attained control over every aspect of farming including their land, water, forest, seeds and income. Food sovereignty of these small farmers and the agro ecological food systems has ensured good health, justice and dignity for all. (Jena, p.21). In this experience we see that agro ecology has resulted in a number of positive outcomes, of which some are measurable and some are not. Some of the outcomes are social, some economic, some environmental and so on. Given the complexity of agro ecology, how do we measure sustainability? Ecosystems comprise of various components – living (people, plants, animals, microbes etc) and inert (soil and water). With interactions happening at various system and sub system levels, one cannot measure everything.

One way of overcoming the problem of measurement is to develop indicators on various aspects – for eg., ecological, social, economic etc. We focus on key components and subsystems which can represent the various interactions and develop suitable indicators. According to Clara Nicholls (p.18), “*Agroecology is like a four legged table where practice is only one of its legs. You cannot measure impact without looking at the social, political and cultural dimensions, alongside the technical ones*”.

The responses specific to each context shape the evolution of agroecology paradigm in that particular context. In some contexts, while it evolved through organised social movements based on issues of equity and entitlements, in others, it evolved building on the untapped community knowledge evolved over generations based on resilience, adaptation, innovation, social and cultural preferences of the local farming communities.

Indicators are developed in different ways by different people, mostly based on what is felt as important to them. For example, a farmer who is more concerned about his resources on farm, like soil and water employs simple indicators for soil fertility like soil colour and presence of certain plant species. Farmers who are more inclined commercially, look at farm yield and income as the indicator. So is the case with the government departments whose progress is measured in terms of yield or acreage. Whereas yield increases are considered central in modernised agriculture, they can be seen as just one element of impact in peasant farming. (Jan Douwe van der Ploeg, p.11)

### Lessons to learn

Measuring impacts through various approaches is a way to understand how things are going on. It helps to pause, reflect, monitor and look for improvements to achieve the programme objectives. For instance, measuring the impacts of agro ecology over several parameters of different kind, beyond income, in fact helped farmers in parts of India, Nepal and Bangladesh realize the various benefits that they could realize by diversifying their farm enterprises. By building their capacities to record and analyse different parameters or indicators helped positively in influencing their mindsets in moving towards more diversified farming systems from a highly focused monocropping of paddy as the major staple and cash crop. (Anshuman Das, p.6)

Quantifiable indicators of the sustainability of agriculture will enable policymakers, farmers, businesses, and civil society to better understand current conditions, identify trends, set targets, monitor progress, and compare

performance among regions and countries. If appropriately designed, they can foster incentives for the sector or nations to improve performance. And they make managing the nexus between agriculture and the environment easier. (Katie Reytar, p.24).

As agro ecology is still evolving amidst conventional forms of agriculture, the positive measurable impact will serve as a powerful tool to convince the administrators and policy makers for influencing change. *It is important to measure the impact of agroecology in order to demonstrate to the sceptics that agroecology is a form of agriculture capable of producing enough good and accessible food without harming the environment or contributing to greenhouse gas emissions*, opines Clara Nicholls (p.18).

Positive stories on the impact of agroecology also help in motivating farmers to adopt agro ecology.

While family farmers are the real keepers of the knowledge and wisdom on agro ecology, disseminating such knowledge promotes practice of agro ecology. (T M Radha, p.14). For scientists, it is important to know if the initiatives promoted are really reaching the levels of sustainability that is strived for and to check if the principles on which the science of agroecology is based are being applied in practice. Impact studies are crucial for the amplification of agroecology. (Clara Nicholls, p.18)

Documentation and dissemination provides evidence that agroecology works, generates insights for policy change

and strengthens the agroecology movement. (Janneke Bruil and Jessica Milgroom). Supporting farming communities on the ground can help them to diagnose and prioritise their problems; identify and test agroecological principles and to engage in learning networks. In an initiative where the capacities to document and share the impact results were enhanced, organizations have achieved much more than what they assumed that they could do. For instance, GEAG show cased field evidences for influencing policies, initiating new development programmes, debates in academia and Government programmes. By producing a magazine on agro ecology in the local language, GEAG is popularising agroecology practice and Family Farming movements. (KVS Prasad, p.28)

### Concluding thoughts

Though developing indicators to cover the entire spectrum of factors affecting sustainability of small farms may not be possible, those that are available are sufficient to advocate promotion of agro ecology. Policies that favour agro ecological farming can help family farming sustain as a livelihood option, while protecting the environment. Sustainability, like development, is all about people. There may be little point achieving a sustainable system that reduces the quality of life of the people in that system.



[www.leidsaindia.org](http://www.leidsaindia.org)

A website for learning and sharing experiences on LEISA practices

#### Main Features

- Space to share your LEISA experience.
- A source for LEISA practices followed by farmers.
- An archive of LEISA India magazines – English edition and regional editions (Kannada, Tamil, Hindi, Telugu, Oriya, Punjabi and Marathi)
- Photos and videos on LEISA practices.
- Interesting cases of people following LEISA practices.

Follow us on Facebook: [www.facebook.com/Leisaindiamag](http://www.facebook.com/Leisaindiamag)

Follow us on Twitter: [@LeisaIndia](https://twitter.com/LeisaIndia)



Photo: Author

An integrated rice field near Ranchi

# Farm to systems

## Where is our measuring tape?

**Anshuman Das**

---

*Besides yield, nutrition and income, a family farmer harvests several other benefits from an agro-ecologically designed farm. So, we need to have a different set of parameters to capture impact of an agroecological system. Measuring the impacts of agro ecology over several parameters of different kind has encouraged farmers in India, Nepal and Bangladesh to move towards diversified farming systems.*

---

**A**groecology, as I understand is complex, but not complicated. When I look into a forest, I find it is a complex network of food chains with overlapping food webs. But, it is also simple as it is designed with a very basic fundamental principle - principle of collaboration - collaboration between species, and collaboration within species, so that there is a balance in population and a balance between energy inflow-outflow. To bring in that collaboration, the design of a forest is

multistoried, both above and within the soil. It is so well-designed that, if it is not influenced by any external change or change agent, the overall productivity of a forest is far better than any agriculture production system designed by us.

Agroecology is closer to a natural system which imbibes the principles of nature – collaboration, recycling, multi-layered arrangement, combination of various species/varieties and allowing succession.

The BIOFARM project, which was scaled up through Sustainable Integrated Farming System (SIFS) project among 9500 farms in India, Nepal and Bangladesh tried to promote sustainable agriculture by promoting the following three agro-ecological principles.

- a) Altering cropping sequence through mixed/inter/relay cropping for collaboration and combination. Crop rotation for allowing succession and collaboration.
- b) Creating multi-layered space within a production system, so that collaboration and recycling are ensured.
- c) Enhancing subsystem diversity on farm, so that energy recycling and collaboration happens by default.

## The challenge of measurement

Economics has a very straight understanding of production relation. Calculating production and productivity is very simple, if we consider only yield as a beneficial output of a crop, say paddy crop. On the other hand in agro-ecology, apart from paddy as an output, we see the benefits of straw as fodder/thatching/mulching, husk as fodder/fuel, roots that add humus to the soil, edible water weed/shrimps/crabs/small fishes from the rice field as food. Also, paddy field plays an important role in recharging ground water. Therefore, we need to have a different set of parameters to capture impact of an agro-ecological system.

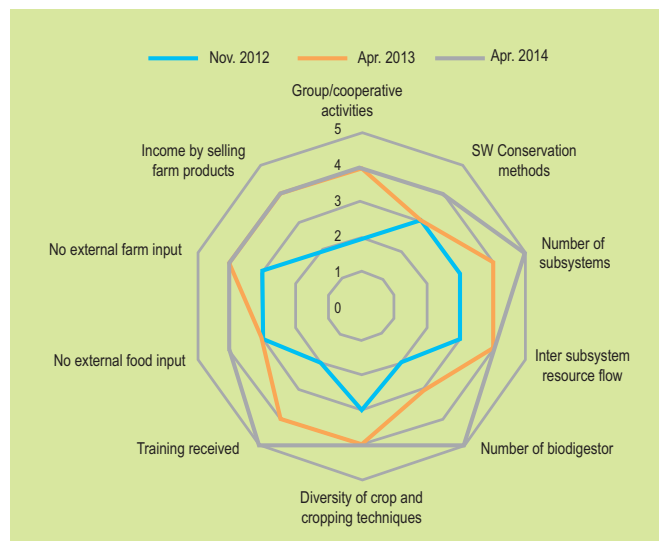
So, how do we calculate the productivity? How will the ecological role that the paddy crop plays in improving water aquifer or in biodiversity conservation? Our analytical framework can't assess cropping intensity of a garden, which has more than 40 types of crops, providing food every day, throughout the year. We do not have indicators beyond N, P, K and organic carbon to measure soil health. We can't comment on health of a farming system as a whole – as it is probably too complex for a mathematical equation.

The BIOFARM project tried to assess the efficacy of the method in terms of assessing the changes in social, ecological and economical parameters. Three years were too short a time to establish the hypothesis but it shows the direction of the trend. It was tried through community monitoring and through analysis of data.

### Measuring returns

Community monitoring is an already established way of tracking progress of any action and to do mid-term corrections. In addition, setting a target is always helpful to ensure that one keeps going in the right direction. Keeping this in mind, a tool based on the wheel diagram was developed to help small farmers following agroecological principles, to set their own target and monitor it. The *Wheel* helps in visualizing and comparing multiple ratings/scoring. A set of ten parameters were developed.

- 1. Group/cooperative activities:** Extent to which farmers are active in groups, cluster groups, common activities and joint action like farming in common land etc. In case of a group, the criteria refers to the health of the whole group.
- 2. Soil water conservation methods adopted:** How soil water conservation methods are integrated in the farm – eg., field bunds, rainwater harvesting, mulching, compost use, semi-circular bunds, zero tillage farming,



*Exercise with Kali Singh of Madanpur village, Deoghar*

diamond bed, double digging bed, pitcher irrigation, circle bed etc.

- 3. Number of subsystems:** The number of subsystems (biodigester, poultry, livestock, trees, crops, aquaculture) owned by the farm.
- 4. The inter sub systems resource flow:** The number of linkages (indicating integration) between the various subsystems.
- 5. Number of biodigestors:** This includes for example biogas plant, vermicompost pit, compost pit, use of liquid manure, farm yard manure and green manure.
- 6. Diversity of crop and cropping techniques:** Gradation of the farm in terms of the diversified crop elements present - Crops may include fruit type, legumes, leafy vegetables, cereals, medicinal herbs, tuber crops, spices etc. Cropping techniques include mixed cropping, intercropping, crop rotation, relay cropping etc.
- 7. Training received:** Types of training a farmer received during an yearlong training approach through Farmer Field School. Broadly, the skills covered are : 1) analysing stress, livelihood cycle, resources, capacities and correspondingly planning an own farm model 2) various soil nutrient management methods 3) water

Agroecology is considered to be a climate adaptive practice as it reduces dependency on climate dependent income source, hence reducing vulnerability.

management methods 4) horticultural component in the homestead and field 5) backyard poultry management including feed 6) small livestock management including fodder 7) pest/disease management of crops/livestock throughout the growth stages 8) soft skills on group development and value chain.

8. **External food input:** Quantity of the external food input (vegetables, proteins – everything that is required for a balanced diet) bought from the market.
9. **External farm input:** Quantity external farm inputs (including seed) bought from the market.
10. **Income by selling product:** Measurement of ‘how far cash need is met from market linkage income’ – distress selling is not taken into consideration.

For each criteria (which were given as a set of 10 pictorial cards), farmers are supposed to give a score from 0 to 5 (low to very high) and add it to the web in the diagram. The same was repeated in 6 months. It was observed that there was a lot of discussion and debate during the scoring part, which is the most important part of the exercise. Many shortcomings and successes were pinpointed as reasons behind that scoring, thus helping in planning for the future course of action. This was tried at two levels – at the group level and at an individual farmer level.

Farmers were also capacitated to keep regular record of farm activity, input and output – which was analysed later on. It also had calculation of net income and other standard parameter, but we focused on the parameters which can assess the aspects of agro-ecology of a farm. Jharkhand refers to farms in Deoghar and Ranchi district, West Bengal refers to Birbhum, Bankura and Purulia district and Hilly region refers to Chitwan in Nepal and Chitagong Hill Tracts in Bangladesh. The results are discussed below.

## Measuring farm diversity

Diversification is considered as the most important phenomena in an agro-ecological farm. The subsystem diversification signifies that the source of income diversifies along with the time of income throughout the year – compared to concentration of income depending on one crop, once a year. The subsystems were cropland, garden, poultry, livestock, aquatic systems, biodigester, forest/commons, tree, group business of value addition etc. It shows the subsystem diversity was 3.5 on an average (range 3 to 4.5) which steadily increased to 8 in case of West Bengal, where water probably played a major role and stabilized to 5 subsystems as a source of income/biomass in case of Jharkhand and Hilly region. This is also true in Rabi season. Summer, which generally remains fallow, has also shown biomass output from 2.54 sources on an average from 2014 onwards. The implication of this has reflected in 45% of the farms recording the growing season being extended to 3 from 1 in the baseline in Jharkhand. While it is 89% in the hilly region, it is 60% in case of West Bengal. More than 2 subsystems noted growing excess biomass for market as well, in general.

## Income distribution

Having more than one subsystem has also affected the distribution of income pattern. As noticed 65 to 85% of the income of the family from the farm used to come from crops and vegetables – which are dependent on monsoon directly. But within 3 years, the intervention has reduced dependency of the family on the climate dependent source, by creating space for livestock, poultry, aquaculture and others. For example, in Hilly area in 2012 Kharif season, the distribution of income was as follows - 32.26% from crop, 13.12% from vegetables, 19.77% from livestock, 1.32% from poultry, 14.91% from aquaculture and 18.60% from value added products. With time,

### Extent of external input usage

	% of farm inputs produced on farm					
	>90%	>80%	>70%	>60%	>50%	<50%
% farmers in						
Jharkhand 2012	0.00	4.17	20.45	22.88	16.86	35.64
Jharkhand 2013	5.26	13.23	22.27	30.78	15.53	12.93
Hilly Region 2012	0.00	0.00	8.33	20.83	25.00	45.83
Hilly Region 2013	12.36	12.36	15.73	6.74	7.87	44.94
West Bengal 2012	46.67	11.67	6.67	8.33	10.00	16.67
West Bengal 2013	93.33	0.00	3.33	3.33	0.00	0.00





*A community monitoring session in Deoghar*

livestock and poultry has more potential to grow. In West Bengal, aquaculture plays a major role in income generation – as high as 34%. This is one of the reasons, why an agroecology is also considered to be a climate adaptive practice as it reduces dependency on climate dependent income source, hence reducing vulnerability/risk.

With limitation of data, no correlation could be established between income enhancements with increased number of subsystems, but distribution of income has noticed to be more evenly distributed over the year, so cash availability throughout the year has also increased.

Whereas the major crop diversity changes to minimum 2~3 to maximum 4~5 in the crop land, the home gardens seems to be more diverse with 6~7 on an average. Crops grown are mainly cereals like rice/wheat/finger millet; pulses like black gram/lentil oilseeds like niger/mustard/flack seed and vegetables like potato/mixed vegetables – which are grown in larger patch. This has a big impact in diet diversity (referred later) which is highest in case of Hilly area followed by West Bengal. Apart from quality of food, diversity also affected quantity as mixed diverse product has been grown in permanent and seasonal fallow. Six hundred and fifty hectares of fallow land has been converted to crop land and 850 ha of single crop area converted to double crop. Pulses were given preference in transforming the character of the land.

## **Diet diversity**

Diet diversity score was done in Jharkhand India in 2014, which showed that about 70% women are eating at least 5 food groups – Beans and Peas, nuts and seeds, dairy products, eggs and fruits, vegetables and leafy vegetables. At the beginning year, 2011 – the majority households were consuming mostly starchy staples. Being a vegetarian dominated state, the progress is remarkable.

Inter-subsystem linkages, which reflects energy/biomass flow between the subsystems, within the entire farming system indicates the closeness and efficiency of a system.

Generally, more the number of linkages, more efficient the system is. The average linkage, which was little more than 1 in 2011, has gradually become nearly 8 in 3 years, where maximum incident was of 12. The results are better in case of West Bengal, probably because of the community which comprised of farm families. In hilly areas it shows comparatively poor results, probably owing to plenty of biomass availability in the wild, for which farmers do not need to create linkages for increasing availability of biomass. But the recycled amount of biomass is showing increasing trend with the increase of number of linkages – though it varies location wise. The average amount of biomass recycled within the subsystems in a farm in 2015 Kharif was 7738 Kg. During the BIOFARM project earlier, we also used the flow of energy in terms of calories – but we



*A community monitoring session in CHT, Bangladesh*

tried to keep it simpler this time, so that it is easily understandable.

This recycling is helping in reducing the use of external inputs. It is noticed that the biomass recycling is better during Kharif season – and best in case of West Bengal. During baseline, the community was recycling biomass only in terms of collecting cow dung from the cowshed. The definition of biomass has been extended during the project to include crop wastes, livestock dung, urine, faeces of poultry, crop residues, weeds etc. The processes involved were heap and pit composting, bio dung preparation, NADEP composting, vermicomposting, liquid manure preparation, mulching etc. If this amount of biomass was not recycled, either it would have to be bought from outside, or the farms would have faced shortages.

In Jharkhand, 35% of the farmers had less than 50% farm input coming internally in 2012, which reduced to 12% in 2013 (Table 1). There was a gradual shifting towards self-sufficiency with 5% farmers using more than 90% of inputs produced on the farm. West Bengal farms showed better results, corresponding with the higher number of links and higher biomass recycled. It is evident that farmers are moving towards self-sufficiency, though there is still huge scope for improvement.

### **Increased food self sufficiency**

From the food security aspect, as most of the farm families were in the food insecurity level, the challenge was to take them to sufficiency level and promote them to surplus level. In 2013, 48% farmers were at surplus level.

### **Biomass productivity**

Productivity, as it is described classically, is of a single crop. The Integrated Farming System (IFS) considered

biomass productivity of the entire farm including food that went for self-consumption/market, fodder, fuel and biomass that is recycled. Rabi in Hilly regions (12000 Kg/ha in 2013) and Jharkhand (9000 kg/ha in 2013) has shown better results, whereas Kharif shows better result in West Bengal (8100 kg). An interesting trend of land biomass productivity is noticed where it is reduced in 2013 from 2012. The probable reason is, less fallow as fallows contains high amount of unused biomass.

### **Some constraints**

Owing to lack of authentic data, it was difficult to calculate the labour productivity in terms of time spent for production activities by the family. But it was evident by case by case analysis that agro-ecological farming is labour intensive and often it increases pressure on women members of the family as it includes livestock management in farming. So gender sensitiveness has to be brought into the entire plan. It involves family members in productive labour days in their own farm rather than working outside the farm as a labour. Most of the farmers, who have been successful, have described the labour intensiveness as positive, giving similar logic.

### **Changing mindsets**

Measuring the impacts of agro ecology over several parameters of different kind, beyond income, in fact helped farmers realize the various benefits that they could realize by diversifying their farm enterprises. By building their capacities to record and analyse different parameters or indicators, helped farmers positively in influencing their mindsets in moving towards more diversified farming systems from a highly focused monocropping of paddy. Those who maintained diaries, monitored their farm progress are continuing with the principles. Demystifying data which encourages the farmer to participate in the collection, analysis and understanding, is probably the key to moving from farm to farming systems.



### **Anshuman Das**

Programme Manager

Welthungerhilfe India.

E-mail: Anshuman.Das@welthungerhilfe.de

# How peasants read their farm

Jan Douwe van der Ploeg

---

*Whereas yield increases are considered central in modernised agriculture, they can be seen as just one element of impact in peasant farming. In assessing their farms, peasants depart from the specificities of their farm, the ecosystem in which it is embedded, the society and the markets in which they operate, and the possibilities and limitations entailed in their own families. This holds even truer when peasants work with agroecology.*

---

At the heart of peasant agriculture there is a range of complex and interdependent cycles of observation, interpretation, readjustment, evaluation and learning. Peasants continuously observe the germination of seeds, the development of crops, and the performance of animals, amongst others. Changes they observe inevitably trigger peasants to ask *how* and *why*, which in turn prompts analysis of previous decisions as well as internal and external factors.

Is the calf that looks so promising to be explained by previous decisions regarding the selection, mating and more generally, the genealogy of the animal? Or is it due to the feeding she got so far? Or maybe the absence of diseases? Or the effect of a new, more healthy stable? Peasant farmers 'read' the dynamics and impact of their own encounter with living nature, or farming, in a twofold way. One way is immediate, short term and applies at the micro level. But farmers also look at the long term, which involves considering the interaction between farms, markets and wider society as well as the role of cooperation. Farmers weigh the possibilities to improve the availability and quality of on-farm natural and social resources and assess what is needed to do so. Both resource *use* and resource *development* are taken into account.

There is always curiosity and the unbeatable drive to do things better

## Continuous learning

Diversity is central to peasant farming. From observing and analysing this diversity, peasants improve and innovate. This logic governs the selection of seeds and animal breeds, for example. Selection and breeding might lead to practical improvements such as higher yields, fewer losses, and stronger animals. Such improvements provide feedback for analysis, but even futile readjustments render new insights. This process is continuous and results in learning and in new knowledge.

Routine is a mighty tool when farming in a sea of uncertainty. What proved to be useful and reliable in the past will be the compass for today's activities. But even so, alongside routine there is always curiosity and the unbeatable drive to do things better. Curiosity and drive trigger cycles of observation, interpretation, readjustment, evaluation and learning. This makes peasant farming a permanent search for improvements, novelties, knowledge and progress. Historically, the many small improvements on peasant farms added up to a steady and sustained growth of production. It wasn't until peasant agriculture started to get heavily squeezed and its development potential appropriated by others that growth rates diminished until misery abounded.

Farmer market in Rome



Photo: Jan Douwe van der Ploeg

## The art of farming

The learning cycles of observation, interpretation and readjustment are not individual activities. They are *socialised* through exchange and communication between peasants and often involve comparisons that go beyond the individual farm. In this process, peasants use criteria in order to assess what is better and what is worse. These criteria are never one dimensional, they are rather multifaceted. When it comes to potatoes, for instance, peasants assess taste, storability, performance in the given ecological conditions, appearance, yield, and resistance to pests and diseases. Interestingly, aesthetics are among some of the most important criteria. 'Healthy looking' plants, 'beautiful' crops, 'generous' fields, and 'noble' cattle are unambiguous concepts amongst peasants.

These criteria are used at multiple levels. Some regard the fields and the animals, others regard the farm as a whole, and yet others regard the community and sometimes even the equilibrium between the agricultural sector and society as a whole. The different balances within the family, between family and farm, between land and animals, between past, present and future also contribute to the aesthetics of the farm.

A well-balanced farm functions as an assurance. It is a promise for the future and a source of feedback. The different levels and the associated balances are clearly interdependent. Together the different criteria compose the 'moral economy of the peasantry': determining, in their view, how things should be. These criteria are especially activated if and when things strongly differ from how they *should* be.

The many cycles and the capacity to bring them into balance with each other are the 'art of farming'. Together they explain why peasant agriculture has historically resulted in ongoing growth and development that is 'born from within' or in other words *endogenous* development. It also explains why peasant farming is often attractive: it is a journey of discovery, a search for new possibilities and it often allows those involved to emancipate, to move forward, to develop themselves as active and knowledgeable actors.

## Modernised farming

Although in industrial agriculture such cycles are not completely absent, they have been moved to the margins of

the labour process. To begin with, farms have been reduced from diverse wholes to highly specialised units of production that basically convert external inputs into specified output for the food and retail industries. Unlike in peasant agriculture, land is no longer the main resource but has been reduced to the venue where agriculture takes place. Second, the labour process now follows a script written by outsiders. Third, specialisation and standardisation have strongly reduced, if not nearly eliminated, heterogeneity in and between farms, rendering comparisons rather useless.

As a result, in this type of farming there is hardly any interest anymore in careful observation, interpretation and readjustment. Growth is now paramount. Development is now exogenous (originating from outside). Modernised agriculture critically depends on the application of resources obtained on the capital market, on the use of external technologies, on knowledge developed elsewhere, on external organisational schemes and logistics and even on the use of external labour. Yield increase of a single crop has become the main indicator of success. The many problems that have resulted from this type of farming are well known.

Contrary to what those making profit from industrial agriculture have us believe, in industrial agriculture the issue of evaluation of the farm is relatively simple. Yields, input use and incomes are assumed to run in parallel. High input use is a prerequisite for high yields, and high yields will lead to good incomes provided the farm size is adequate. This fits well with how the wider global economy is currently organised as high yields ensure that enough raw materials are made available for the food industry, large retail and export, and high input use creates a market for upstream agribusiness such as the seed and chemical industries.

## Repeasantisation and agroecology

Alongside industrial agriculture there remain, both in the global north and the global south, large and growing segments of peasant agriculture. This is in part thanks to the agroecological movement. Agroecology reorients farming towards less use of external inputs and improved efficiency of internal resources. Agroecology is, in many respects, about returning to and strengthening peasant farming. It explicitly socialises the processes of observation, interpretation and readjustment through farmer field schools, farmer-to-farmer learning, field visits, experimentation, etc. These types of learning methods are also applied to new issues such as health, animal welfare, climate change, gender equality, product quality, nutrition, and marketing.

Agroecology explicitly socialises the processes of observation, interpretation and readjustment



Photo: Jan Douwe van der Ploeg

*Seeding sweet potato*

What is valid for peasant farming in terms of evaluating the farm is particularly relevant when peasants work with agroecology. Agroecology implies a transition; it is a self-propelling process of change, learning from changes and their effects, continuously translating the enlarged body of knowledge and new experiences into complementary changes.

A beautiful production and a well-balanced farm result in an adequate livelihood, in well being and in prospects for the future. While incomes are an integral part of all this, peasant farmers perceive income in a very specific way. They are not interested in profits or in the ‘net farm results’ as calculated in standard farm accountancy. As very clearly argued by the Russian scholar Chayanov, incomes are perceived by peasant farmers as the result of their labour (as ‘labour income’). They typically do *not* calculate their own labour and other internal resources as costs.

### The clean part

Strategic for peasant producers is the difference between sold produce and bought inputs; this is often referred to as ‘the clean part’. This income is regarded as ‘clean’ because it is for the peasants and their families themselves. Together with the food produced for the household, it cannot be touched or claimed by others. The concept of the ‘clean part’ was developed by peasants in order to be able to evaluate and control the relation between their farms and the markets. It connects the dynamics in the fields and stables with the wellbeing of the family.

Peasant farmers perceive income in a very specific way

Assessing the ‘clean part’ is a powerful tool for agroecology, precisely because it highlights the result of a particular double movement that is central to agroecology: reducing external input use and the associated costs, while obtaining better prices for their products. The latter takes place through organising peasant agroecological markets, augmenting quality and adding value, and creating cooperatives. Peasant producers and their families will always ask: how does this income or ‘clean part’ relate to the time, effort and energy we have invested in the labour process?

The ‘clean part’ may also translate to agriculture as a whole: If the ‘clean part’ is acceptable to peasants, then the agricultural sector is likely to be sound and not in need of perverse subsidies. It means that agriculture will be able to finance its own further development. The agroecological transition has shown the potential to generate a clean part that is both acceptable for individual farmers and able to generate benefits to society as a whole.

If citizens, social organisations, researchers and policy makers are able to apply a similar view when assessing the dynamics and impacts of different types of farming, they will be able to strongly contribute to making clear, to society as a whole, that peasant-led agroecology is not only a promise but equally a necessity for today and for the future.



**Jan Douwe van der Ploeg** ([jandouwe.vanderploeg@wur.nl](mailto:jandouwe.vanderploeg@wur.nl)) is Adjunct Professor in the sociology of agriculture at the College of Humanities and Development Studies at China Agricultural University in Beijing.

# Knowledge exchange on agroecology

## *Does it influence practice?*

**T M Radha**

---

*In agroecology, farmers solve their problems adopting practices relying on judgments based on their local conditions, resources and knowledge levels. Farmers continuously learn developing better farming methods, and hence, knowledge becomes central in agroecology.*

---

It was in early eighties that a silent revolution towards eco friendly agriculture started in India. Disappointed with the conventional, chemical agriculture, farmers in small numbers started to make a shift towards alternative agriculture – agriculture which produced enough without depleting the natural resources and that which nurtured the resources for the future generations to survive. Agroecology is one of many terms used to describe such an approach to farming – others being sustainable agriculture, ecological agriculture, low-external input agriculture or people-centered agriculture.

Knowledge on agro ecology is dynamically generated on the field, by those who are actively involved in agricultural activities. In practising such a method of agriculture, farmers become more observant about their crops while fostering adaptation and innovation. Farmers solve their own problems adopting practices that rely on farmers' judgments based on their local conditions, resources and knowledge levels. Hence, in agro ecology, there isn't a set of practices that one could follow as is done in conventional systems. In agro ecology, farmers continuously learn developing better farming methods, and knowledge becomes central.

The necessity for upgrading knowledge makes farmers look for sources of information on agro ecology and opportunities to interact with like minded farmers and researchers. Also, knowledge sharing and knowledge

exchange facilitates faster upscaling of agro ecology. While farmer meets, farmer exchanges, interactive meetings, largely organised by the civil society organisations have served as platforms for knowledge exchange, they have been serving farmers for only a brief periods of time. Of the very few initiatives that have been serving the purpose of knowledge exchange on agro ecology for a long time, is the LEISA India initiative. LEISA India as a knowledge initiative has been promoting ecological agriculture, since 2000. LEISA magazine has been recognised as one of the primary sources of inspiration and to an extent practical knowledge on ecological agriculture. A study was therefore done with the readers of the magazine to understand the impact of knowledge dissemination on acceptance and adoption of agro ecology as a farming approach in 2009.

### **Methodology**

As we were interested in looking at the outcomes of the decade long effort in knowledge exchange, we employed the outcome impact assessment method. Attempt was made to understand and assess the efficiency of our task on hand (reaching the readers on dissemination of LEISA practices) - *the sphere of control*. Further, we also tried to find out how best this information shared is being put to use – *the sphere of influence* and to what extent our efforts are able to address the issues of small scale agriculture – *the sphere of interest*. All these were studied using a number of approaches like Readers surveys; Group discussions; Individual interactions; Field visits and Impact workshops. This article focuses primarily on the 'sphere of influence' – how the information on agro ecology has influenced readers mind and their farming practices. Also,

how different categories of readers have been influenced in different ways in promoting agro ecology, is interesting.

Around 1500 readers responded to the readers survey. We had in depth interactions with 21 readers - 8 were farmers, 7 were NGO representatives, 3 were from media and one each from the Government, research Institution and Credit institution. They served as detailed 'Cases' as to how they utilised the magazine content and their outcomes. Group discussions were carried out with groups of LEISA India readers with various reader categories at different places, involving around 50-60 readers representing institutions like University of Agricultural Sciences, Indian Institute of Horticultural Research, Indian Institute of Science, Agriculture Marketing Board, FRLHT and RDT. Field Visits were organised to four farmer readers as we wanted to see how they have been practicing LEISA on their fields. Of the four farmers whom we interacted during our field visits, three were small farmers owning 2-3 acres of land, while the fourth farmer was a big farmer owning around 15 acres.

### Sphere of influence

It was interesting to look at and understand what readers are doing with the information they receive through the magazine and how it is resulting in a change in their *thinking, behaviour, and practice*. While surveys did indicate the nature of use and its impact on their thinking, the actual outcomes of such use have been elicited from much more deeper interactions done at individual level with selected readers.

#### *Thinking differently*

One of the major outcomes of knowledge exchange on agro ecology has been a *change in mindsets* – across different types of people like farmers, NGOs, students, Academics etc. For instance, for farmers, who have not been able to make a decent living on farming, the knowledge on agro ecology came as a '*hope for agriculture*'. The existence of alternatives and the fact that there are many farmers around the world who are like them and have made it possible through LEISA approach, has rebuilt their confidence in farming. "*Determination to continue as a farmer*", as one farmer puts it, has been the major outcome.

On the other hand, access to practical knowledge on agro ecology brought in a different type of change in the development community. For them, knowledge on alternative agriculture as a means of livelihood has enabled them to look at development holistically. Earlier, they were involved in promoting discrete income generating activities,

not really having knowledge on how to promote safe agriculture. With access to information on alternative agriculture to promote among farmers and participatory methods to work with rural masses, they find their interventions, now more meaningful. Around 74% of the respondents expressed that they had much more clarity on alternative agriculture and agro ecology. The articles helped them to understand the concepts much better like IPM, SRI and living soils.

#### *Trying on own farms*

These changed mindsets are reflected in terms of changed field practices and changing cropping systems. Farmer readers have been practically applying the ideas, practices and systems resulting in changed practices and systems on the farms.

Changed practices in the field are quite visible. About 58% of the farmer respondents have used it for field application. Practices like organic manure application, use of compost, vermicompost, azolla, to name a few have gained momentum. For example, a farmer in Shimoga district started cultivating rice on raised beds after being inspired by an experience on '*Growing paddy on permanent rice beds*', published in the magazine. He feels the method helped him reduce the cost by 50% which equal to making a profit by 50%.

We can observe many farms shifting to a total non-chemical type of farming. Farmers are going in for recycling farm wastes to organic manure. Some farmers in Shimoga believe in irrigating water mixed with organic manure, which also help them in saving labour as compared to soil application of organic manure. Many farmers are becoming chemical free farms. Some innovative farmers are trying out alternatives like growing green manure crop and thus totally avoiding application of organic manure. For example, Mr. Nandish, a young farmer in Shimoga, grows various varieties of green manures, mostly leguminous and follows green culture method.

#### *Helping others to practice*

From the knowledge gained on agro ecology, the development community have been promoting ecofriendly practices on the farmers field. The survey indicated that around 39% of the NGO respondents promoted practices like vermicomposting, green manuring, SRI etc., among the farmers with whom they work. For instance, vermicomposting as an enterprise was introduced into the community of Akot, a remote village in Uttarakhand, the idea of which was taken from the LEISA article; Based on the article on azolla as a livestock feed, it was promoted

in the milksheds of Maharashtra and Goa with a good feedback. Azolla was also tried out in dairy company by one of the readers who finds good results now. Mr. Sachin Suresh, a development agent, guided farmers on management of Gundhi bug using crabs, which was mentioned in one of the issues. Similarly, SEEDS, an NGO in Tamil Nadu started promoting Azolla, vermi composting etc., the knowledge of which was gained from the magazine. Starting with 4-5 farmers, these practices has spread to many more in the project villages.

Researchers have used the knowledge on agro ecology in a different way. They too have translated the knowledge into action. For example, model organic farm for arid zone was developed in CAZRI based on the ideas discussed on soil health and EPM. The Krishi Vigyan Kendras (KVK) which are the extension units at the local level are also using a lot of ideas from the magazine. For example, KVK in West Bengal has taken up marketing of organic cotton.

#### *Integrating new ideas, approaches*

Researchers are getting more inclined towards *people-centered research; location centric research and traditional knowledge*. Methodologies to follow such methods have built in a confidence in promoting such people centered approaches. Particularly for methodologies like PTD and FFS, the magazine has been a primary motivating source. To quote an example, the Sugarcane Breeding Institute in Coimbatore, Tamil Nadu, tried out participatory varietal trials in one of the sugar factories and helped in its revival. Similarly, many readers/NGOs have found FFS interesting and have tried it out in their contexts.

Majority of the researchers and academic readers are finding LEISA India as a source of ideas for alternative agriculture. They are not just gaining knowledge but are also bringing about changes in development research programmes by incorporating these ideas in their project proposals. The survey also indicated that some of the research and also Ph.D research is being guided on these lines while some of the ideas are being incorporated in preparing new project proposals.

NGOs have also been instrumental in bringing about new institutional forms like producer company, after understanding the concept from the magazine. Farmers in the Attapady region in Kerala were organised and formed into a cooperative called FARMA with the support of AHADS, an NGO. AHADS contacted the authors of an article on fair-trade, learnt much more on organizing farmers which led to the formation of FARMA.

One of the most important changes that LEISA India has brought about is in the paddy production systems. LEISA India has been one and the only source for many years on the System of Rice Intensification (SRI). For many, LEISA India was the primary source of information on SRI. They have either adopted SRI on their fields or have promoted SRI among farmers. For example, Mr. Pradeep Kumar from Orissa says that he could promote SRI amongst 1000 farmers in Orissa based on the understanding gained from the magazine. This was much before the Government took initiative in spreading SRI in the State.

The readers in the development field are able to add greater value to their programmes, based on the knowledge they have been gaining. Many of the NGOs have started incorporating the farming content into their trainings as they feel this brings about a real change. Moreover, most of the NGOs lack sources for alternative agriculture to include in their trainings. In such cases LEISA India comes in handy. A syllabus was also developed on organic farming for training a farmers network.

#### **Making in roads into the mainstream**

Research Institutions have used the contents for designing demonstrations as well as for developing project proposals, for eg., ideas for a project on climate change was taken from the magazine. Indian Institute of Horticultural Research received a project worth 9 lakhs on para agents, the idea of which was used from the article on para-veterinarians. Similarly, based on an article on soil reclamation, IIHR prepared two proposals on consortium of microbes in a compatible medium.

Academic institutions have been using LEISA India for teaching as well as in training. LEISA India has been source for developing education material on topics like Sustainable agriculture, Sustainable development, Organic agricultural practices, Farm business management, soil health, water management, Insect ecology etc. Courses and curriculum have also been developed using the content. Gandhigram Rural University, Tamil Nadu has included LEISA as one of the five units in its course. Every three years when the syllabus is revised, a lot of content from the magazine is used. Fundamental courses in extension have been developed. The University is also planning a Center on Climate change, *inspired by the issue on climate change* in LEISA. This indicates that sustainable agriculture is finding its way in the mainstream thinking and practice, though in a small way. This could be either due to the shifts in priorities and strategies of institutions or could be purely driven by the enthusiasm of select individuals.

#### **Spreading beyond**

Knowledge gained from the magazine is spreading beyond the readership. Many of the readers are spreading





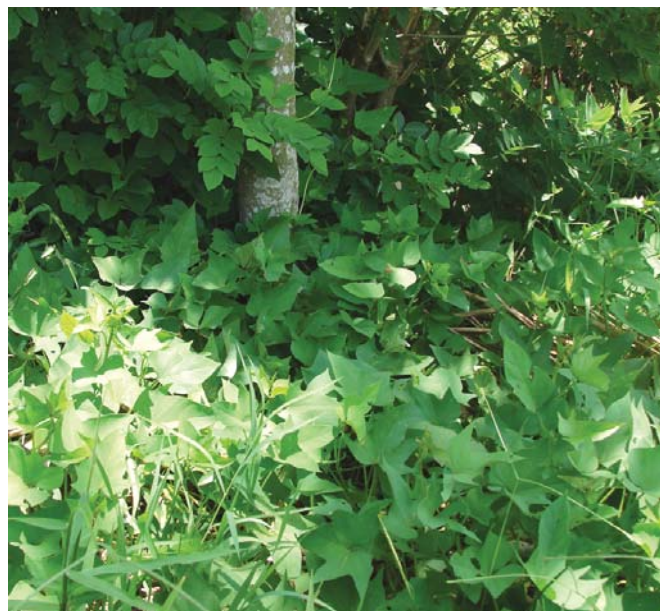
*Nandish, a farmer who adopts LEISA practices*

awareness on alternative agriculture in various ways. Around 54% of them reported sharing with farmers, 41% in workshops and meetings; 53% are sharing with professional colleagues.

The Academics, researchers and students are sharing a lot of content during workshops and meetings through their presentations. LEISA India forms the source material on sustainable and ecological agriculture, which are referred to for preparing papers and presentations. They are based not only on the LEISA articles, but also by referring to books and sources provided in the magazine.

Besides practices, many farmers have started believing in integrated farming systems and have switched over from conventional farming systems. Particularly the one acre model that was described in the magazine caught the attention of many farmers to adopt the same. Many farmers also visited this model farm and followed some of the practices and systems.

Media is using the content/message and repackaging reaching wider readership – in the print, AIR and TV programmes. Readers from the print media have used the content in rewriting articles in local languages. For instance, a reporter from the Kannada language daily - Prajavani, wrote about one acre farm model (which was earlier published in LEISA India) for which he received 5000 calls asking for more information. Many of the readers also translated into various languages like Bengali, Oriya and Malayalam, enabling further reach of knowledge on agro ecology. Similar efforts are made by All India Radio in spreading the message through their



*Green cover on Nandish's farm which conserves soil moisture*

farm programmes. AIR-Gulbarga had interviewed Shri. Narayana Reddy, the columnist of LEISA India, which received an excellent feedback. Infact, Prasar Bharathi, Doordarshan Director says that LEISA India has been “the source” for ecological agriculture and is being recommended to his staff in developing farm related programmes.

### **Knowledge as a tool for triggering change**

Especially in a system which is largely influenced and controlled by corporates and multinationals, bringing about a change that is people centric is a challenging and a long drawn process. In such change process, knowledge is the trigger for change. Besides knowledge exchange initiatives, supportive systems, capacity building and favourable policies will go a long way in bringing about this change, which is necessary to make agriculture and livelihoods sustainable.

#### **T M Radha**

Managing Editor, LEISA India  
AME Foundation  
Bangalore - 560085  
E-mail: leisaindia@yahoo.co.in

# “Impact studies are crucial for the amplification of agroecology”

**Interview: Diana Quiroz**

Clara Nicholls is the president of the Latin American Scientific Society of Agroecology (SOCLA). For over three decades, she has worked in Latin America engaged in agroecology teaching and research, promoting agroecological alternatives to industrial agriculture and providing technical advice to a number of peasant organisations involved in agroecology in the region. In this interview Clara explains why impact studies are so important.

## How has agroecology changed since you became involved in the movement?

Perhaps the biggest change has been in the way agroecology has been perceived over time. Agroecology was born in the 1980s in Latin America amongst small scale producers marginalised by the Green Revolution and who had no access to agricultural inputs. These farmers, often supported by NGOs, looked for ways around the marginalisation they were experiencing. A decade later, they started organising themselves and sought for ways to transfer successful initiatives creating farmer to farmer networks. Back in the day, scientists argued that agroecology could not feed the world and that it was only for the ‘poor’. It was only in the 1990s that some universities became interested in agroecology. At the same time, NGOs began playing a stronger role as extensionists, and were instrumental in ensuring more research support for peasant agriculture amongst academics.

Agroecology has come a long way; it is not as stigmatised as it was 30 years ago. Many of us agroecological scientists



Photo: Clara Nicholls

*Teaching students how to use the A frame to mark contours on a hill side in Chiloe, Chile.*

know that this has been a strenuous struggle, but thanks to the continuous and joint effort of peasants, civil society, and academia, agroecology has gained worldwide momentum. Institutions such as the FAO and many universities, which previously questioned it, have now incorporated agroecology into their agendas. Clearly we must be careful as there are efforts to co-opt agroecology and strip it of its sociopolitical dimensions. This is why it is important to recognise the history and identity of agroecology, and particularly the impact of agroecology, and specially to evaluate its technical, social, economic and political achievements.

You cannot measure impact without looking at the social, political and cultural dimensions, alongside the technical ones



Photo: Clara Nicholls

*Visiting Yamanuishi farm in Sao Paulo state, Brazil.*

### How can these achievements be evaluated?

To answer this question, I would like to outline the differences between agroecology and organic agriculture, which are often confused. Whereas organic agriculture is only a production model, agroecology as a science, offers the principles and methodological elements needed to evaluate, design, and manage diversified agroecosystems. For example, you can produce organic grapes following a handbook, but only agroecological knowledge enables us to redesign and diversify such vineyards, in order to maintain their soil fertility, pest regulation and productivity without external inputs. For instance, by applying agroecological knowledge you can tell why a field planted with GMOs is unsustainable: there is no diversity, no nutrient cycling and, it isn't socially fair. With agroecological knowledge you can even analyse the detrimental ecological and political impact of GMOs.

You cannot measure the impact of agroecology without looking at the social, political, and cultural dimensions, alongside the technical ones. Anyone can have a productive agroecological farm, but following agroecological principles alone, without considering social equity and cultural

appropriateness, is not enough. Agroecology is like a four-legged table where practice is only one of its legs. The same applies to organic agriculture. It may be healthy and friendly to the environment because of the absence of chemical inputs; it may be economically viable because it is profitable for farmers; and yet it may not be socially just or culturally acceptable because not everyone can afford to pay for certified organic foods or because peasant knowledge hasn't been taken into account. Thus the organic system may have three legs but it still falls down and is therefore not sustainable.

To measure the impact of agroecology you first need to determine the objective of your evaluation together with farmers and choose indicators according to this objective. For example, if you want to prove that agroecological farming has achieved more equity for peasants, then you need to think of the different attributes of agroecology's social dimension. Thinking of attributes helps in choosing the right indicators. In the case of equity, you can look at indicators such as the level of empowerment, organisation,

Sometimes we have a good discourse, but it is worth little if we don't translate it into practice.

self-determination, participation (especially of youth and women), self-consumption of their products, access to markets, etc. Once indicators have been chosen with stakeholders, you can determine how to measure those indicators. There are several ways of doing this and choosing a methodology depends on who you work with and the level of evaluation: families, communities, entire territories or anything in between. Our team, for example, has used a traffic light system assigning colours to the degree of vulnerability when evaluating resilience to climate change together with indigenous communities in Colombia and Mexico.

### Why is it important to measure the impact of agroecology?

It is important to measure the impact of agroecology in order to demonstrate to the sceptics that agroecology is a form of agriculture capable of producing enough good and accessible food without harming the environment or contributing to greenhouse gas emissions. It is also important that society as a whole be informed about the impacts of agroecology and of the need to advocate for public policies that support small scale producers' and consumers' rights. For us scientists, it is important to know if the initiatives we promote are really reaching the levels of sustainability we strive for and if the principles on which the science of agroecology is based are being applied in practice. Impact studies are crucial for the amplification of agroecology.

### What is the biggest challenge for developing indicators of impact?

We must increase our understanding of the importance of using participatory methods to develop indicators. Often, the things that are interesting to us scientists have absolutely no relevance for farmers. For example, as an entomologist I am interested to know whether a farm has insect pests and associated natural enemies, but it might be the case that this farm has never had problems with insect pests and the farmers' priorities are elsewhere. Moreover, it is also important that indicators be accurate, sensitive, and easy to interpret. Sometimes indicators are reduced to numeric values that farmers don't understand and this has been one Achilles' heel of measuring the impact of agroecology.

### Is measuring impact with indicators enough?

Unfortunately, much of the work we do in academia remains locked up in students' theses and scientific articles that no one else reads. Often the distance between the potential and actual political impact of researchers' work is huge. This is because the system rewards publications whether relevant or not. In addition to doing research, we scientists should

also be activists and ensure that our work is a catalyst for change. And to generate change, researchers must be close to people and farmers' organisations, because policy changes are seldom a result of the work of scientists or policy makers; they happen because social movements and civil society push for change.

We scientists cannot work alone, we need co-researchers and these co-researchers must be peasants and farmers. Neglecting this is a recipe for failure. Moreover research must foster and provoke political action. Mainstream science doesn't like this, but science isn't neutral either, especially as it is often in the service of certain political and economic interests. The only weapon we have is to show that agroecology works, we cannot leave everything to utopian dreams and discourse. Sometimes we have a good discourse, but it is worth little if we don't translate it into practice. Agroecology is a public good but in order to have an impact the research has to be relevant and emerge from a participatory process where the true needs and aspirations of peasants are well represented.





Photo: Author

*Integrated family farm development in 18 acres of Malegaon village*

# Agroecology

## *Conserving biodiversity, nurturing ecology*

**Kulaswami Jagannath Jena**

---

*Agroecology approach is a way to make farming sustainable. It is also a way to resist the corporate agriculture model pushed through the green revolution and gene revolution. Besides technologies, it is important to create an equitable food system for the people who actually produce the world's food.*

---

**T**he Southern-Western Odisha is largely an agro-economy based region with 75-80% people depending on agriculture. Even though blessed with rich natural resources, the changing climatic conditions create threats to food, livelihood and ecological security of tribal communities. Due to hasty environmental degradation, deforestation, and challenging climatic

conditions the food production and income is affected severely throughout the year in the region.

To address these issues, Agragamee, a pioneer NGO in Odisha State has promoted the concept of Eco-Village Development in 150 villages in 3 blocks (Kashipur, Dasmantpur and Th. Rampur) of 3 districts (Rayagada, Koraput and Kalahandi). Agroecological models replacing monocultures with biodiversity have produced impressive economic results in terms of yields, productivity, nutrition and efficiency, also making a significant contribution to food security and sovereignty. Women farmers have an equal status with men in agro-activities.

### **The Eco-Village model**

Agroecology is used as strategic application to amplify diversified agro-ecosystem. Soil conservation measures



Photo: Author

*A girl happy to harvest diverse crops*

like terrace bunding and vegetative bunds on the hill slopes were taken up. Gully and ravine formation were checked through appropriate drainage treatment.

Fruit-bearing trees like mango, cashew, litchi and guava have been promoted along with forest species. These plantations were taken up on slopes above 30 degrees. Using sophisticated equipment, land survey and settlement processes were conducted in 150 villages in 3 blocks. In 2010, total 117000 fruit plants have been planted by 1800 farmers.

By the end of July 2016, more than 6000 households were following family farming. As a result, between the 2013/14 and 2015/16 seasons, there was a 120 percent increase in the land on which family farming was being practiced. Typically, most cereals and legumes grown in these areas are consumed in the household, while the surplus generally sold to support household income and to take care of children’s education and their health expenses.

#### Benefits of agroecological practice

Agroecological practice	Benefits
Zero Tillage Farming	It improves soil fertility including freshening, water permeation and retention capacity with organic matter.
Integrated Nutrient Management	Using vermin compost, pit compost, liquid manure, green manure and nitrogen fixing crops reduce the use of chemical fertilizers.
Innovative soil and water conservation	Reduce soil erosion, increase soil fertility and moisture retention through trace bunding, trench-cum-bund and necklace bunding etc.
Inter-cropping and Mix-Cropping	It increases the productivity and production of the soil and crop respectively. It also gives the farmers a healthy return during the gestation period.
Integration of livestock with crop	It allows high biomass output and maximum nutrient recycling and strengthens the economy through livestock rearing.
Seed-Cum-Grain Banks (SCGBs)	The SCGBs reduced the dependency of farmers on unscrupulous moneylenders and market which led self-sustainability thereby enduring recurrent climate change and enabling food security.

## Key Impacts

It has been proved that agroecology is an organic solution for making profit by increasing agro-production for small farmers. Let's look at how agroecological methods contribute to a farmer's income and better health underlining the significance of harmony with environment.

### *Increased production and crop diversification*

The tribal small scale farmers of the region were able to check land degradation and improve soil fertility with multiple cropping and practice traditional and indigenous practices. Productivity increased and within 3-7 years of using agroecological methods, farmers were able to double their crop yields.

### *Livelihood security*

The agroecological practices have been largely enhancing the income of small farmers. Farmers are no longer dependant on external inputs. Innovative irrigation practices and producing bio-inputs on farm reduced their costs of production. Small farmers have taken up animal rearing for income generation. Around 1500 farmers in 150 villages were encouraged to save money to buy livestock, develop land, and enhance irrigation systems which added a sustainable income opportunities to ensure livelihood security. In case of crop failure too, farmers are not crippling in indebtedness. And, agroecology has certainly proven to reduce the magnitude of farmer's suicide.

### *Food Sovereignty*

The food systems ensured good health, justice and dignity for the small scale farmers. It has given the farmers control over every aspect of farming including their land, water, forest, seeds and income. These farmers with enhanced awareness and abilities are able to see the interconnectedness of food systems, industrial farming and trade policies.

## Conclusion

Agroecology is becoming a promising agricultural practice for the small farmers. This approach not only provides sustenance for small farmers but also serves as a way to resist the corporate agriculture model pushed through the

These farmers with enhanced awareness and abilities are able to see the interconnectedness of food systems, industrial farming and trade policies.

## Sumani Jhodia: The change maker

Sumani Jhodia, a sixty two year old woman belongs to Jhodia tribe of Siriguda village of Kashipur block in Rayagada district, Odisha. Earlier, Sumani Jhodia was practicing shifting cultivation on hill slopes. She was growing ragi and paddy for household consumption. But the condition of her family changed when she practiced the methods of agroecology for several years now.

Sumani Jhodia has been practicing multiple cropping for food security. Mixed cropping has helped the crops to grow better within an year. The bigger problem that she faced was water supply, an issue faced by the entire village. The youth and old farmers came together to dig channel diverting the nearby stream water to their farms. This ensured irrigation for their farms throughout the year. The channel holds the rainwater and facilitates in recharging the ground water.

Now Sumani Jhodia grows vegetables, fruits and has raised nursery with six varieties of mango saplings. She sells the products at the local market of Kashipur. In 2015, she had raised 5000 sapling of over six varieties of mango and has already sold 6000 grafted plants in 2016 @ Rs. 25/- earning Rs. 1,50,000/-. Her family now has food supply all year round. The village seed cum grain bank has stored supply for three years for the entire village of 56 households.

"I grow many vegetables and fruits on my farm now. We make our compost here and have good water supply. My grandchildren will not face hunger like us and have healthy food to eat. Now, I have sustainable source of livelihood for me and my next generations", says Sumani Jhodia, smiling with satisfaction.

green revolution and gene revolution. We don't need to produce more food to end the world hunger. We need to create an equitable food system for the people who actually produce the world's food. What small farmers need is better access to land, water, forest, basic infrastructure services and not GMOs, large scale agriculture or global markets. The journey has already begun!

## Kulaswami Jagannath Jena

Project Coordinator in ECO VILLAGE DEVELOPMENT,  
Agramee,  
Kashipur, Rayagada, Odisha, India.  
www.agramee.org  
E-mail id: kulaswami13@gmail.com

# Creating a Sustainable Food Future

## *Indicators of sustainable agriculture: a scoping analysis*

Katie Reytar, Craig Hanson and Norbert Henninger

---

*Quantifiable indicators of the environmental sustainability of agriculture—by which we mean minimizing the environmental impacts of agriculture—are an important tool for helping move the world toward a sustainable food future. Indicators enable policymakers, farmers, businesses, and civil society to better understand current conditions, identify trends, set targets, monitor progress, and compare performance among regions and countries.*

---

The World Resources Report's *Creating a Sustainable Food Future: Interim Findings* describes how the world faces a great balancing act of three needs. It needs to close a 6,500 trillion kilocalorie per year gap between the food available in 2006 and that required in 2050 - a 69 percent increase - to adequately feed the planet. It needs agriculture to contribute to economic and social development. And it needs agriculture to reduce its impact on climate, water, and ecosystems.

What indicators are most appropriate for tracking progress and motivating actors toward a sustainable food future? To address this question, the World Resources Institute (WRI) conducted a scoping exercise to identify a preliminary list of candidate indicators at the nexus of agriculture and environment. This working paper summarizes the results of WRI's ATI (Agricultural Transformation Index) scoping exercise.

### **Indicators of the environmental sustainability of agriculture**

Our first step in developing indicators of the environmental sustainability of agriculture was to review current indicators, indices, and datasets at the nexus of agriculture

and the environment. What sources exist? What are their strengths and shortcomings? What can we learn from them?

To answer these questions, we identified, reviewed, and synthesized indicators, indices, and datasets related to the environmental sustainability of agriculture. Through discussions with experts at WRI and elsewhere, and an extensive literature review, we identified more than two dozen sources. We screened each for relevance and eliminated those deemed irrelevant. No indicator perfectly reflects reality; each has limitations.

### **Parameters for selecting candidate indicators**

To identify candidate indicators for the environmental sustainability of agriculture, we pursued a three-step process. *First*, we identified the most relevant “thematic areas” for indicators. These are the topics at the intersection of the environment and agriculture that we consider most significant – that is, where agriculture is a leading cause of environmental damage. These areas are water, climate change, land conversion, soil health, and pollution.

*Second*, we identified the types of activity that indicators can seek to influence – what we call the “causal chain.” *Third*, we identified three generic stages of the “causal chain” of action that indicators can represent or seek to influence. These stages are public policy, farmer practice, and biophysical performance.

### **Stages in the causal chain**

Indicators and indices seek to reflect and ultimately influence multiple types of behavior. For agriculture, they can reflect policies, practices, and performance – a sequence of behaviors and results or “causal chain.” More specifically, government policies can influence farmer practices, which in turn can determine on-the-ground



biophysical performance or conditions. For example, a regulation (“policy”) that requires a farmer to measure the water she withdraws for crop irrigation can create an incentive for her to implement conservation irrigation techniques (“practice”) which, in turn, can improve water-use efficiency and produce greater crop yield per unit of water used – or “crop per drop” (“performance”).

Ideally, a portfolio of indicators on the environmental sustainability of agriculture should reflect all three parts of the causal chain. Policy indicators reflect the policies that could create the right enabling conditions or incentives for sustainable agriculture. Practice indicators reflect the on-farm practices that help realize sustainable agriculture. Performance indicators reflect the desired, on-the-ground, biophysical state associated with sustainable agriculture. Although performance indicators are the best reflection of what is happening on the ground because they measure biophysical conditions, they are the hardest to mandate and to monitor. Policy indicators, conversely, reflect the existence of policies, some of which may be ineffective or unenforced, but they are arguably easier to monitor than biophysical conditions.

### Screening criteria

We selected a suite of screening criteria against which to assess candidate indicators. For each of these activities, we referred to existing indicators, indices, and datasets, as well as WRI expertise. We selected seven screening criteria against which to assess candidate indicators. These screening criteria are availability of data, accuracy of data, consistency in how data is gathered, frequency of data, data’s proximity to reality, relevancy of data, and ability for data to differentiate among countries.

*Available:* Are the data underlying the indicator currently available for most countries?

*Accurate:* Are the data underlying the indicator accurate, reliable, and representative of on-the ground conditions?

*Consistent:* Are the data collection methods consistent and the data comparable across all countries?

*Frequent:* Are the data regularly collected or updated such that they are relatively current?

*Proximate:* Is the indicator or its data indicative of the environmental sustainability of agriculture with respect to the theme being considered? In other words, is it a good “proxy” for reality?

*Relevant:* Is the indicator or its data highly pertinent to policy decisions involving environmental sustainability of agriculture?

*Differentiating:* Is the indicator or its data specific enough to show distinctions among countries?

To assess how well a candidate indicator meets one of these criteria, we developed a simple three-part scale of “high, medium, low” or “green, yellow, red,” respectively.

### Shortlisting indicators

We identified a “long list” of candidate indicators of environmental sustainability in agriculture for each of the five thematic areas and for each of the three stages in the causal chain. Indicators came from our analysis of existing sources, as well as WRI expert input. We then evaluated each of these possible indicators against the seven screening criteria. Those that fared best became the “short list” of candidate indicators.

“Evaluation of Candidate Indicators of Environmental Sustainability of Agriculture” (an Excel workbook available at <http://www.wri.org/resources/data-sets/foodindicators>) presents the list of possible indicators. Each worksheet is dedicated to a thematic area (e.g., water, climate, soil health) and is organized by step in the causal chain (i.e., policy, practice, performance) on one dimension and by selection criteria (e.g., available, accurate, consistent) on the other. Each possible indicator is evaluated against these criteria, accompanied by comments for clarification.

### Some caveats

A few caveats are important. First, given that this working paper summarizes a scoping exercise, the candidate list represents those indicators that we deem most suitable for further research and vetting-particularly with regard to data availability, accuracy, and frequency of collection. Second, we did not restrict selection of candidate indicators to those for which data are already available in all countries. Although some suggested candidate indicators may fare poorly on the data availability criterion, they would be accurate, proximate, relevant, and differentiating. We include them as a signal that the international community should consider generating and collecting data for these indicators. Third, in the Excel workbook, we offer ideas for how to collect missing data. Fourth, the candidate list does not include demand-side aspects such as measuring rates of post-harvest food loss and waste. This is outside the scope of the analysis.

### Integrating the indicators into an index

Integration involves weighting and aggregating the constituent indicators of the index. The constituents are assigned weights based on statistical criteria or expert

### Box 1: The World Resources Report: Creating a Sustainable Food Future

How can the world adequately feed more than 9 billion people by 2050 in a manner that advances economic development and reduces pressure on the environment? This is one of the paramount questions the world faces over the next four decades.

Answering it requires a “great balancing act” of three needs—each of which must be simultaneously met. First, the world needs to close the gap between the food available today and that needed by 2050. Second, the world needs agriculture to contribute to inclusive economic and social development. Third, the world needs to reduce agriculture’s impact on the environment.

The forthcoming 2013–14 World Resources Report, *Creating a Sustainable Food Future*, seeks to answer this question by proposing a menu of solutions that can achieve the great balancing act. Some menu items address the demand for food, such as reducing food loss and waste and shifting diets. Other menu items address the supply of food, such as boosting yields through crop breeding, improving land and water management, and improving pasture productivity.

Since the 1980s, the World Resources Report has provided decision makers from government, business, and civil society with analyses and insights on major issues at the nexus of development and the environment. For more information about the World Resources Report and to access previous installments and editions, visit [www.worldresourcesreport.org](http://www.worldresourcesreport.org).

judgment. Then they are aggregated in either a linear or nonlinear fashion.

When integrating indicators into an overall index, it is important to keep five points in mind. First, no single integration approach for designing an index is considered statistically or scientifically superior to another: all represent value judgments. Second, the approach selected depends largely on the index’s intended purpose. Third, avoid using constituent indicators that overlap or cover the same issue; they will “double count” in the aggregate index. Fourth, avoid constituent indicators that are the opposite of each other; they will zero each other out in the aggregate index. Fifth, recognize that an aggregate index may be too broad for some audiences to derive a clear message regarding the meaning and implications of the index. Too much information may be integrated, making the result unclear or even misleading. Therefore, stakeholders considering combining indicators into one index should proceed with caution.

### Proposed next steps

Designing indicators or an index for the environmental sustainability of agriculture will require new work. It is not possible to simply adopt or repackage existing material into a sufficiently robust index or set of indicators. Although data exist for some indicators, information gaps hinder designing a suite of indicators and an associated

index that sufficiently covers the range of important thematic areas. Closing these gaps will require a collaboration of partners with a variety of expertise, ranging from data gatherers and statisticians to agriculture and sustainability experts.

Entities to engage in this process include those that could provide data for indicators, those that could track the indicators, and those whose actions might be influenced by the indicators. These entities include (but are not limited to) the FAO, the OECD, the CGIAR research centers, national agriculture ministries (for feedback on indicators and their application), national environment ministries, the World Bank, bilateral development agencies, and research organizations. One institution should become the “lead” for developing the indicators (and index).

### Concluding thoughts

Quantifiable indicators of the environmental sustainability of agriculture will enable policymakers, farmers, businesses, and civil society to better understand current conditions, identify trends, set targets, monitor progress, and compare performance among regions and countries.

If appropriately designed, they can foster incentives for the sector or nations to improve performance. And they make managing the nexus between agriculture and the environment easier; it is hard to manage that which is not measured. For these reasons, indicators are an important ingredient in achieving a sustainable food future.



*This is an abridged version of the original - Reyta, K. et al. 2014. “Indicators of Sustainable Agriculture: A Scoping Analysis.” Working Paper, Installment 6 of Creating a Sustainable Food Future. Washington, DC: World Resources Institute. Available online at <http://www.worldresourcesreport.org>.*

# Spread of an agroecological practice

Shri A N Anjaneya is a young farmer in Kumbaluru village of Harihara Taluk of Davanagere district in Karnataka. He shifted to organic ways of cultivation about 15 years back, when he was advised by doctors during his hospitalization, to refrain from agri chemicals, which was the cause for his health issues. Prior to that, he was following conventional agricultural methods using lot of chemicals and pesticides for his paddy crop.

Anjaneya's inspiration to take up legume culture (Incorporating Green manure crops into the soil, before sowing main crop) was Mr. B N Nandish, a farmer from Shikaripura in the neighbouring district. Incidentally, LEISA India had earlier carried an article by B N Nandish and his experience on legume culture. Anjaneya's contacts with institutions like SKDRDP, SAHAJA etc., helped him to get information on legume culture. Anjaneya practiced and got good results. Inspired by him, many farmers started adopting it with technical support from Anjaneya.

Having noticed this interest in farmers, in 2009, the Department of Agriculture offered to provide support to the local organic farmers group, Sarana Muddanna Savayava krushikara Balaga, for large scale expansion in the area.

Anjaneya on his farm



Photo: Author

*Sarana Muddanna Savayava Krushikara Balaga*, is a registered organic farmers group working for ecological agriculture especially on traditional paddy varieties. *Balaga* started to promote chemical free agriculture and do collective marketing. *Balaga* had around 300 farmers from Kumbalur village. *Balaga* is now involved in paddy processing and collective marketing.

In 2009, Legume culture was taken up in a big way by the farmers group with the support from the Department of Agriculture. The group members mainly used sunhemp, velvet beans, dhaincha and pillpesaru for green manuring. Anjaneya too expanded legume culture practice in his four acres of saline affected paddy area.

Area under legume culture increased year by year. From 40 acres in 2010; 150 acres in 2011; 400 acres in 2012; 600 acres in 2013 and 1,200 acres in 2014 – the practice had a great acceptance by the farmers in the region. The entire work was implemented and monitored by *Sarana Muddanna Savayava Krushikara Balaga*. Now, paddy growers in the village are demanding for 12,000 acres in the upcoming year.

The practice helped in reducing the cost of production by 20 percent, and enhanced the land fertility owing to increased soil carbon content. Farmers observed reduced incidence of pest and disease. Farmers stopped using chemical fertilizers to a large extent. More importantly, “the quality of health improved a lot over the period of 5 years” says Anjaneya and his team members.

For all his efforts, Anjaneya received “Krushu Pandit” award from the State government and many awards from civil societies.

### Manjunath Holalu

Organic farming consultant  
C/o Razaki building, Vinayaka nagar  
Savanur Road, Shiggaon- 581 205  
Haveri, Karnataka.  
E-mail: manjubaduku@gmail.com

# Building knowledge on agroecology

## *Impact of systematic documentation*

**K V S Prasad**

*Systematic documentation plays a key role in enhancing practical knowledge sharing on agroecology influencing practice, practice based policy, evidence based debate and new development partnerships. The case of GEAG illustrates this.*

**E**cological agriculture knowledge is inspired by traditional indigenous sources of knowledge, farmer led research and innovation leading to knowledge on alternatives and location specific solutions. Knowledge on agroecology is refined and improved through adaptation and local innovation. Sharing such knowledge is crucial for its wider use in promoting sustainable food systems and livelihoods.

However, the weak link in the chain of knowledge production and dissemination is its systematic documentation of context specific practices, perspectives and lessons. Farmers who have the knowledge and the grass root organisations that promote processes towards practising agro ecology have often limited capacities to document experiences. Thus, enhanced capacities of agencies facilitating co-creation of knowledge to document actively and share their experiences in public domain, becomes crucial.

In this backdrop, AME Foundation, through its LEISA India programme, conceived an initiative to strengthen knowledge cocreation and sharing on an alternative agroecological movement through its documentation and communication programme with its consortium partners. LEISA India consortium is a group of like minded NGOs and individuals with joint vision and common belief system on what drives agroecology practice.

Driven by a strong desire to strengthen themselves, the LEISA India consortium partners got involved in a two-



*Publications of GEAG*

year Documentation and Communication programme. This was facilitated by LEISA India team in consultation with ILEIA, Netherlands, during the years 2003-2005. The focus was on enabling processes and practices to intensify and prioritise documentation and communication function within the organizations.

Presented below is the experience of one of the partners in illustrating the synergy between *Capacity building on Knowledge sharing, enhanced Knowledge co-creation and enhanced knowledge use.*

### **The program**

A two-year Documentation and Communication programme covering the period 2003-2005 was

implemented. The activities included workshops on sourcing, documenting and communication; as well as planning and review meetings, field work and assignments. The participating organisations had to commit themselves to prioritise documentation processes, to identify persons within their organisations to take part, and finally to institutionalise the entire programme within their organisations. The partner organisations set aside staff time of 200 days, to allow for participation in the workshops as well as for further documentation and sharing activities between the workshops. The *LEISA India* team in collaboration with ILEIA coordinated the programme as well as provided backstopping support.

### The approach

The programme was based on three approaches. **Participatory Learning, Learning for application and Periodic Planning and Review** of the learnings and the outcomes.

One of the approaches was a *participatory learning environment* which enabled learning from diverse experiences of the participants in working with agricultural information at field level. The group learning processes were also combined with individual assignments designed based on their own organizational priorities. Hands-on learning were integrated with critical support by well known and vastly experienced resource persons who could provide the necessary clarity and added value. Thus, these workshops were truly built on the existing experiences, skills, and critical capacities available within the group at each stage of the programme process.

Secondly, another important approach was operationalising learnings within organizations through specific participant's assignments. Also, by insisting on the same individuals from each organization with requisite background and abilities to attend workshops, carry out assignments and train others, has helped in building core capacities within the organizations on documentation and communication. This showcased the learning efforts made by the participants as well as sharing organizational experiences in public domain.

*One of the significant learnings was that documentation has to be a planned ongoing institutional core process - systematic and regularly done - otherwise, the real information is 'lost' in memory lapses at various levels.*

– GEAG staff

Thirdly, joint planning and review processes integrated into the programme based on organizational commitment ensured the necessary focus and rigour. Involvement of the heads of the organizations in the review meetings along with the participants helped not only to realistically review the progress made but also ensure necessary support and commitment for the programme.

### A case of GEAG

GEAG (Gorakhpur Environmental Action Group) is an NGO working for the sustainable development of poor and marginalised farming communities in Gorakhpur District, Eastern Uttar Pradesh. GEAG is a recognised centre for research, advocacy and networking, with a wide network of partner NGOs in Uttar Pradesh and other parts of North India ([www.geagindia.org](http://www.geagindia.org)). Dr. Shiraz Wazih, President of the GEAG network adds, “*GEAG has been earlier associated with AME in the past too on collaborative field work. GEAG also was trained by AME on ecological agriculture and LEISA in the year 1990-92.*”

As a member of the consortium forged in 2002, GEAG participated in the *Documentation and Communication program (2003-05)* with designated staff as part of the process. GEAG prioritised the theme- ‘*Role of women in strengthening extension services*’.

Three workshops on Sourcing, Documentation and Communication were designed.

GEAG prepared a draft text on ‘Participation of women in Agricultural Extension in Eastern Uttar Pradesh’. as part of their assignment after the first workshop on sourcing in November 2003. During the second workshop, on documentation during February 2004, the prepared text was critically analyzed, by participants and resource persons, which helped GEAG to identify *gaps, anomalies and unclarities*. These workshops were intensive, involving ‘peer reviews’ of individual participant’s efforts by the group as well as by resource persons.

Based on the learnings during this workshop, GEAG went back and revised the text to make it as complete as possible. This revised text was the basis for trying out ‘repackaging’ it into diverse information products – during the 3rd workshop on Communication held in September 2004. During this workshop the learning focus was on acquiring abilities to assess and select communication tools and media appropriate for specific message and target audiences.

Based on the learnings from the workshop, GEAG brought out communication products – A poster on “*Women’s rights*”

on agricultural land” for mass awareness in villages and a Video film.

The programme succeeded in developing knowledge and skills of the GEAG staff on various aspects of documentation and communication. There was better clarity on the various perspectives, facts and dimensions (social, technical and human) to be included to prepare a ‘complete text’ on a specific experience or process.

### As a tool for advocacy

GEAG sustained the momentum created by these workshops, by taking it a step further. They used their case ‘role of women in strengthening extension services’, which evoked great response, as a tool for advocacy. They brought out a Policy Paper and shared with the Principal Secretary (Agriculture), UP State Government. It served as the key status paper in discussions pertaining to women’s issues in agricultural extension at regional and state levels. The issue of women farmers’ plight in agricultural extension, was recognized and significant policy changes were achieved in terms of recognition to the role of women farmers in extension.

*“The compilation of this case study also triggered learning on the need for ground level actions for the identity and rights of women farmers which led to a campaign initiated in 2006 in the name of ‘AAROH’ in Uttar Pradesh. This involves about 200 NGOs and CBOs across 70 districts of UP in the five regions. The campaign has been recognized at state and national level which also helped in significant changes in laws and regulations in UP”, says Dr. Shiraz Wajih, GEAG.*

Also a postal stamp was brought out as an outcome with focus on farm woman. All these served as the basis for their year long campaigns on women in agriculture. Inspired by the impact, new initiatives and projects were launched around the theme of women farmers.

Subsequently, in GEAG, there has been a tremendous upsurge in documentation and communication efforts, both in terms of quality and quantity. This is evident from the increase in the production of information products, improvement in quality of content as well as presentation. Also, improved ‘efforts’ of sharing experiences in public domain resulted in ‘spin offs’ in terms of support for several new development initiatives.

Prior to this, GEAG was involved in producing their own newsletter in Hindi, Vasundhara, which focused on sharing of local innovations and news. Later GEAG took the lead role in producing the hindi edition which happens to be the largest spoken Indian language, reaching wider

#### Box 1: LEISA India – Hindi edition

- Reaching farmers through institutions like Farmer Field Schools, farmer Clubs, resource centres, ATMA and other government programmes
- Reaching directly facilitators and extension workers working at ground level
- Influencing direct adoption of techniques in the local context
- Growth in readership and increasing demand at field level
- Farmer led innovations get shared horizontally
- Small-Marginal and women farmers are inspired towards lower costs in farming
- Used by NGOs as reference material in their training of frontline functionaries
- Used by research stations, government departments, in training programmes.
- Useful in promoting climate resilient agriculture and peri urban initiatives.

audiences (see Box 1). Currently, GEAG has been involved in producing three newsletters including LEISA India in Hindi language, 15 colourful annual reports and over 400 documents which include, Studies, Research papers, Booklets, Manuals, project specific theme papers, videos.

### Analysis and conclusion

GEAG network was and still is a leading organisation in the hindi speaking regions of North India in development programmes, promoting agroecology in the field and leading advocacy. The capacity building programme in 2003-05 provided a great impetus to its purpose, visibility, quality of documentation and outreach. This is reflected in the priority it gives to good quality information analysis, consolidation and sharing. By capturing what is happening in the field, it has tremendously show cased evidences for influencing policies, initiating new development programmes (for instance, peri-urban agriculture, local adaptations to climate change), debates in academia and Government programmes. By producing LEISA India Hindi edition, GEAG is popularising agroecology practice and Family Farming movements, reaching out to local language literate communities.



#### K V S Prasad

Executive Director,  
AME Foundation, Bangalore - 560085  
www.amefound.org  
E-mail: leisaindia@yahoo.co.in



## Trees, forests and land use in drylands: The first global assessment

### Preliminary findings

FAO, 2016, 40 p.

Drylands cover about 41 percent of the Earth's land surface and are home to 2 billion people, the majority of whom depend on forests and other wooded lands, grasslands and trees on farms for income and to meet basic needs. Yet surprising little is known about such ecosystems in drylands, despite widespread recognition of the need to restore drylands to cope with the effects of drought, desertification, land degradation and climate change. This document presents preliminary results of the first global assessment of trees, forests and land use in drylands. It reports, among other things, that the global drylands contain 1.11 billion hectares of forest, which is more than one-quarter of the global forest area. There are also about 13.5 billion trees outside forests in drylands. More than 200 experts with knowledge of the land and land uses in specific dryland regions conducted the assessment, using freely available satellite imagery and a newly developed survey methodology. The pioneering study by FAO and many partners will be fully reported later in 2016.



## Harnessing the Power of Collective Learning

### Feedback, accountability and constituent voice in rural development

Roy Steiner and Duncan Hanks (Eds.), 2016, Routledge, 286 p. ISBN-13: 978-1138121119; ISBN-10: 1138121118

*Harnessing the Power of Collective Learning* considers the challenges and potential of enabling collective learning in rural development initiatives. The book presents 11 case studies of organizations trying to develop and implement collective learning systems as an integral component of sustainable development practice. Through systematic reflection on action and experience, key lessons and themes emerge regarding the nature of voice, participation, feedback loops, accountability and transparency, that will be useful for many others in the development community.

This book is a useful resource for academics, practitioners and policy makers in the areas of international development, sustainable development, organizational development, philanthropy, learning communities, monitoring and evaluation and rural development.



## Grassroots Innovation Movements

Adrian Smith, Mariano Fressoli, Dinesh Abrol, Elisa Arond, Adrian Ely., 2016, Routledge, £23.99, ISBN: 978-1-13-890122-3

*This book, in the STEPS Centre's Pathways to Sustainability series, looks at how six grassroots innovation movements around the world have developed and what challenges they face.*

*Grassroots Innovation Movements* examines six diverse grassroots innovation movements in India, South America and Europe, situating them in their particular dynamic historical contexts. Analysis explains why each movement frames innovation and development differently, resulting in a variety of strategies. The book explores the spaces where each of these movements have grown, or attempted to do so. It critically examines the pathways they have developed for grassroots innovation and the challenges and limitations confronting their approaches.

With mounting pressure for social justice in an increasingly unequal world, policy makers are exploring how to foster more inclusive innovation. In this context grassroots experiences take on added significance. This book provides timely and relevant ideas, analysis and recommendations for activists, policy-makers, students and scholars interested in encounters between innovation, development and social movements.



## Learning from Change

### Issues and Experiences in Participatory Monitoring and Evaluation

Marisol Estrella, Jutta Blauert, Dindo Campilan, John Gaventa, Julian Gonsalves, Irene Guijt, Deb Johnson, and Roger Ricafort (Eds.), 2000, *Practical Action Publishing, IDRC*, 288 p., ISBN: 0-88936-895-3

*Learning from Change* provides an overview of the common themes and experiences in participatory approaches to monitoring and evaluation across different institutions and sectors. It is a compilation of selected case studies and discussions between practitioners, academics, donors, and policymakers in participatory monitoring and evaluation (PM&E).

It explores conceptual, methodological, institutional, and policy issues that need to be addressed to enrich our understanding and practice of PM&E. The book is in three sections. The first provides a general overview of PM&E, synthesizing literature surveys and regional reviews of PM&E practice around the world. The second presents case studies that illustrate the diverse range of settings and contexts in which PM&E is being applied. The third raises the key issues and challenges arising from the case studies and discussions, and proposes areas for future research and action.

Learning from Change will be an important reference for development professionals worldwide as well as for anyone interested in the process of participatory development, including researchers, academics, fieldworkers, development practitioners, and policymakers.

## Strengthening Rural Livelihoods

### The impact of information and communication technologies in Asia

David J. Grimshaw and Shalini Kala (Eds.), 2011, *Practical Action Publishing Ltd., © International Development Research Centre*, ISBN: 978-1-85339-722-6

Through its collaboration with the International Development Research Centre (IDRC) in the Programme for Knowledge Networking in Rural Asia and the Pacific (ENRAP), IFAD took the opportunity to examine how information related constraints in poor rural areas are being overcome and how information technology is being employed to the benefit of men and women, young and old who live there.

It supported studies in China, India, the Philippines and Sri Lanka. It looked at the use of 'information communications technologies' (ICTs) in providing agricultural extension services, getting timely market price information, finding out about rural wage labour opportunities, helping rural communities to build a sustainable asset base and understanding crop diseases and soil nutrition. The results of the research are presented here.

## Making Evaluation Matter

### Writings from South Asia

Katherine Eve Hay and Shubh Kumar-Range (Eds.), 2014, *SAGE Publications India Pvt Ltd. Copyright © International Development Research Centre (IDRC)*, ISBN (e-book): 978-1-55250-583-0

The idea for this volume came with the formation of the Community of Evaluators (CoE) for South Asia in 2008. The CoE's goal is to enhance the field of evaluation. That initiative brought together a group of evaluators from across South Asia interested in working together to strengthen the quality, use, and relevance of evaluation in the region.

The diversity within the evaluation community in South Asia is vast; among the writers in this volume, you will see many differences of views on issues of use, design, approaches, and methods. But there are also many points of convergence where they come together: on issues of quality, of use, and ultimately of 'making a difference' in improving real lives on the ground.





# How to amplify agroecology

**Janneke Bruil and Jessica Milgroom**

“Agroecology is a process. You cannot expect a process to be perfect immediately. But once you make a step, you are moving.” With these words, Ugandan farmer Jowelia Mukibi captured both the essence of the agroecological transition and the attention of her audience: over 70 people representing 30 organisations doing groundbreaking work on agroecology around the world.

From 10-13 May 2016, the AgroEcology Fund (AEF) and the Alliance for Food Sovereignty in Africa (AFSA) brought grassroots organisers, advocates and donors together in a Learning Exchange to share experiences and ideas about how to amplify agroecology.

The AEF is a consortium of progressive foundations. The exchange in Uganda aimed to deepen understanding of the participants’ contributions to amplifying agroecology, and to learn how the AEF could better support this work. Through various dynamic sessions, a rich, collective pool of knowledge was built about strategies to amplify agroecology. As facilitators of the meeting, we share here some of the most compelling insights.

## *Strengthen farmers’ organisations*

Strengthening farmers’ organisations is fundamental in amplifying agroecology because, together, farmers can create a grassroots movement capable of influencing mindsets and policy. Strong and genuine farmers’ federations can give networked farmers a space to express themselves and advocate for their own rights. Insights about how best to strengthen farmers’ organisations point to farmer-

*A field trip to visit local farmers generated discussion and reflection within the group about the crucial role that knowledge plays in agroecology.*



Photo: Scott Fitzmorris



Photo: Scott Fitzmorris

*Small group sessions facilitated dynamic discussions and in depth sharing of ideas and experiences*

to-farmer learning, as that allows farmers to confidently build knowledge from experience.

#### *Put women at the forefront*

Women are an important source of agroecological knowledge. Valuing and promoting this knowledge must, therefore, be central to any amplification strategy. Putting women at the forefront can be done by ensuring that they play leadership roles in farmers' organisations, involving them in campaigns, supporting their struggles, enabling them to learn from other farmers and providing them with opportunities for technical, political and economic education. Members of the Korean Women Peasant Organisation (KWPA) built on their skills and self-confidence after an exchange visit with women farmers in Thailand that combined practical and political training.

#### *Create direct relations with consumers*

Urban citizens are one of the central agents of change in the agroecological transition. Connecting farmers and consumers enables farmers to sell diverse products directly, and to receive vital feedback on their products. The Agroecological Collective of Ecuador organised a

nationwide campaign to promote 'community baskets' that bring healthy, agroecologically produced foods to low income urban families. Such connections are particularly effective when they are embedded in local culture, organised as a joint initiative with shared values between consumers and producers, and accompanied by awareness raising efforts.

#### *Strengthen agroecology schools*

Agroecology schools around the world are an effective way to engage people in agroecology. They rely on the principle

#### **What is amplification of agroecology?**

The notion of 'amplification' of agroecology was the central theme of the Learning Exchange in Uganda. This was chosen as opposed to 'scaling up', with its connotation of linear, pre-planned replication, which is contrary to the way agroecology best develops. For the participants it was seen as the transformation of food systems, rather than just the spreading of a set of techniques. Importantly, it places agrobiodiversity, the struggle for land, control over seed and local knowledge at the centre of this change processes. Amplification of agroecology was seen as a long-term, ongoing transition process that is led by social movements, but encompasses all actors in the food system, including consumers.

of peer-to-peer learning among farmers and often also include two-way learning processes between policy makers and farmer groups. The Peasant Workers Association of Nicaragua (ATC), the Zimbabwe Smallholder Organic Farmer Forum (ZIMSOF) and others shared lessons from their own schools. They concluded that the schools must be autonomous from government and universities, and function best when run by a farmers' organisation. Many successful schools started at the regional or national level, after which they were replicated at the local level by trained farmers.

#### *Share knowledge*

Sharing knowledge about agroecology from farmer to farmer is an important way to spread practices. This is especially effective when knowledge sharing is based on local, ancestral wisdom, respects the values, principles and culture of the farming communities and responds to concrete needs. Many participants agreed that knowledge sharing is best done through living examples as opposed to relying on theoretical assumptions.

#### *Support work on the ground and document it*

Supporting farming communities on the ground can help them to diagnose and prioritise their problems; identify and test agroecological principles and to engage in learning networks. This fosters the emergence and spread of localised examples. In order to achieve wide, systemic change, it is critical to document and disseminate successful practical experiences, learn from this work, and find ways to leverage the lessons. Documentation and dissemination provides evidence that agroecology works, generates insights for policy change and strengthens the agroecology movement.

#### *Advocacy*

For long-lasting change, it is necessary to insert agroecology into policy as part of a bottom-up process. Engaging in dialogue with local and national government authorities about how to support agroecology as a tool to fight hunger, poverty and environmental degradation can be very effective, as well as educating people about existing laws and ways to protect their rights. Policy advocacy for agroecology generally works well when it is embedded in broad collaborations among farmers, researchers, and civil society organisations. La Vía Campesina emphasised the need to support farmers to advocate for their rights, and to facilitate their active participation in policy dialogues.

#### *Communicate and reach out*

Communication and outreach is fundamental for amplifying agroecology, as it is necessary to make the

case that agroecology is the food system of the future. Campaigners have found that humor and cultural references can be effective tools in communication. Solid data and research to debunk claims made by agribusiness is helpful to raise awareness about agroecology. Social media, multimedia, documentary films and curriculum development were mentioned as strong outreach tools.

#### *Resist and transform*

Many campaigns are based on resisting the industrial agriculture model, corporate power over productive resources, and policies that marginalise small farmers. Agroecology offers living, inspiring *alternatives* that envision a new agricultural system through the transformation of education, science, culture and policy. As industrial agriculture undermines peasant family farming rather than supporting it, many participants agreed that industrial agriculture and agroecology cannot co-exist. It is therefore crucial to promote a transformative type of agroecology.

#### *Create a new narrative*

Framing and messaging emerged as central elements in amplifying agroecology because agroecology is based on a completely different set of values about food, nature and people than the industrial system. A special session was dedicated to building a new narrative around agroecology. The conclusions were that it must be based on the notion that agroecology is a viable vocation, rather than a sign of backwardness. The narrative should make clear that agroecology can bring employment, income and wellbeing, approach agroecology as a knowledge system in its own right and present it as a continuous process of transition.

#### *Develop effective ways to work together*

Various participants stated that to amplify agroecology, a variety of actors have to be on board, who can bring different experiences and knowledge to the table. This can be achieved by working in inclusive coalitions. In such coalitions, it is necessary to clarify the role of each partner, to develop a set of core principles to help partners work well together, and to create tools for problem solving. These were some of the important insights for GRAIN, ETC Group and La Vía Campesina as they worked together to protect farmer seed systems. Different participants pointed at the need to avoid economic dependence between partners in a coalition.

#### *Fund flexibly*

To achieve the amplification of agroecology, funding diverse organisations is essential. As agroecology is

embedded in very different contexts, participants emphasised the need for flexibility of both grantees and donors to allow for adaptation of plans and strategies. Funding schemes should include long-term core funding that aims to reach the grassroots. Donors should not overly focus on quantitative outcomes, but rather on qualitative changes achieved through flexible, trust-based relationship with grantees. Ideally, funding for agroecology is based on shared values between donors and grantees, is regenerative and happens at a landscape or bioregional level.

### Looking forward

The insights shared here are drawn from years, and sometimes even decades, of experience. Having a space to share these lessons with each other as well as with donors made this, in the words of one participant, “a landmark meeting.” More exchange and documentation is surely needed to understand better the respective contributions of practice, science and movement in amplifying agroecology. However, the collective insights and the dynamics of sharing that were forged at the Agroecology Learning Exchange will undoubtedly contribute to the agroecological transition for a long time to come.

◆  
**Janneke Bruil** (j.bruil@ileia.org) and **Jessica Milgroom** (j.milgroom@ileia.org) work with ILEIA, the Centre for Learning on Sustainable Agriculture. They designed and facilitated the Agroecology Learning Exchange in Uganda, May 2016. An extended version of this article is available at [www.farmingmatters.org](http://www.farmingmatters.org)

## Call for Articles

### Role of diverse stakeholders in agroecology

*Vol. 18 No. 4, December 2016*

The livelihoods of a majority of farmers remain highly vulnerable to drought, disease and market fluctuations. Conventional agriculture based on high external inputs has made agriculture unremunerative and unpredictable. Multifunctional, biodiverse farming systems and localised diversified food systems are essential for ensuring food security in an era of climate change. Alternative agricultural approaches build on the principles of agroecology, recycling of resources and self reliance as the means to achieve this dual goal.

A transition from conventional to ecological systems is slowly taking place. This requires a different set of mindsets, skills and support systems to be operational. Also, as farmers are moving from subsistence agriculture to market/high value agriculture, they require different type of support and information. While the government extension systems are not geared up to address these needs, in majority of instances, the civil society organisations are providing the necessary support. NGOs have been mainly working on the principles of participatory learning, community mobilization, sustainable development based on agro-ecology. We also see private and corporate foundations too promoting alternative agricultural practices.

In the December 2016 issue of LEISA India, we would like to look at the roles being played by different stakeholders in empowering farmers on alternative agriculture. We would like to know how farmers are being guided to organize themselves to learn, adopt and leverage collective benefits – be it natural resource management or procuring inputs or managing marketing support and availing development schemes of the government. What supportive roles are the external agencies (the Government, Research Institutions, CSOs, private sector, corporate sector etc.) playing in terms of empowering the small farmers – with knowledge, credit, linkages, markets? What processes do these agencies adopt to initiate and sustain change processes? Do they follow inclusive approaches - include all social groups in the community – small farmers, women, youth etc. Have they been successful in empowering people or are they tending to foster new dependencies for the communities? What are the emerging models from such initiatives?

*Articles for the December 2016 issue of LEISA India should be sent to the editors before October 31st 2016. Email: [leisaindia@yahoo.co.in](mailto:leisaindia@yahoo.co.in)*

### LEISA India Language Editions



Kannada, Telugu, Tamil, Oriya, Hindi, Marathi and Punjabi