Defining Problems

- Focusing on problems is important
  - Problem solving is a critical task of managers, planners, and policy analysts
  - Decisionmakers are often unclear about what they want and the job of a good analyst is to clarify matters
  - Defining problems is one way that analysts can influence decision making (see argument and persuasion readings)
  - Problems are the raw material of policy
  - Understanding how they are defined, organized, compared, and ranked is vital to understanding how policy is made, implemented/administered, or evaluated
  - All too often the way people understand issues/problems overwhelms, discourages, and confuses them
  - Verifying that a problem does exist and redefining vaguely stated problems are a key step in the policy analysis process
  - The task of the analyst is to move from a general problem concept to specific measures of the problem so that alternatives can be devised and evaluated

- *Problem definition* is a medium through which we discover what we realistically want and how we may go about obtaining it
  - We don't discover a problem “out there” - we make a choice about how we want to formulate a problem
  - Ralph Waldo Emerson noted that we see what our experience has prepared us to see
  - A *problem* requires a cognitive judgment that the situation is alterable
    - Problems are situations
    - Discrepancy between "what is" and "what ought to be"
    - Not a problem if you can't do anything about it
  - Your perspective on a problem is likely to depend on your education, background, training, experiences, etc.
    - This background is also likely to lead you to favor certain policy options. For example, water quality problems may be viewed by:
      - Economists in terms of market failures/incentives/externalities
      - Engineers may see the problem in terms of poor planning and design, technical design flaws, etc.
      - Biologist may focus on impacts to wildlife
      - Educator may view the problem in terms of poor public education
      - Political scientist/public administrator may view it as an institutional design problem
      - Planner may view as a growth management problem
  - Big difference between defining policy problems in objective versus subjective terms
    - Most, if not all, policy problems are socially constructed
    - Nature and causes of environmental problems are often defined in ways that yield political advantage for one group over another
Selective perception/strategically define problems to lead to predefined policy problems
- Different goals, policies, objectives, and solutions often imply different definitions (interpretations) of a problem or even different problems
- Patton and Sawicki (1993) suggest several steps in defining potential problems
  - Think about the problem
    - We usually know more about it than we realize
  - Delineate the boundaries of the problem
    - Location, length of time it has existed, historical events that shaped it, its connection to other problem (See also section on defining problems from Rochefort and Cobb)
  - Develop a fact base
    - Use multiple data sources when possible
    - Facts needed should flow from the problem statement
  - List of goals and objectives
    - Difference between what is and what ought to be
    - How do you know when you reduced or eliminated the problem
    - Acceptable solutions will depend on your goals and objectives
  - Identify the policy envelope
    - Policy envelope is the range of variables considered in the problem – it will affect the alternatives examined
    - May be described by client or be a product of the analysis
  - Display the potential costs & benefits
    - Think about what each actor gains and loses by resolving the problem
    - It may help to reframe the problem in ways that lead to win-win or win-no lose solutions – see Bardwell reading on problem framing
  - Review the problem statement
    - Has it been stated in a way that allows for action
    - Have you left yourself alternatives or have you really just defined a solution
- Patton and Sawicki (1993) describe several methods policy analysts can use to help define problems
  - Back-of-the envelope calculations to estimate the size of the problem
    - Sit an think about the key dimensions of the problem and find some basic facts to help estimate parameters
    - Check the logic behind how numbers are calculated or whether there is a built in bias
  - Quick decision analysis to identify key attributes of the problem
    - Can construct a decision tree to look at options and consequences of actions
  - Creative operational definitions to reduce conceptual ambiguity
    - Expressing problem statement in measurable terms is referred to as creating an operational definition
    - Say it with numbers if you can – it reduces ambiguity
    - Use quantitative analysis in combination with qualitative analysis when possible
Watch for “fractional measurement” – sometimes a measure only conveys part of the meaning of the original concept

Watch for faulty indirect measures and spillover effects

Ecological fallacy – generalizing from one measurement unit to another (e.g., census data)

A valid operational definition will
  - State the concept in unambiguous terms
  - Give attention to qualitative as well as quantitative measures
  - Take into account spillovers to other entities (positive or negative)
  - Use primary data when possible
  - Use data collected for the unit of analysis under study
  - Draw conclusions only warranted by the analysis
  - Avoid speculating about individual characteristics from group data
  - Develop policy aimed at real social and political units

Political analysis so that you don’t ignore nonquantitative factors

Examining political issues in the process of identifying and analyzing alternatives to policy problems distinguishes policy analysis from other forms of systematic analysis

Whenever possible, political factors should be part of the problem definition, criteria selection, and alternatives generation, evaluation, and display

Analysts must look at political issues as an integral part of the policy process, learn terminology to communicate about these factors, and use consistent methods to report on them

A strict quantitative analysis will still have to be grounded in the client and decisionmaker values, goals, and objectives

Answering the following questions will help clarify political problems – it also helps with Bardwell’s problem framing
  - Actors: Who is concerned about the issue
  - Motivations: What are the motives, needs, desires, goals, and objectives of the actors
  - Beliefs: What does each actor believe about the problem
  - Resources: what do the actors have that can be used to get what is wanted
  - Sites: where decisions will be made, by whom, when?

Patton and Sawicki (1993) offer the following advice
  - Determine whether the obvious problem is only a symptom of a larger controversy
  - Make sure you look at underlying issues and related problems as well as tradeoffs between problems
  - Check your sources of information for accuracy
  - Take advantage of internal review and check with other analysts
– Issue-paper to help decide whether further study is justified
  – In essence, it is a feasibility study about whether or not to do “researched analysis”
  – It is done with existing data and information
  – It goes beyond back of the envelope calculations

– What can happen when you try to solve problems? It is important to remember that:
  – It can be eliminated entirely by the policy as it is implemented and no other problems emerge
  – It can be reduced to such a low level that there is no further need or demand for action
  – It can be succeeded by another problem that has less serious effects or can be solved more easily
  – It can be exacerbated by the policy and/or replaced by more difficult problems, with still other problems created in addition
  – Beware of the type III error
  – The probability of solving the wrong problem

- Describing Problems (Rochefort and Cobb)
  – Examine the severity of the problem
    – Crisis
      – Emergency vs. non-emergency
    – Novelty
      – Unprecedented vs. familiar
    – Incidence
      – Growing, stable, or declining
      – Social patterns: class, age, cohort, etc.
      – Characteristics of the problem population
    – Proximity
      – Personally relevant vs. general societal concern
  – Examine the causes of the problem
    – Intended vs. accidental
    – Blame can/can't be allocated
    – Simple vs. complex
  – Nature of the solution
    – Available vs. non-existent
    – Acceptable vs. objectionable
    – Affordable vs. Unaffordable
**Problem Framing (Bardwell 1991)**

- Her approach is one that combines theories from conflict management and cognitive psychology
- Environmental solutions often need to find win-win or win-no lose solutions or at least make both good economic and environmental sense
- Cognitive psychology suggests
  - At their best, people can handle only about $5 \pm 2$ different units of information or thoughts at a time
  - People selectively use information and rely on cognitive maps they have built through life experiences (see uses of history reading for similar arguments)
  - Bias towards the familiar – you take problems and try to fit them into preexisting maps – you tend to do what you did before
  - As a result, new problems tend to get cast like old ones and more effective options are overlooked (e.g., fitting Nonpoint problems into existing NPDES system)
- Environmental Issues present a challenging arena for problem solving
  - They are complex, plagued with uncertainty, and extremely political
  - They often seem intractable because they are ill structured or “wicked” in that
    - They are complex
    - There are many ways of looking at the problem
    - There are many possible solutions rather than one solution
    - The problems are connected to other problems
    - The effects of solutions play out over different time frames
    - With each new resolution comes a new array of problems
    - The risks are and the consequences of our actions can be long-term and irreversible
    - There can be a path-dependent quality to policy solutions
  - Solving the problems often involves questions of “transscience”
  - Problems can be defined in the language of science but cannot be solved by science – some political or value judgments must be made
  - Making choices involves more than just finding a technical solution.
  - Environmental choices reflect politics, values, and expectations as much as scientific facts
- Some claim that 90% of problem solving is spent
  - Solving the wrong problem
  - Stating the problem so that it cannot be solved
  - Solving a solution
  - Stating the problem too generally
  - Trying to get agreement on the solution before there is agreement on the problem
Problem solving involves several stages
- Building an understanding of the problem – the problem space
- Establishing some initial criteria for the goal
- Searching for solutions
- Deciding among solutions
- Evaluating progress – comparing initial goals to and monitoring the solution
- Unfortunately most folks don’t spend enough time on the first step.

Problem definition is important because
- It implicitly embodies preconceptions and assumptions that influence how you approach the problem
- It guides the strategies and actions taken to address the problem
- A full examination of a problem can lead to quality solutions
  - Experts in a certain field often devote a large proportion of their problem-solving time to conceptualizing the problem and can figure out what is central to understanding it. Thus, they have a perspective that helps them foresee consequences, new problems, and the implications of solutions
  - Novices have a difficult time sorting through information, determining what is important, and seeing how different parts fit together – they miss the big picture
- Problems can be defined in different ways and this leads to different policy solutions.
  - Urban air quality was viewed as an environmental policy and the CAA responded with new technology controls on cars and emissions
  - If they had looked at it as an energy or transportation issue they might have responded with transportation planning, industrial siting, and incentives for energy efficiency
  - Reality is that these are all different aspects of the same problem
- Problem framing focuses on how problems are defined and consciously examines different interpretations of that problem
  - Stave off solutions
    - Avoid jumping to conclusions without adequately examining the problem
    - Avoid the tendency to push for closure quickly and be biased towards finding quick solutions
    - Solution mindedness is often manifested in positional stances that create conflict
    - Conflicts often occur when people have already decided on a definition of a problem and established solution and the definitions and/or solutions are in conflict
    - It involves asking questions that explore different aspects of a problem
- Limiting information
  - Peoples attention not information is the scarce resource
  - Don’t overwhelm people’s ability to understand and absorb information
  - Information needs to be managed carefully
  - Can shift conflict from problem to debating the merits of information
Choosing levels
- Need to find the appropriate “universe of discourse”
  - Too large a scale and the problem seems unapproachable
  - Too small and it is easily dismissed
  - Be strategic and practical and seek the small wins – many environmental problems are the result of a series of small cumulative impacts and solving them will involve a long series of cumulative benefits
- Need to reduce the problem to something that is manageable (5 ± 2 different units)

Factors to consider
- Fit: your skills and abilities must be adequate to the task at hand
- Linkages: how is the level you are working at part of a larger framework of scheme of things
- Personalization: issues that relate directly to ones own circumstances and needs are difficult to ignore

Generating imagery
- The ability to manage or effectively organize information comes in part with increased familiarity with an issue
- Folks like a good story

Developing metacognition
- Paradox is that developing familiarity with an issue improves your problem solving skills but it also increases the chances that you will use the wrong cognitive frames when addressing a new problem
- You have to consciously monitor, watch, and guide your own problem-solving process – importance of reflective practice
- Experience and exposure seem to be the best teachers – that is why we use cases, group projects, etc. in the MPA program