Critical pathing
Helps avoid fuzzy implementation steps

Action groups at the planning stage tend to flounder in three contrasting ways: Some have lots of meetings and do a lot of general talking, without coming to grips with specific study/action needs or deadlines to be met. Others charge ahead with a particular proposed step or sequence--sometimes hiring high-priced consultants to do it--without having thought through where it will lead. Still others go off in several directions at once, with people on differing wavelengths and without tying things together. This was perhaps more common two or three decades ago. But I've been surprised to see these tendencies still to be found in some of the boards I've been on in the 21st century.

Here are some examples from my own experience:

➢ *Publicity for an event limited to a newspaper announcement that is poorly timed and not meshed with other ways to let the public know.*

➢ *Local roads repaved, only to have them soon torn up to install a new sewer line.*

➢ *A test-demonstration of new farming practices postponed until the next season because seeds and fertilizer have not arrived in time.*

➢ *A grant proposal with nice-sounding words developed and lobbied for, but with little thought about what the group would do if it receives the grant. "We have to get the funds before we can plan anything."*

➢ *In environmental cleanup, a regulatory agency being slow to review an action proposal, seemingly without recognizing how it is holding up the whole process.*

➢ *An agrarian reform agency commissioning independent surveys of land ownership, community needs, land-use potentials, etc. without thinking through how the questions asked would be tie together and help guide action plans.*

➢ *A rapid reconnaissance trip by university researchers and extension specialists to a farming area 200 km. away, without planning who should contact whom, what information to seek, and what the trip should accomplish as a whole.*

➢ *An international organization with a tight conference deadline to meet insisting that authors of the main background document go through several administrative layers of repetitive review and revision that sometimes contradict one another.*

A technique that I have used to help get people down to "brass tacks" about what's needed and where things are headed is a simple version of the *critical path method*. This is a chart that lays out the specific steps (*activities*) needed to reach desired endpoints (*events* and *milestones*). It shows the steps that need to be done before one can move onto the next step (*serial activities*). It shows also the steps that can be taken simultaneously (*parallel activities*). By estimating how much time is realistically needed for each step, you can identify particular steps that may delay completion of the entire project and need special attention. Also, if you have a certain deadline to meet, you can work back to see how soon you need to start, in order to finish on time.

Here's a simple example of a critical path type diagram. It shows the main steps needed for our local tree commission to mobilize the annual Arbor Day observance. For the observance, one or more trees are planted in a particular neighborhood. Leaders, residents

and school children are invited to take part. The trees may be in memory of certain persons or events. The broader aims are 1) to generate more community awareness of the benefits of good treescapes, and the need to select and maintain trees carefully and 2) to encourage the people in the neighborhood to become "stakeholders" who want to take good care of them.
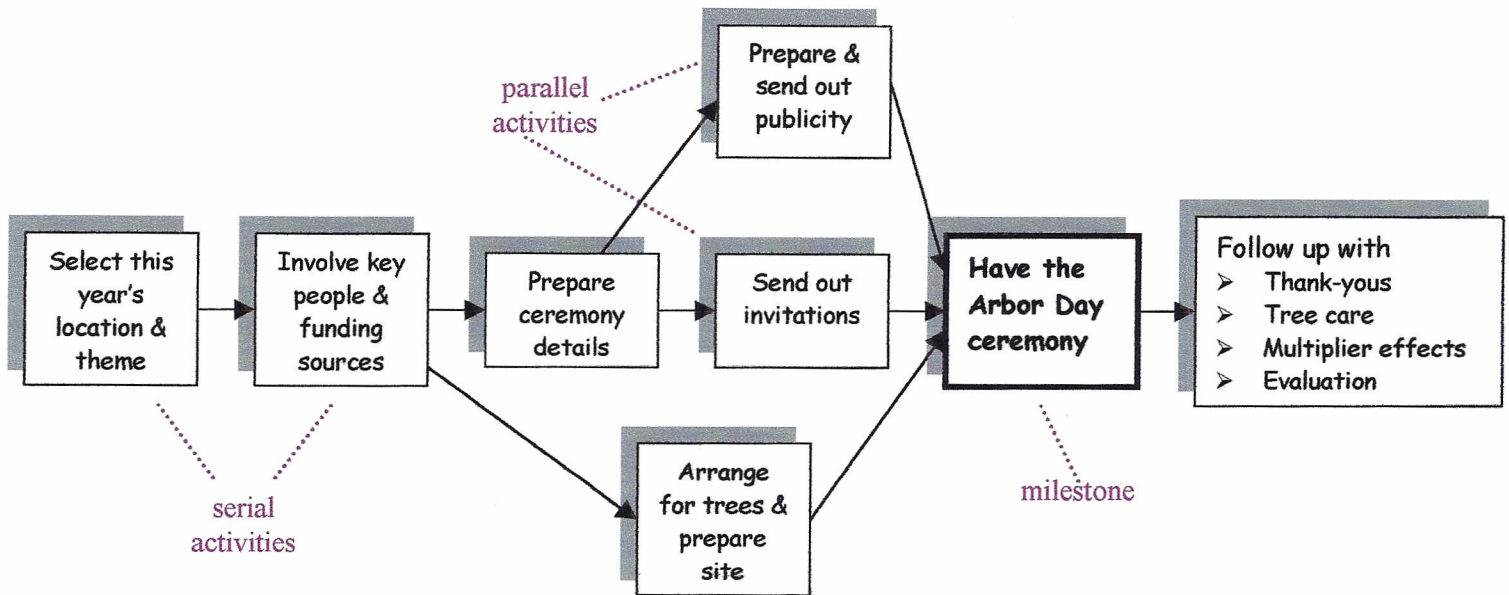
When developing such a diagram, I've found it helpful to start with some small cards, or slips of paper, and some strings. Write in the steps that seem needed, arrange the cards on a table, and connect them with the strings in tentative manner. Then rewrite and shift things around, according to other needs and linkages that people bring up.

This is a great way to get people to "come down to earth" from lofty discussions or confused directions. It helps them to see where they agree and disagree, and to pinpoint where things need to head. Sometimes it becomes clear that they are proposing actions that need some preparatory steps first. And also, it makes them feel involved in the planning process itself. Later, the diagram can be used to help monitor how things are going.

Once you have the "starter" diagram, you can go on to place by each arrow an estimate of the time that it will take to complete that step. This lets you see where the bottlenecks are. You can then try to figure out ways to speed up, or circumvent, those steps. For projects for which time needs are very uncertain, an additional refinement would be to make three estimates for each step: 1) the *quickest* time of completion, 2) the *slowest* time of completion, and 3) the *most likely* time need.

Critical pathing is particularly useful for planning more complex exercises than the above example, such as construction projects, military operations, manufacturing, humanitarian relief, epidemic control and political campaigns. You will find in books on systems analysis and management chapters on much more refined pathing techniques than what I've shown here. One that is often described is *PERT (Program Evaluation and Review*

Technique). A related approach uses bar graphs (*Gantt charts*) to summarize the main steps and their scheduling.

Such network planning can get very complex, with many interdependencies. So special computer software has been developed to help. One that has been widely used, in the past at least, is *Harvard Planner.* A simple, inexpensive program that builds around Gantt charts and their interrelationships is SoftKey's *Project Manager Pro.*

The agrarian reform situation mentioned at the beginning illustrates how critical pathing can be helpful: I had been working for several months with counterparts who were scurrying about with several studies, some using "canned" questionnaires from other work. But it seemed that they hadn't really examined what information was really needed, or which was needed first, and how it all linked to getting a pilot land reform program going in the region.

One day I started "playing around" with a critical path chart, using cards and strings, to try to clarify my own thinking. Soon everyone was surrounding my table to see what this crazy American was up to. Then they started pitching in suggestions. The very process of critical pathing became theirs, rather than mine. Within an hour's time, they had put together an umbrella chart and several sub-charts, and were copying them onto large sheets to stick on the wall. The process had helped us all to see more clearly which was and was not important to get done first, what additional information was needed, and what survey questions were not really relevant. Plus, more of a spirit of "team building" was in motion.

The only down side was that the counterparts were so proud that they spent considerable time showing off their charts to higher-ups, leaving less time to get the actual work going!