

Rediscovering School Gardens for Sustainability

Upgrading school curricula worldwide through nutrition gardens

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The sustainable future of the world's population will depend on small farmers. It is the small farmers who produce the majority of the world's food, and their work contributes significantly to ecosystemic preservation.

This is what development economists have kept telling us for a while now. The question then is, how are the current generation of children in kindergartens and in elementary schools being prepared for this task? What can they learn about organic growth in school now? Could their learning include indigenous knowledge from their rural areas, and could it still allow them to remain rooted in their communities?

I pose these questions from the perspective of my own home town in Germany, a country in constant struggle and concern about how many refugees to accept or refuse from war-stricken areas. EU politicians argue about numbers and how to distribute refugees inside the EU. We know, however, that those who have made it here to seek shelter are only a very small percentage of refugees worldwide. Their escape from war-torn areas has most often been preceded by their parents' and grandparents' emigration from their rural communities. Their parents and grandparents left their villages because of food insecurity but also because of the attraction and promise of city life. What could have supported them in their search for subsistence as farmers in rural communities? What could have made them see village life in a different light? And what difference can education make in this regard?

During the last decade, school attendance worldwide has been on the rise. But schools in the Global South may have enforced the move away from a life close to the soil and towards cities in pursuit of easier and more respected work. Education in terms of school attendance has not solved the problems of small farmers in food-insecure communities.

Reading and writing taking place in cramped classrooms—what could Education for Sustainable Development (ESD) look like instead? When promoting ecological awareness for a

generation of future farmers, how can teachers make them experience their farming environment in more enjoyable ways? How will children seek the encounter with the interrelated ecologies of nature? How can education strengthen their bonds with the community? Can education contribute to a vision of living as small farmers—a life worthwhile and rewarding—at all?

Could this argument be backed by the visions of garden-based learning that has, over the past centuries, again and again, been shared by humanist thinkers and educational activists in many parts of the world?

GARDEN-BASED LEARNING

*A core concern of humanist visionaries in
the history of educational philosophy in Europe*

At the end of his life, in a country devastated by the Thirty Years' War, humanist **John Amos Comenius** (1592 - 1670) put together a canon of subjects and activities that every child, regardless of his or her parents' background, should come to know about. The *Orbis Sensualium Pictus*, written in 1658 in both Latin and the vernacular and translated into English as *A World of Things Obvious to the Senses, Drawn in Pictures* (London 1659) already a year later, opened up a wide educational horizon. This encyclopedia, adorned with accurate etchings on every subject, continued to be popular all over Europe through many reprints over several centuries. (Johann Wolfgang von Goethe, some 150 years later, enjoyed it as a child). The *Orbis Pictus* devotes several chapters to agriculture, agricultural tools of the time, nutritional plants, and husbandry. "The knowledge acquired by a child," Comenius wrote full of educational passion, "should never only come from books in a classroom." Seen today as the founder of garden-based education in Europe, Comenius understood learning as an activity involving all senses, hands-on, by working.

A hundred years later, another pastor, **August Hermann Francke** (1663 - 1727), a Pietist theologian, educator, and farsighted entrepreneur, founded a huge project in Halle, Saxony. It was a poverty-stricken area. After only a few years, Francke's orphanage for the children of a demoralized population grew into a veritable multi-tiered "school town," a campus with school buildings of modest yet sublime design. There was a library that, after only two decades, already held thousands of books, scholarly and scientific, and there was a pedagogical collection of hundreds of artifacts and natural curiosities assembled by the eighty missionaries Francke had sent to Russia, America, and India. In the center of this unique educational landscape with its baroque buildings was the *Pflanzgarten*, the nutritional garden, which produced a sustainable food supply not only for the children of the destitute but also feeding many of the community. Apart from its nutritious plants, the *Pflanzgarten* also produced medicinal plants for a local market. It even delivered to global markets, which had been established by Francke's missionaries.

Francke's school town became one of Europe's most influential educational institutions of the time. Children were not only involved in farm work, they were also given the chance to

explore the knowledge of their time. *Die Erfahrung öffnet den Verstand!*—‘Experience opens the mind’ was Francke’s creed. In close proximity to the school fields, Francke erected one of the oldest purpose-built public libraries. His spectacular “Cabinet of Artifacts and Natural Curiosities,” the *Wunderkammer*, contained over 3,000 objects from across the world, interrelating spheres of daily life with science. It was intended to incite in children a keen interest in the diversity of God’s creation. This unique collection still amazes visitors today.

SCHOOL GARDENING IN POSTWAR 20TH CENTURY GERMANY

*From a compulsory part of Polytechnic Education in socialist Germany
to an optional opportunity in 21st-century education*

During the 20th century in Germany, during fascism and in the postwar decades in socialist East Germany, the GDR, this large project in the spirit of “Halle Pietism” was largely neglected and even damaged. Nonetheless, the educational ideology of the GDR was in many ways not so remote from Francke’s thinking. School gardening was seen as an integral part of the GDR’s ‘Polytechnic Education’ policy, and it continued to be a regular school subject in all elementary schools and teachers’ training. The focus of Socialist School Gardening Education was on agricultural productivity—in constant competition with capitalist West Germany.

Former students of GDR schools remember this subject with mixed feelings. At the time they often resented being used as a cheap labor workforce. But later in life, they came to value their hands-on experience in the fields, rare among West German schoolchildren.

After Germany’s reunification, the dominant priorities of West Germany’s educational policy were adopted. School gardening disappeared from the curriculum, with the exception of only one former East German state, Thuringia, where it is still taught today as a university subject in teacher training.

Meanwhile, Francke’s foundations including the historic ‘school town,’ that unique ensemble of baroque social and educational buildings, were renovated on a large scale. A university was added to its institutions and the vibrant cultural and educational site is now visited by thousands of people every year. The historic *Pflanzgarten* has been recently revived. On a smaller space but on the original site, it is now part of the everyday life for children attending the three kindergartens and three schools located on campus. In this modern, ecological *Pflanzgarten*, a “green” classroom features subjects such as botany, physics, chemistry, geography, arts, and cooking. The children cultivate and research nutritional and medicinal plants, herbs, historic biblical plants, or just decorative plants.

SCHOOL GARDENING AS NUTRITION GARDENING

The case of Greece after the 2012 economic crisis

Although Francke’s *Pflanzgarten* has been revived for educational purposes in Germany, in some regions in Europe teachers are turning to school gardening for many of the same

reasons as do teachers in Uganda or West Bengal. They seek to introduce gardening education into their school in order to produce healthy meals for malnourished school children. As they teach the basics of subsistence gardening, they also hope that the children will take their learning home to their own families, as after the recent economic crisis in Greece, many families returned to their home villages and began recultivating their deserted kitchen gardens and neglected olive trees.

In 2017, in a Greek village close to the Turkish border two teachers heard about the FAO's "International Year of Pulses" program. Pulses are a nutrient-rich food that can help fight malnutrition in both developed and developing countries as part of a healthy diet. All over the world people were encouraged to become more aware of the nutritional value of pulses, of their contribution to sustainability and reliable food production. The program encouraged connections throughout the food chain that would better utilize pulse-based proteins and further global production of pulses.

With modest funds, the teachers started a project of growing local beans. Beans have always been part of the traditional Greek diet, but nowadays most village children have only seen them in cans in the supermarket—and disliked them. But now they planted lentils, different varieties of beans, and chickpeas around the school and at home. They have interviewed grandparents and local farmers and sold their harvest on local markets. They have also investigated forgotten local knowledge about beans and collected stories and songs about pulses for an exhibition and a concert.

SCHOOL GARDENING IN RURAL WEST BENGAL, INDIA

Examples of ecological education

India, West Bengal. In 2016, my husband and I followed the agro-ecologist **Ardhendu Chatterjee** (1954 -), a 1976 ARI Rural Leaders Training graduate, to the villages of West Bengal with the camera. Over the past thirty years, he has counseled landless farmers on how to better use local resources, how to harvest rainwater more economically and how to add value to kitchen gardens as well as to the pools and forests of their communities.

As Chatterjee took us to the villages in West Bengal, we were fascinated by the veritable treasures of ecological teaching that we came to see in schools and orphanages. We were shown herbariums of forgotten Indian plants; we looked into the children's research chests; we saw their posters and charts with statistical data about the villages and their natural resources. The children had catalogued their seed collections in phenological diagrams. The plants had been defined and annotated in botanical terms, and they were systematically grouped in tables and statistics. The children had put together manuals on weed—or rather on local plants, underestimated in their nutritious value. There were self-made maps of the area and pie charts with observations on climate change. The children showed us their drawings, depicting everyday scenes of joyful learning outside the classroom, at the ponds, in the forest. They seemed to be proud of their part in their rural *eco clubs*, proud also of the wealth of their documentation to which they continuously added documents of their ongoing research

on the ecology of their villages. ESD, Education for Sustainable Development, of a high order! We decided to return in 2017 to film another documentary, *Children and Soil*. This time we explored the topic of soil in environmental education. Soil is at the base of our lives. But soil will not always be soil. How do children learn the basics: how to recognize the qualities of varieties of soil, of different kinds of seeds and how to mix them with organic fertilizer according to the special requirements of seeds and plants?

In India, the first goal is always to become aware of the garbage that is being littered everywhere. The soil gives us medicinal plants and nourishment, it is a precarious matter and must be actively protected against the damages of civilization. Children in kindergarten find out that what has been scattered on a few squares of soil can be both damaging or fertilizing. Is it plastic garbage, or is it a useful material for compost? A one-way plate made of banana leaves that can be found anywhere in India must go into the compost area.

The Indian Ministry of Education advises schools in rural areas to establish nutritional gardens. We were shown some surprisingly large school gardens. We often felt, however, that the children themselves were not really entrusted with the care of the gardens. There still seems to be much work ahead to convince the teachers of the educational value of working with hands and soil, and more importantly, for teachers to share physical work with the children, bending down, handling soil themselves, which they still consider being just dirt.

It is true that environmental education has already been introduced as part of the school curriculum in India for some time. But when the teaching methods remain the same as of old, the lessons fall flat. It is still a long way from the authoritarian, repetitive learning styles of Indian primary schools to holistic concepts where children are engaged in meaningful and communicative learning activities.

School attendance of children (and their teachers) in remote Indian villages is another largely unsolved problem. But nutrition gardens outside classrooms, if they exist at all, are popular among parents who sometimes build walls around them for protection. For the children, they can have an important effect: they offer an escape from the strictly collective teaching of Indian schools. Here, children do not shout predetermined answers in chorus. Instead, they can cooperate and argue in small groups. Working with their hands enhances their *Lernphantasie*, their imagination that comes through learning. Again and again, they will have to accept, too, the less respected aspects of hands-on activities to build fertile soil, tasks that would normally be assigned to others—the untouchables, tribal people, or the casteless. But in traditional agriculture, hardly anything can be more valuable than animal manure, as valuable as precious rainwater.

In some village schools, we followed children as they left the classroom. They would roam through the village in groups, visiting one family after the other as they took up their systematic charting of all the community's plants, trees, and birds. They also included the knowledge of the adults in their environmental research. In some villages, we witnessed the transition to organic farming. The farmers, mostly women, took the first steps into this new way of thinking through their schoolchildren.

As we watched young schoolchildren, we were often impressed by their competence. Eight-year-olds would clean the garden beds of dead leaves and plastic. Then they prepared their collected organic fertilizer on their own in groups before sowing. Their parents had brought fresh manure from buffaloes and cows. The children sieved cow manure that had dried for some time under the roof of a container. The children then distributed the fertilizing organic substances on the seedbeds, economically, evenly. The teacher showed them how to gently mix it under the soil so as not to harm the microorganisms.

However, what can children learn about soil in a megacity like Kolkata? In Indian cities, millions of inhabitants produce massive amounts of waste. The contrast to the rural villages grows greater each day. The enormous amount of waste also generates jobs for the lower castes at extremely low levels of environmental protection. Adults and children are exposed to dangerous septic vapors and gases as well as pungent smells. The poorest sections of the population are constantly alert to find bits of garbage useable for the recycling industry. It is an inroad for child labor, too.

In such slums in Kolkata, the living space is impossibly cramped, and everywhere the soil is sealed over with concrete. Given such living conditions, it is almost a heroic task for the teachers to bring some kind of ecological awareness to children. We saw a teacher deposit a bag of soil on the narrow balcony of a slum school. The children were instructed to stomp it to finer soil, appropriate for seedlings, and then fill a hanging basket with this soil for growing plants. The fights between the students marred their encounter with nature. For these fifty children in one classroom, the main purpose in life seemed to be not to be overlooked. The fastest will be first! Survival of the fittest. But how they wished, too, to participate in an activity with soil and seeds!

Even under these conditions, committed staff is finding ways to introduce basic experiences with soil and organic growth—calming, vitalizing experiences—into children's lives. For example, in one school every child is given a seed and a bag with a handful of soil to take home. Place the seed in the soil and water it. See what happens and bring it back in ten days! There might be a new plant growing from it.

THE FRIDAYS FOR FUTURE MOVEMENT IN GERMANY, 2019

What impact is there on Education for Sustainability?

Back to Europe. In 2019, hundreds of thousands of schoolchildren were demonstrating on Fridays, supported by many teachers and adults of all generations. Their strikes for climate change action—*Reduce CO₂, Save the Planet*—beg the question, 'What impact have they made on schools, on Education for Sustainability?' Is school gardening on the rise, particularly now as many German schools are being transformed into all-day schools?

So far, surprisingly, I cannot see how the young generation's emergent ecological awareness is having much impact on the daily lives inside schools. Neither in Germany nor elsewhere in European countries has school gardening become an integral part of the curriculum

or in the training of teachers. Quite a few German schools have set aside some space on their campus for garden beds and plants, but as of yet, I cannot see a significant effect of the *Fridays for Future* movement's macro-politics, expressed in their sweepingly abstract slogans, on concrete micro-activities of students' daily lives at schools. School gardening is still regarded as optional, as an extracurricular activity.

RECYCLING AND SHARING

European professional educational thinking about school gardening

So where do we go from here? Recently, I approached several colleagues from my generation of educationists. We all share a lifelong professional history of thought and research on children and early education, often from an internationally comparative perspective. We are now discussing how to recycle our professional knowledge in a way that may become useful for educators in very different conditions, in rural areas of the Global South.

We do not see ourselves as carriers of knowledge transfer; rather, we will visit four Sub-Saharan countries, Uganda, Sierra Leone, Tanzania, Cameroon, to listen, observe, empathize. Then, however, we will also offer our concepts and materials, recycling them, as it were, for discussion with local educators.

Our focus will be on garden-based education and 'simple technology' education. We will address universal subjects in the upbringing of children worldwide. What is organic growth? What is biodiversity? What is a tool? Together with our educational partners, we will try to identify actual situations in which children may want to investigate these questions on their own, supported by their teachers, their parents, or other adults in the community.

Working on concrete steps towards developing concrete projects in the spirit of the "situation approach," we, the visitors, will suggest some basic principles that we share in our educational culture, such as learning in mixed-aged groups, or making children the agents of their learning. The emphasis will be on action-based learning ("*doing* science rather than *learning* science"), often outside the classroom. We will suggest how children can learn to keep a record of their findings and their learning and we will discuss how they can practice their presentation skills.

Our suggestions will draw heavily from the works of the Ecology and Natural Resource Education (ENRE) projects in India. Their educational philosophy is in many ways close to ours. But the rural background of their practice gives their Education for Sustainable Development more weight for implementation in African countries.

The "anchor persons" whom we want offer our concepts to are mostly ARI graduates: competent and respected local leaders working with teachers in kindergartens, schools, and orphanages. They are rooted in their communities but at the same time familiar with our lifestyles and concepts. They do not see us as donors of funds. They expect a contribution of another kind: *Come and share your ideas with us!*

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