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Now That I'm Here, How Do I Begin?

We asked Laura Meitzner, “When you began work in a new community, how did you quickly get an overall understanding of the nature and workings of that community to form the base for your future work?” Laura is co-author of ECHO’s book Amaranth to Zai Holes: Ideas for growing food under difficult conditions. She has since worked with villagers and universities in Central America and Indonesia.

Visual Techniques

But certain subjects are difficult to explain or to understand well just by using words. Using **visual techniques**—drawings, diagrams, timelines, or charts made by the villagers themselves—can help people communicate more clearly. Nonliterate or shy people are often much more comfortable having something visual to reference during a discussion than interactions involving written materials or direct conversation. Villagers gain confidence as they learn new ways to share their knowledge with each other and with outsiders. People appreciate when we begin by learning from their experience and use their local expertise as a basis for any activities.

Participatory Methods

One common technique for learning about a new area is to ask specific questions to local leaders. But while it is important to enlist the knowledge and support of selected individuals, talking only with “local elites”—tribal representatives, religious leaders, and those with special positions such as teachers and village entrepreneurs—can give us a very narrow perspective on life in the community. Talking to people one by one can also be time-consuming when we want to understand what a large number of people know or feel about a topic. On occasion, people may not answer interview-style questions accurately for various reasons; perhaps our questions are unclear, we ask about culturally sensitive subjects, or people may be unsure what we are going to do with the information they provide.

In such cases, **participatory methods**—activities carried

out by groups of villagers—can provide opportunities for larger numbers of people to give their perspectives on a subject in an open setting, with some “cross-checking” built in to the process. This family of methods, called PRA (Participatory Rural Appraisal) among other names, can help field workers quickly obtain more accurate information from groups of people, in ways that are more interesting for villagers than surveys and more useful for villagers than supplying answers through interviews. These activities can help villagers communicate their knowledge and needs in a form understandable to outsiders, as well as provide materials useful for internal discussion and planning. Practical examples follow.

Complete handbooks in many languages are available on using PRA in different situations. You will find references to some at the end of this article. Here, we give an overview of some of the most common methods and how they could be useful in your work.

For all the techniques outlined below, field workers must be attentive to the involvement of villagers. Schedule activities for times and places most comfortable for the participants, and be aware of who attends and how active they are. For example, there may be times of day when most women are too busy or far from the village to join activities, or seasons in which most men are working away from the community. The most convenient times for villagers may be late at night, or on a certain day of the week (e.g., immediately following a worship service). Choose a location which is suitable for all intended participants; if government facilities or religious buildings are not acceptable for everyone, an outdoor space may be a better choice.

Pay attention to how many people of different social groups are represented: age, gender, educational levels, relative status, and other factors. Do some groups or individuals take over, while others remain in the background or leave after the activity begins? It is your responsibility to observe participation, to keep a record of who was (or was not) active in the activity, and to encourage those who are more reserved or with lower social status to be involved. Considering your cultural context, you will have to evaluate whether different groups should work together or do separate activities and then compare results, or you could assign different tasks for certain groups to fill in aspects in which they have special knowledge. (Handbooks provide many practical ideas to monitor villagers’ involvement.)

Methods and Techniques

Participatory mapping is one of the most common starting points for learning about a community. Natural resource maps enable villagers to communicate about their environment and to indicate the places and features most important to them. Village maps can convey information such as population, family size and extended family relationships, educational levels and health status of

different households, and locations of current water sources; or in discussing locations for new buildings, placement of new water taps, or community gardens. Individual field maps can be made by a farm family to show what tree and annual crops are in their plots, to explain past planting patterns and future plans, and to indicate particularly fertile or problem spots in the gardens.

Community map-making can be done with paper and pencil, chalk on wood, or whatever materials are around such as stones, bamboo, leaves, flowers, and branches. In situations where few people are literate, drawing on paper might be dominated by the literate individuals who are comfortable holding and using pencils, so other techniques may be more likely to achieve broader involvement. Village maps using local materials can be fun and usually draw quite a crowd. One village in Indonesia used sand piles to build contours over an area six meters square; bamboo channels with water for the path of the river; large leaves to indicate houses; stones and seeds to indicate the numbers and types of animals owned by each family; and different flowers lined up behind each house for the parents, children, and other relatives in each house, as well as symbols for children who had died.



Villagers in West Papua (Indonesia) completed a natural resource map of their tribal lands. The map shows rivers, mountains, and plants and animals of the region. Photo by Laura S. Meitzner.

Doing activities directly on paper provides an immediate and “original” written record, but usually includes input from only the few people who can fit around the paper. In addition, many villagers feel that something written on paper is no longer open to correction, so they may not suggest changes as readily as when they can debate and agree on where things are, then rearrange physical symbols. Using moveable symbols involves many more people and can be used in a large area, but can be quickly disrupted if an animal races through the map or it starts to rain. In order to have a permanent record of the villagers’ map, the field worker or an assistant will have to copy the map onto paper, being careful to pay attention to scale and completeness of

the drawing. Always take a photo of the map with the villagers who made it, and return multiple copies to the community.

You will have to adapt the technique to the immediate situation, combining some of these ideas. In one map which covered a vast region of forest, villagers used chalk to draw rivers, mountains, and land boundaries on the wood floor of a school room. Then they had one day to review, discuss, and correct other people's sections of the map. Once those natural features were agreed upon by everyone, villagers gathered again to "fill in" the map with locally important plants, wild animals, and historically important places. People included unexpected features, such as the places certain birds go to drink water or the best places to find pet animals for children.

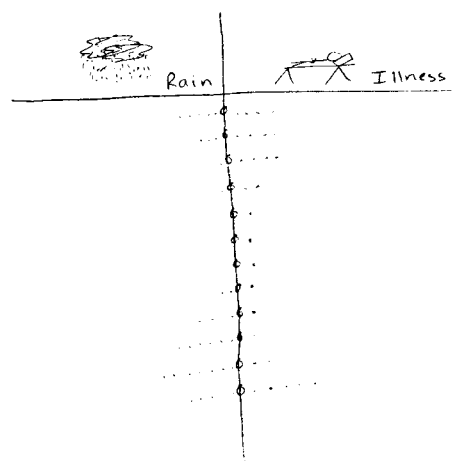
In all these methods, the primary participants are the villagers. The role of the field worker is to prepare for the activity, by talking with individuals and explaining the process to local leaders. Once a time and place are set and publicized, the field worker or local counterpart can outline the purpose and mapping process to the villagers who will be making the map. Once people begin making the map, the community takes the active role, and the observer should ask questions ("Are there other sources of water in different seasons?"), but *not* give directions ("Now put in the mango trees by the path there"). Having an outsider directing what should or shouldn't be in the map causes people to lose initiative and become passive or dependent on outside instructions. The process will be more vibrant and the product more internally legitimate and useful if villagers feel it is **THEIR** map. A village and natural resource mapping activity usually takes two to three hours, plus time to draw the map on paper and check the accuracy of the drawing with local people.

It is important to be clear with the villagers beforehand what will happen to the map, and to return a good copy to the village for safekeeping once the process is completed. Some people may fear that the map will be used to increase their taxes, "give away" the secrets of their local resources, or somehow be used against them. Sometimes, a map or other activity is best carried out separately by groups of villagers (women/men, young/old, newcomers/long-term residents), for comparison and to allow each group to share their perspective and knowledge as basis for a discussion. Work with local leaders beforehand to clarify the process and answer questions. If people are uncomfortable with the results of their activities being shared with others, we need to respect their wishes.

Maps may be used as foundations for **diagrams**, to trace labor patterns of different family members or to highlight connections among various parts of the farm. One community researcher in Honduras helped village families sketch local maps, then used different color markers to trace walking paths and areas of activity for men, women, girls,

and boys. This helped her understand who had responsibilities for pasturing animals, planting and weeding fields, selling produce, fetching water, gathering fuelwood from different sources, and caring for disabled neighbors. Diagrams at the regional level can trace the diffusion of new plant varieties, or the flow of income through the community.

Calendars are another useful technique for gathering information about seasons, agricultural cycles, labor availability, and perceived relationships (such as the connection between rain and illness, or drought and pest outbreaks). Annual or multi-year calendars can show patterns over time. A calendar can visually identify seasonal shortages in different kinds of foods, and can help begin discussion about crops which may alleviate the hungry season. Drawing the crops produced in individual fields over the last decade can help clarify rotation and fallow patterns.



Calendars can illustrate villagers' perception of relationships between different factors, such as the connection between rain and illness.

Timelines help record community history. In areas where people do not keep track of calendar years or people's ages, a timeline of important events (earthquakes, droughts, or changes in political leadership which can be verified through other sources) can help newcomers correlate occasions which mark time for the villagers with other events. Many communities have never had a written record of their history, and they appreciate this activity. Timelines can be posted in schools or public buildings and gradually completed. Using pictures in addition to words will make the information accessible to children and adults who cannot read.

For understanding local ecological zones, a **transect** can give a quick sketch of the different production areas. A transect diagram (as used in PRA) is a drawing of the features across some distance, such as a mountain slope or a river valley. For example, the diagram would point out the

different vegetation types and changes in altitude in a region. Another common PRA technique is "transect walks," in which you draw the terrain on a "guided tour" with villagers. A transect can highlight information on natural vegetation and agricultural activities of different zones, as well as localized production problems (flooding, erosion, etc.) or valued products (fuelwood, edible snails, medicinal plants, building materials, etc.) from different regions.

Matrix scoring is a powerful tool for villagers to compare various options and to evaluate them. For example, Honduran farmers from the same region created a matrix to compare varieties of native maize. Sample ears and names of the varieties are across the top of the matrix, and important characteristics are listed down the side. Then the group discusses how each variety performs for each trait, and gives a score of 1 to 5, with 3 being average and 5 always being the "positive" or "best" score. This information can then be used by plant breeders to learn what traits are most important to farmers, to identify native varieties with exceptional traits for breeding programs, or to understand what needs could be addressed in a native maize improvement program. In Honduras, some farmers learned of other local varieties with traits of interest to them, and they exchanged seed and carried out their own crosses to incorporate the new traits. The matrix exercise provided the opportunity for farmers to discuss maize characteristics in detail and to learn from each other's experience, as well as to communicate their knowledge and needs to plant breeders.

Characteristics	Local maize varieties → "A"	"B"	"C"
Resistance to leaf fungus	..	..	..
Resistance to wind/ledging	...	..	...
Resists weevils in storage	..	..	..
Good husk cover to tip of ear	...	...	..
Planting-harvest (#months)	3	4	4
Kernel color	white	white	yellow
Resistance to drought	..	..	...
Resists stem borer	...	..	...
Production after flood	...	...	...

Matrix scoring: farmer evaluations of local maize varieties.

For More Information...

A Technical Note which is a more detailed account of a participatory mapping project is available from ECHO.

Challenging the Professions: Frontiers for Rural Development by Robert Chambers provides a thorough theoretical background and history of techniques for learning about communities. If you are a new field worker, Chambers alerts you to various factors which can make your questions and observation much more effective as you learn about your new area. (Chambers told me they printed this short book specifically to be inexpensive enough for people in the field, and I'd put it on my Top Ten list of recommended reading for departing workers and all interns. Very digestible). The book is available from ECHO's bookstore for US\$9.95 plus shipping (\$3.20 in the U.S.; \$4.00 for Canada and Mexico; \$5.00 for Europe and South America; and \$6.00 for Africa and Asia).

The Institute of Development Studies (IDS) is an excellent source of information on techniques and uses of PRA. If you e-mail them, please be specific in your request. You can contact them at:

Institute of Development Studies, University of Sussex
Brighton BN1 9RE UK

Tel: +44 1273 678269

Fax: +44 1273 621202/691647

e-mail: participation@ids.ac.uk

<http://www.ids.ac.uk/ids/particip/intro/introind.html>

The Indigenous Knowledge and Development Monitor (IKD Monitor) has a network of indigenous knowledge resource centers in Africa, Asia, Europe, Latin America, the Middle East, and North America. You can find a list of these centers on the Internet (<http://www.nuffic.nl/ik-pages/addresses.html>), write to us for a copy, or contact:

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Smoked Rice Hulls as Planting Medium for Seedlings

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A planting mix for seedlings must promote good growth and provide sufficient nutrients, water and air to the plant roots.

Ordinary rice hulls make a poor material for this purpose, but smoked rice hull is an excellent one. The benefits of smoked rice hull are: it provides a bacteria and fungus-free material, it has good water-holding ability, it holds its shape for a long time, and it can supply nutrients to the plant.

Smoked rice hull (or husk) is fairly easy to prepare if you follow the simple steps outlined.

1. Materials needed are a metal or tile pipe 10 centimeters in diameter and 1-1.5 meters in length, some medium-size stones or bricks, charcoal, and a quantity of dry rice hull.
2. Position the pipe upright atop the stones or bricks. You may use the stones or bricks to support the pipe.
3. Place charcoal around the base of the pipe, and start burning it. The pipe will maintain a source of air to the burning charcoal. This will provide an even distribution of heat among the rice hulls when they are added.



4. Once the charcoal is burning, place some dry rice hull around it. Do not put too much hull at once; add the hull slowly at short intervals as the charcoal burns and the heap heats up.

5. When the rice hull begins to blacken, the charcoal is hot enough to build a mound of dry rice hull around the pipe. Continue adding hull until it reaches the top of the pipe.



6. Let natural carbonization take place; the rice hulls should not be allowed to burn but only carbonize.
7. Watch the process closely. The outside of the pile will change from a yellowish color to brown and then to black. Once the outside of the mound turns black the carbonization process is complete.
8. Spread the smoked rice hull on the ground to cool for 2 to 3 hours. Also get rid of any materials that have turned to ash by washing.
9. To keep the pH at the proper level, mix 1 g of calcium superphosphate for each liter of smoked rice hull.

Now the smoked rice hull is ready for use as a planting medium to grow seedlings.

Cow Milk to Control Powdery Mildew

By Dawn Berkelaar

The control of powdery mildew (*Sphaerotheca fuliginia*) does not necessarily require the use of expensive fungicides. Recent research by Wagner Bettiol, published in *Crop Protection* 18(1999) 489-492, indicates that fresh cow milk is effective against powdery mildew on zucchini squash (*Cucurbita pepo*). Sprays of 10, 20, 30, 40 and 50% milk (by volume in water), applied twice a week until runoff, provided as much control as conventional fungicides. When milk was applied once a week, concentrations of 20 to 50% were necessary to achieve the same level of control as

fungicides. When milk concentrations of 30% and higher were used, mold grew on the upper side of leaves but did not appear to harm the plants. Clearly it would make the most sense (economically as well as common sense) to use milk at concentrations between 10 and 30%, where it would be effective but would not result in mold. According to Bettiol, "milk dosages ranging from 3.8 to 19.7% would reduce disease severity by 90%."

Bettiol writes that milk's effect on powdery mildew may be due to milk's germicidal properties. The salts and amino acids which it contains have been shown to be effective in controlling powdery mildew. Other ingredients in milk (e.g., sodium bicarbonate) may enhance the plants' ability to resist stress. Bettiol used fresh whole milk straight from the cow. We do not know whether or not other types of milk (for example, pasteurized or powdered milk) would work equally well. When we asked him, Bettiol said other types should work, but that it is important to use whole milk, which would have a similar composition to fresh milk.

Can You Help Us?

Does Papaya Leaf Tea Prevent Malaria? Two missionaries in Indonesia wrote to ECHO inquiring whether papaya leaves contained quinine. They wondered because tea from the leaves is widely used there in the belief that it prevents malaria. Dr. Rolf Myhrman at Judson College graciously analyzed the bitter leaves for quinine, but found none. That does not, of course, rule out the possibility that some other chemical in the leaves may be effective.

Recently Dr. David Drake wrote us of the informal observations he made when he was head of a mission hospital in Zimbabwe. "We [missionaries at the station] started using papaya tea in 1990. I left the next year, but they have continued. It started out with only a few getting involved, and gradually more have caught on to its use as the years progressed. There are about 20 in the missionary family and about the same number of African staff involved. Some continued to take their regular commercial malaria prophylactic drug, but gradually none of the above took anything else but the papaya tea. Those that are still at the hospital observed that even though that area of Zimbabwe

had some of the worst malaria seasons ever, that those REGULARLY taking the papaya tea (twice a week) did not come down with malaria. Short Term workers who came from the US usually continued with their malaria medication. Under the same living conditions they often DID come down with malaria. They did not drink the tea."

ECHO is not advising anyone to drop their medicine and begin drinking papaya leaf tea. We do think it is time to see what our network can tell us about their own experience or observations. **Please write us right away** if you have something to share. Do you drink the tea yourself or know people who do? How do you make the tea? How often do you drink it? Do you know of people who drink the tea regularly and still get malaria?

We want to see if there is reason to pursue this further in the laboratory.

Successful (Or Failed) Date Palm Introductions? In the past year several of our readers have written ECHO asking for information regarding date palms, and some of these have actually obtained date palm plants (not from ECHO) which they have planted for trial as a potential new crop.

Successful date palm production requires very dry weather during the flowering and fruit ripening period. Hence we often think of dates as being from the Mediterranean and similar zones or the North African deserts. However, Julia F. Morton's book *Fruits of Warm Climates* mentions some instances of successful date palm introduction in the true tropics. South India, the island of Margarita off the coast of Venezuela, and Brazil are all mentioned as having some date production in dry zones.

If any of our readers have had experience with introducing date palms to an area where date palms were not previously grown, whether or not you have achieved successful production, please contact us. We would like to know what issues are key to the success or failure of the process. Reports of failure are as valuable to us in making recommendations as are reports of success. If sufficient information can be found, we will publish an article in a future edition of *EDN*.

ECHOES FROM OUR NETWORK

The Sweet Potato Yield is Dropping

Eliassaint Magloire, Haiti Recounted by Martin Price

During a recent visit to ECHO, Mr. Magloire, a crop scientist in Haiti, mentioned how popular a certain variety

of sweet potato had become since its introduction a decade or more ago. However, he commented that the yield has been decreasing. I asked what disease he considered to be responsible for this and whether tissue culture might be able to produce disease-free plants and restore the original yield. I was surprised at his answer. It is not a

disease and tissue culture would not help. He said the yield decrease is caused by people allowing the vines to remain in the field so long that they go to seed. The seedlings which result are not as good as the original line, but can not be distinguished from the original by the farmer when he takes cuttings.

‘Equinox’ tomatoes tolerate higher temperatures than most

By Daniel Sonke, Seedbank Manager

Seed of a new hybrid tomato variety, ‘Equinox’, is now available from ECHO. It is a heat tolerant hybrid which has performed consistently well in numerous University of Florida yield trials throughout Florida, which is subtropical in climate. It is somewhat similar to ‘Solar Set,’ which ECHO has carried in the past. Like ‘Solar Set,’ ‘Equinox’ has been bred for higher heat tolerance than most tomato varieties. However, ‘Equinox’ is reportedly more consistently marketable than ‘Solar Set’ during cooler production seasons. Please note that this tolerance to heat does not mean that ‘Equinox’ will set fruit regardless of how hot it gets. Rather it can be used to extend tomato production a bit farther into the warm season than would otherwise be

possible. Once it gets very hot, even this variety will cease production.

ECHO’s seedbank does not offer many hybrid varieties because farmers who save their own seed could not be sure how the second generation plants would perform. We make an exception, however, when a hybrid offers an advantage that cannot be obtained from non-hybrids. In this case, the advantage is that tomatoes can be produced a few weeks earlier as the hot season ends or later as the hot season begins. Out-of-season produce can bring much higher prices, making the annual investment in seed profitable.

‘Equinox’ maturity is early. The vines are determinate and either should not be pruned or only lightly pruned. (If plants are pruned, and if purchasing hybrid seed is a problem, keep in mind that tomatoes can be started from cuttings. Cuttings from a hybrid tomato will have

the same traits as the parent plant.) Fruit ripen well on the vine (for large-scale producers, ‘Equinox’ can also be picked when mature-green and gassed). Flavor is good. Pedicels are jointed and shoulder color is light green. ‘Equinox’ has standard resistance to Fusarium Wilt races 1 and 2, Verticillium Wilt race 1, and gray leafspot. It is apparently not resistant to root knot nematodes. Fruits are tolerant to stem scar water uptake, thus reducing incidence of soft rot caused by *Erwinia*. Those working in missions or development in developing countries may request one sample packet of ‘Equinox’ seed from ECHO free of charge. All others may purchase seed from ECHO. Overseas prices are US\$3.50 per packet, including airmail postage. Packets shipped to US addresses are \$2.75/packet plus \$1.00 shipping per order. If you wish to place a bulk order, please contact ECHO for a source.

UPCOMING EVENTS

ECHO’s Seventh Annual Agricultural Missions Conference

November 14-16, 2000
ECHO, Ft. Myers, FL, USA

Our 7th conference promises to be another great one. Here is a sampling of other speakers who have been confirmed since we printed EDN 68.

John Batcha’s organization has distributed over 9,000,000 packets of seed to over 40 countries. This presentation will look at some failures and successes and at lessons to be learned from both.

Dave Walton will talk on Community Health Evangelism: a model for Christian discipleship and Christian development.

Pat Lahr, founder of Haiti Gardens, will share from his considerable experience promoting urban gardening in Haiti, including gardening on rooftops and in vacant lots.

Kathleen Colverson with Heifer Project will lead an interactive session to help delegates understand what Heifer Project does overseas that might benefit them in their work, in which countries Heifer has projects, and what the next step might be in organizing a collaborative project.

Dr. Ron Vos and Dr. Wayne Kobes from Dordt college will lead a discussion of Biblical Foundations for Agricultural Missions.

Jeff Rogers, a potter who has collaborated with Potters for Peace, will discuss how to make pottery for water purification.

Etienne Francois, Director of Les Anglais Development Project in Haiti, will discuss the revival of the coffee industry in Haiti.

Hari Pd. Banjara will talk on the application of sustainable agriculture in Nepal.

We look forward to seeing up to a couple hundred of you in November. Contact ECHO for registration and more information or visit our Web site. As of press time, there is still plenty of room. We encourage you to register quickly, because we will soon have to release our reservation on unused hotel rooms.

THIS ISSUE is copyrighted 2000. Subscriptions are \$10 per year (\$5 for students). Persons working with small-scale farmers or urban gardeners in the third world should request an application for a free subscription. Issues #1-51 (revised) are available in book form as *Amaranth to Zai Holes: Ideas for Growing Food under Difficult Conditions*. Cost is US\$29.95 plus postage in North America. There is a discount for missionaries and development workers in developing countries (in the Americas, US\$25 includes airmail; in Europe, Africa, and Asia, \$25 includes surface mail and \$35 includes air mail.) Issues 52-66 can be purchased for US\$12, including air postage. ECHO is a non-profit, Christian organization that helps you help the poor in the third world to grow food.