Figure 2 TAXONOMY OF TECHNOLOGY STUDIES

TYPE OF STUDY	CENTRAL QUESTIONS TO BE ANSWERED	ANALYTICAL PARAMETERS: Technical Efficacy	Economic Feasibility	Safety Risks	Public Policy Options	All Relevant Impact Domains (e.g., Economics, Environment, Social, Psychological, Political)	Only Selected Impac. Domains (e.g., Economic)	Second and Higher Order Effects (i.e., Unintended, Unanticipated, Synergistic, Cumulative)	Only First Order Effects (i.e., Intended Impacts)	All Key Parties at Interest (e.g., Bankers, Drs., Consumers, Industry, Youth, Minorities)	Only Particular Parties at Interest (e.g., Drs.)	Effects on All Relevant Systems (e.g., Health,
1. FEASIBILITY	Is it a workable and safe design? Can it be made with available resources and techniques? What will it cost to make?	1	1	1	4		X		X		X	
2. MARKET RESEARCH	Who will use it? Who will pay for it? How much will they be willing to pay? How can demand be generated?	4	1	2	4		X		X		X	
3. CLINICAL TRIAL	How well did it do what it was designed to do? Did it produce clinical side effects? Was the effect beneficial? What regimen is called for?	1	4	1	4		X	X			X	
4. COST-BENEFIT*	What are the monetary costs? What are the monetary benefits? What is the net difference between costs and benefits? What are the rates of return on investment? What is the benefit to cost ratio? Which alternative will maximize the net value of benefits?	4	1	4	2		X		X		X	
5. COST EFFECTIVENESS	What are the costs of alternative ways for obtaining a particular set of outcomes (generally non-monetary, e.g., reduction in birth rate or improved water quality)? Which alternatives will maximize the desired outcomes for any particular level of resources?	3	2	3	1		X		X		X	
6. ECONOMIC IMPACT	How will it affect micro and/or macro-economic factors? How will micro and/or macro economic factors affect it?	4	1	4	—		X		X		X	
7. ENVIRONMENTAL IMPACT**	What are the beneficial and detrimental impacts on the physical environment? Which adverse effects cannot be avoided and why? What alternatives exist? What irreversible and irretrievable resources are committed?	4	3	3	1		X	X			X	
8. MACRO T.A. (COMPREHENSIVE TECHNOLOGY ASSESSMENT)	What is the state-of-the art of the technology? Are there better micro and macro alternatives to achieve the objective? What are its potential second and higher order impacts and consequences? How will these impacts and consequences interact with each other? Who are the parties-at-interest and how will they be affected? Who are the decisionmakers and what is the potential for public policy to avert/or minimize undesirable impacts and/or enhance desirable impacts?	1	1	1	1	X		X		X		X
9. MINI T.A.'s (PARTIAL T.A.)	(Mini Technology Assessments are about an order of magnitude smaller than Macro TA's and they focus either on depth or brea											
a. Selected Impact Scope	(Same questions as Macro TA (listed above) but only selected impact and consequence domains are included.)	3	3	2	1		X	X		—	—	—
b. Selected Focus	(Same questions as Macro TA's, but limited to effects on particular system and/or particular party-at-interest.)	3	3	2	1	X		X			X	
10. MICRO T.A. (HEURISTIC T.A.)	Micro TA's are about an order of magnitude smaller than Mini TA's and are generally based on "brainstorming" or nominal group sessions.	5	5	5	5	X		X		X		X

Note:

Magnitude of Analysis:
1. Generally analyzed in depth
2. Generally included but analyzed only moderately
3. Generally included but analyzed superficially
4. Seldom or never included
5. Generally depthless
— Varies widely depending on objectives of the specific study

Focus of Study:
X Generally primary focus of study
— Varies widely depending on objectives of the specific study

9. MINI T.A.'s (PARTIAL T.A.) (Mini Technology Assessments are about an order of magnitude smaller than Macro TA's and they focus either on depth or brea
a. Selected Impact Scope (Same questions as Macro TA (listed above) but only selected impact and consequence domains are included.) 3 3 2 1 X — —
b. Selected Focus (Same questions as Macro TA's, but limited to effects on particular system and/or particular party-at-interest.) 3 3 2 1 X X
10. MICRO T.A. (HEURISTIC T.A.) Micro TA's are about an order of magnitude smaller than Mini TA's and are generally based on "brainstorming" or nominal group sessions. 5 5 5 5 X X X

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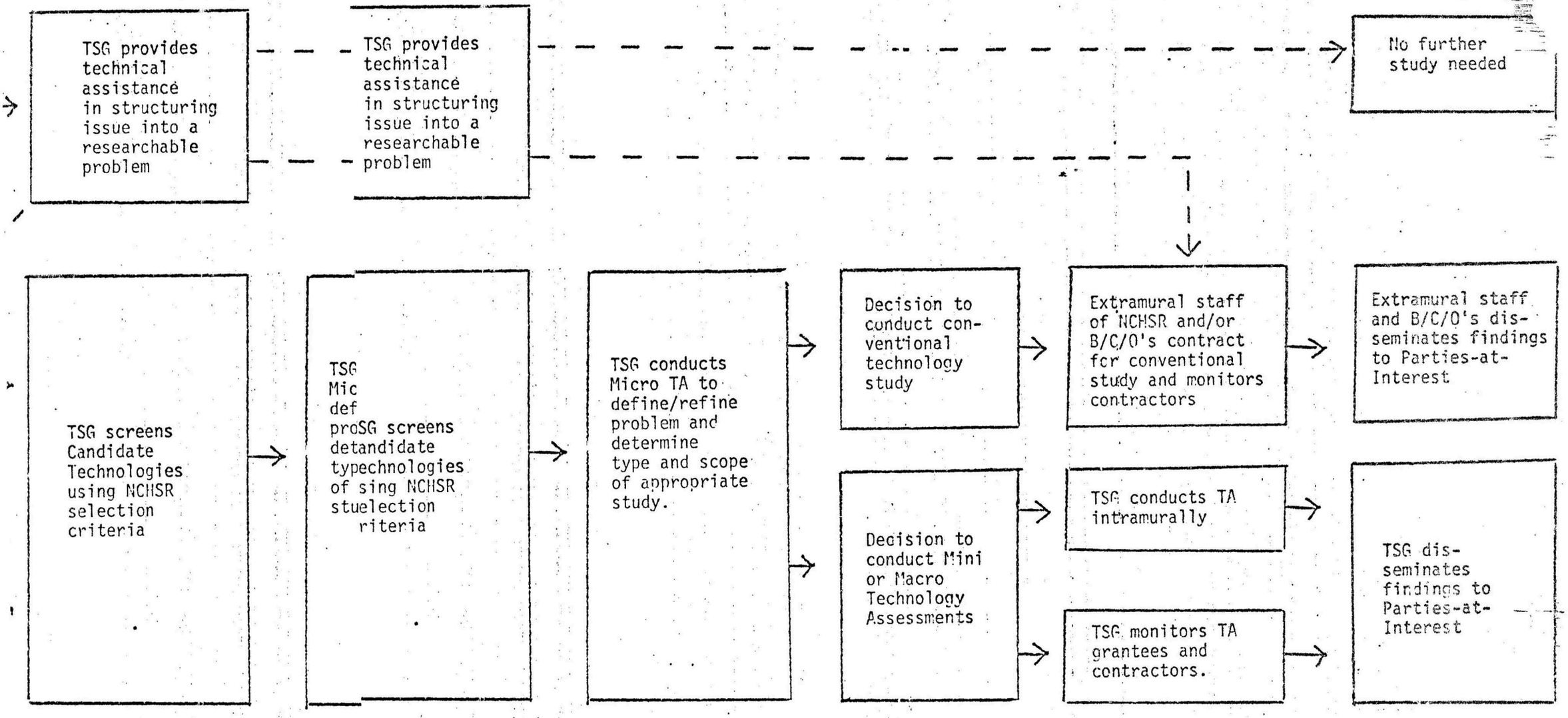
X Generally primary focus of study
— Varies widely depending on objectives of the specific study

Caveats:
* Some exceptional Cost-Benefit studies include non-monetary va
** Some exceptional Environmental Impact Studies include sc

Source: Sherry R. Arnstein. "Technology



WORK FLOW CHART

Attachment B