Phase II
Developmental Phase: Proactive Curriculum Development

It would be inappropriate to suggest that the initial or germinal phase is simply a "placeholder" and serves no purpose other than an initial response to a problem. If done properly, the initial phase is the first step in the curriculum planning process, albeit an elementary step. Sequentially, the second phase takes advantage of the first. We return to Finch and Crunkilton for their comments on the planning process for developing a professional curriculum.

They define strategic planning as "a process or series of steps" that guide the organization through:

1. Examining the external environment and its impact on the organization now and in the future.
2. Conducting a self examination.
3. Formulating vision and mission statements to guide the organization in the future.
4. Developing specific plans that will assist the organization to fulfill its vision and mission.
5. Applying the strategies included in the plan.
6. Evaluating the organization through formative and summative assessment approaches.[1]

In effect, the initial phase performs those steps, although in a truncated fashion. We will address a more elaborate, comprehensive process of curriculum development for a specialized discipline such as WMD.

Articulating the Statement of Purpose or Mission

As we stated earlier, for a training program to be successful, it must have a philosophical basis or mission statement. This can be called any of the following:

Belief Statement:	A statement of purpose or goals of the initiative, agency, organization overseeing the training or developing the curriculum.[2]
Aims and Rationale:	"A clear set of statements which succinctly encapsulate the objectives of the course or programme."[3]
Goals and Objectives:	Helps "direct the choice of curricular content and the assignment of relative priorities to various components of the curriculum" and they "suggest what learning methods will be most effective."[4]

Or the statement can be called the "mission" of the training initiative. It should be a clear and concise statement of the "end toward which an effort is directed."[5] It is the fundamental purpose or *raison d'etre* of the program and an important element of a progressive organization. As Osborne and Gaebler said, "mission-driven organizations turn their employees free to pursue the organization's mission with the most effective methods they can find."[6] The mission statement should be clear, concise, and comprehensive in capturing the purpose of the training program. All of its elements should be understood by those who develop it. That is, it should not be ambiguous or have inherent uncertainties. Typically those people who have the responsibility for planning in the organization serve as the development group or committee for the mission statement. It must, however, be circulated for comments to others in the organization. The final, agreed-upon mission statement should be brief but meaningful. It should establish the parameters and the direction. This is especially true of governmental agencies, as reinforced by Osborne and Gaebler. Often the role of the federal government, to include a federal WMD training initiative, is to stimulate and facilitate the work of the state and local agencies and personnel so that they will be better able to enhance the quality of life in communities. As stated by McGuire et al.,[7] "the development capacity of communities becomes a prime determinant of economic, and thus governmental, performance."

Conducting the Needs Assessment

Once a program or initiative has developed its fundamental purpose of mission, the parameters of the inquiry are established and the next step is to conduct a needs assessment. Part I provided a comprehensive discussion of the various methods of conducting a needs assessment. In this section we will discuss the questions or issues addressed in a needs assessment and describe the most prominent and advantageous methods of conducting this analysis on the topic of WMD training.

Basically, the needs assessment, for a topic such as WMD where there already exists a clear and convincing need for a curriculum, takes the form of:

> Identifying the targeted learners by type of agency or "discipline;"
> Identifying the targeted learners by function;
> Describing what we expect them to be able to do (ultimate objectives);
> Assessing the tasks performed by the targeted learners (enabling objectives);
> Assessing the targeted learners' existing training levels; and
> Identify gaps, deficiencies, and needs which can be addressed in training.

While we do not propose to perform the needs assessment here, we do offer some examples of these issues which can be addressed properly through a needs assessment for an emerging discipline such as WMD:

> *Disciplines.* A basic premise in curriculum development and training is "know your audience." There are many different agencies, each with different functions and expertise, which should be considered in the development of curricula and the application of training associated with WMD. For example, some of these disciplines are:

Hazardous Materials Experts
Law Enforcement
Fire
Military
Emergency Management
Emergency Medical Personnel
Health Care or Medical Personnel (treatment and inpatient)
Public Health
Public Works
Media/ Communications
Public Representatives (Community Leaders)

Clearly the training needs and curricula vary for each of the disciplines or organizations listed above. While this list may not be comprehensive, it should be instructive in exemplifying the targeted learners by discipline.

Functions. Similarly, it is important to identify and articulate the "functions" of each targeted learner. Earlier we described five categories of the potential audience for WMD training:

Tier 1 - Awareness
Tier 2 - Operations
Tier 3 - Technician/Specialist
Tier 4 - Incident Command
Tier 5 - Integrated Systems (Multi-jurisdiction Training and Exercises)

We referred to these as competency levels. While these levels will be utilized later when we address learning objectives, they should also be considered in assessing needs. Four of the levels are described in examples in Appendix 5.

Anticipated Performance or Ultimate Objective. The essential element in any curriculum is performance. While this may appear to be a truism, it cannot be overstated. It is certainly an important, if not essential element in determining WMD training needs. For each of the disciplines and functions listed above, there is a different anticipated activity or response. The anticipated performance of medical personnel may or may not be the same as that of law enforcement personnel. The performance of the two types of personnel may be quite similar at times and quite different at other times. Curricula must be informed by the diversity of anticipated performance of the agencies and personnel. A basic dichotomy in anticipated performance is action intended to "prepare" for an event versus "respond" to an incident. Arguably, there is also the performance which would fit the category of "recognition" of an incident or the likelihood of an incident. Each agency would have different approaches to recognizing, preparing for and responding to incidents. Similarly, the phase or stage of the response to an incident involving WMD could be a discriminating factor. Certain persons and agencies react at different times and at different stages of event.

Assessing the Tasks Performed or Enabling Objectives. Identifying the ultimate objective

or performance of a targeted group may be easier than identifying the sequential or intermediate tasks they must perform in order to accomplish the ultimate objective. This assessment requires specific methods or instruments such as a "job task analysis" where targeted learners are asked to identify the things they do and the frequency with which they do them. This type of analysis is very useful in knowing the knowledge, skills, and abilities needed to perform a task. Later these enabling objectives will be useful in framing intermediate measures of proficiency or in developing modular training programs.

Assessing the Existing Training Levels. Some of the approaches used to assess existing training and existing competency are questionnaires, literature review, expert panels, competency tests, and direct observation. These methods can give a measure of the knowledge, skills, and abilities possessed by the targeted learners. It is counter-intuitive and expensive to construct duplicative training. The determination of existing competencies can also help in identifying enabling objectives. First, clearly, there must be a determination of the ultimate objectives - what we want the person to be able to do - if we are to measure their ability to do it.

Gaps, Deficiencies, and Needs. The assessment of training needs as well as the initial development of a curriculum, to be defensible, appropriate, and valid, must consider the elements listed above. This consideration is typically included in a needs assessment which identifies the gaps associated with each element. Once the anticipated performance is described, by category of targeted learner, gaps and deficiencies in existing training are assessed. Gaps are the focus of training because it is not productive to provide training on existing capabilities, unless they are to be revised and altered or applied differently.

What methods are most appropriate to accomplish these needs assessments described above? Below we have reproduced the chart showing the various methods of conducting a needs assessment, adapted from Kern et al.[8] and Finch & Crunkilton[9] which was described earlier as appropriate to professional training:

Method of Assessment	**Advantages**	**Disadvantages**
Informal Discussions	Convenient Inexpensive	Lacks rigor Contains biases
Formal Interviews	Standardized Qualitative information	Reliable Not representative Expensive Contains biases
Focus Groups	Efficient Qualitative information	Requires skill Not representative
Questionnaires and Task Analyses	Standard Methodological rigor Quantitative	Skill Not qualitative Time consuming
Direct Observation	Assesses existing skills Informal	Time consuming Contains biases

	Assesses existing ability	Does not assess performance
Proficiency Tests	Efficient Effective Assesses existing Ability Assesses knowledge	Time consuming Does not necessarily assess real-life performance Requires high level of skill to develop
Audits or Organizational Outcome Measures	Unobtrusive Assesses performance Methodological Rigor	Requires performance standards Requires resources Produces incomplete data
Strategic Planning Process	Produces Prioritization Involvement by key persons Qualitative Involves key people Establishes goal/objective	Requires skilled facilitators Time consuming Not quantitative

Clearly, each of these approaches has advantages and disadvantages. It should be mentioned that qualitative and quantitative attributes are not ordinal but nominal categories. Neither has dominant advantages over the other. They are simply two different categories of "information" on topics related to needs assessment. It may appear that quantitative data are more defensible and, to some degree, they imply reliability and validity, but qualitative information can be of immense value. Cost, time, and complexity are variables which must be considered in determining the "best" way to measure training needs.

Non-specific Outcomes, Competency-based, and Performance-based Training

This category is not always listed as a step in the developmental process. The category of training is, however, always a consideration in determining the type and complexity of the curriculum and the methods of evaluating the participant.

Generic training, as described earlier, is that training which has no particular or specific expectations of abilities resulting from the training. It may enhance knowledge but typically is not related to skills or abilities.

Performance-based instruction or training is that which is intended to produce measurable and valid changes or improvements in performance. Performance-based assessment was described by Thermer as a more reliable method of assessing police training.[10] Performance-based instruction is especially useful for activities (knowledge, skills, and abilities) which are predominantly group endeavors. A group or team can perform tasks and accommodate needs which can be assessed objectively based on the accomplishments and performance. The next type of approach described, competency-based instruction, is applicable to individual efforts but more difficult to apply to groups or teams.

McGaghie, et al.[11] describe medical education as traditionally and primarily "subject-centered." This type of instruction is consistent with competency-based instruction. Competencies "are those tasks, skills, attitudes, values, and appreciations that are critical to success" in a field of study or an activity."[12] Competency-based instruction is different from other types of instruction in several ways:

> First, such a curriculum is organized around functions required in the practice of the discipline or topic being taught;
>
> Second, it is grounded in the supposition that the students invited and allowed to attend the instruction are of such quality that they are capable of mastering the performance objectives; and,
>
> Third, the processes of learning and displaying mastery, as well as the process of teaching, are both able to be assessed and evaluated.

If an educational or instructional focus meets these three criteria, it may be taught in a competency-based format. "Mastery learning," of which competency-based instruction is synonymous, "means that, given adequate preparation, unambiguous learning goals, sufficient learning resources, and a flexible time schedule, students can with rare exceptions achieve the defined competencies at high levels of proficiency."[13]

The process of defining the ultimate objectives in the needs assessment is a step toward performance-based and competency-based curricula. Clearly, these types of instruction have standards of accomplishment which facilitate course development and assessment.

Establishing Educational Objectives

As has been said frequently enough to become a theme, it is critical that specific objectives or desired knowledge, skills and abilities be articulated for each category of targeted learners. Once the knowledge, skills, and abilities have been identified, they can be mated with educational objectives. The level of educational objectives, as well as the domain in which they reside, determines, in large measure, the complexity of the courses, the methods of delivery, and the methods of evaluating the instruction. The cognitive, affective, and psychomotor domains were discussed in some detail in Part I, as were the levels within each domain. For each set or category of targeted learners, determining the domain and the level will assist with:

- Ordering Goals and Objectives
- Progression of Courses
- Determination of Competencies
    - Starting Points and Entry Points
    - Courses Skipped
- Evaluating Participants and Courses
- Revising Curriculum
- Training Delivery Techniques and Locations

Briefly, the three domains are described as:

Description of Cognitive Taxonomy[14]

Knowledge (recognizing or recalling ideas, material, or phenomena)

Knowledge of terminology: define terms, distinguish words, understand terms and concepts.

Knowledge of Specific Facts: recall facts, dates, recognize events.

Knowledge of ways and means of dealing with specifics: Familiarity with, conscious of, knowledge of rules, understanding continuity, know developmental categories, recognize range of features, know types, familiar with criteria, know basic elements, know how to attack or address problems, know various techniques.

Knowledge of universals and abstractions in a field: Know key principles, know major generalizations, be familiar with key laws, recall major theories, understand interrelationships, understand structural organization.

Comprehension (when confronted with a communication, knowing what is being communicated and how to use it)

Translation: translate from symbolic form, read illustrations, read maps, tables, diagrams, graphs to or from verbal forms.

Interpretation: grasp a complete thought or situation, distinguish between appropriate and inappropriate conclusions drawn from a body of data or information, interpret social data, draw conclusions and state them effectively, predict trends.

Application (given a new problem, ability to apply correct abstractions without prompting) Ability to apply generalizations to problems, ability to apply procedures to problems, skill in applying laws to situations.

Analysis (ability to break down material into constituent parts and detect relationships of the parts)

Analysis of elements — ability to recognize unstated assumptions, ability to distinguish facts from hypotheses, skill in identifying motives, distinguish conclusions from the facts supporting conclusions.

Analysis of relationships — comprehending interrelationships and order of relationships, recognizing relevant elements for validation, recognize essential facts, distinguish cause-and-effect, detect logical fallacies in arguments.

Analysis of organizational principles:
Recognize form and pattern in actions and behavior, ability to infer purpose or point of view, ability to infer philosophy, ability to recognize bias.

Synthesis (putting together elements and parts to form a whole)

Production of a unique communication
Ability to write creatively, make extemporaneous speeches.

Production of a plan — Ability to propose ways to test a concept, integrate diverse concepts into a solution, plan a unit of instruction, design tools or machines.

Derive a set of abstract relations:
Ability to formulate a theory of action, perceive various was to organize actions or elements to address an issue or problem.

Evaluation (making judgements about the value of ideas, works, methods, or solutions)
Assessing work, accuracy, or arguments, using certain criteria, comparing facts, theories or generalizations to determine validity; appraise judgements or values.

Description of the Affective Domain:

Receiving (attending)
Awareness
Willingness to receive
Controlled or selected attention

Responding

Acquiescence in responding
Willingness to respond
Satisfaction in response

Valuing

Acceptance of a value
Preference for a value
Commitment (conviction)

Organization

Conceptualization of a value
Organization of a value system

Characterization of a value or value complex

Generalized set
Characterization[15]

Description of Psychomotor Domain [16]

Perception	ability to identify based on feel or touch.
Set	able to demonstrate use of simple tool, instrument, or mechanism.
Guided response	able to imitate an observed movement or procedure.
Mechanism	demonstrate mixing or combining of chemicals.
Complex overt response	operate complex or intricate equipment.
Origination	create original exercise, movement, game, or technique.

The categorization of the educational objective is made simpler through the informed use of verbs in describing the outcome:

Cognitive Domain Taxonomy and Verbs

Level	Verbs
Knowledge	identify, specify, state
Comprehension	explain, restate, translate
Application	apply, solve, use
Analysis	analyze, compare, contrast
Synthesis	design, develop, plan
Evaluation	assess, evaluate, judge

Affective Domain Taxonomy and Verbs

Level	Verbs
Receiving	accept, demonstrate awareness, listen
Responding	comply with, engage in, volunteer
Valuing	express a preference for, show concern
Organization	adhere to, defend, synthesize
Characterization by value	show empathy, show ethical consideration

Psychomotor Domain Taxonomy and Verbs

Level	Verbs
Perception	distinguish, identify, select
Set	assume a position, demonstrate, show
Guided Response	attempt, imitate, try
Mechanism	make habitual, practice, repeat
Complex overt response	carry out, operate, perform
Adaptation	adapt, change, revise
Origination	create, design, originate

Cognitive: Recall or recognition of knowledge and the development of intellectual abilities and skills.

Affective: Changes in interest, attitudes, and values, and the development of appreciations and adequate adjustments.

Psychomotor: Develop manipulative or motor-skills which are neuromuscular or physical and involve different degrees of physical dexterity.

If, for example, the training objective were to enhance the understanding of large numbers of persons on the basic awareness and concepts of an issue such as WMD, the instruction would probably be aimed at the "Knowledge" level of instruction and could be accomplished in large groups, use distance learning approaches, and involve multiple choice tests or evaluation instruments. If the objective were to instruct program managers or administrators on the process of developing a plan of action following an incident involving WMD, the instruction would need to be intensive, small-group exercises, aimed at "Synthesis," would require that the previous levels of learning had been mastered, and the mastery of the information would be judged by a model "plan of action" prepared by the participant.

One issue which has been left unstated is the precise definition of each of the categories or tiers. We have developed, as an example, a statement defining these categories. See Appendix 5, Defining WMD Responders by Performance Tasks, for a suggested Standard Operating Procedure to describe the levels or tiers. Once the learning objectives have been defined and the tiers defined, it is possible to cross-reference the objectives to determine the degree to which they conform to the basic assumptions of the curriculum.

The following matrix shows, as an example, the learning objectives which are generally consistent with four of the levels or tiers of personnel responding to an incident of WMD. These four levels - awareness, operations, technician, and incident command - require very different knowledge bases. The curricular objectives should be consistent with the expectations of the learners.

Levels of Training in the WMD Field

Objective (Bloom's Level of Cognition)	Awareness	Operations	Technician	Command
Knowledge	X	X	X	X
Knowledge of Specifics	X	X	X	X
Knowledge - ways to deal with Specifics	X	X	X	X
Knowledge of Principles and theories	X	X	X	X
Comprehension		X	X	X
Translation		X	X	X
Interpretation		X	X	X
Extrapolation		X	X	X
Application		X	X	X
Analysis			X	X
Analysis of Elements			X	X
Analysis of Relationships			X	X
Analysis of Organizational principles			X	X
Synthesis				X
Evaluation				X

There will be variances from this matrix due to different disciplines and the complexity of skills needed. It is presented here to serve as an example of the merging of objectives and tiers. Not included here is the highest level or tier, the multi-jurisdictional level. This level would, for most activities, be at the highest level of the taxonomy. Some of the skills and abilities would best fit the psychomotor domain and that also suggests particular delivery methods (described below) and course objectives.

Developing Training Courses

The actual development of the course or courses in a curriculum should be accomplished by those with expertise in the subject matter. The courses should include learning objectives and, if appropriate, behavioral objectives as well. The objectives should be subdivided into enabling objectives or categories so that incremental assessments can be made by the participants or by the instructors.

The development of a syllabus for each course is indicative of the degree to which the instructor has planned the activities around the information available. One text which is popular as a guide for trainers is The Trainer's Handbook. It specifies six steps in writing an agenda (outline for a course):

1. Divide your training time into smaller blocks of time.

2. Using needs analysis, task analysis, and training objectives, select the learning pattern.
3. Match each unit of time with one or more objectives, then select appropriate substructures for each unit or module.
4. Select the best methods for each module.
5. Fine-tune the program by checking for variety and proper timing.
6. Write a lesson plan for each module.[17]

Again, the elements of this process point to the centrality and criticality of establishing course objectives. Since it is anticipated that much of the individual course development will be conducted by agencies other than ODP, we have included in Appendix 6 an example of a Standard Operating Procedure for the development of courses. Such a procedure could be disseminated to all organizations or agencies developing or proposing courses to insure that standard practices are followed.

While much of the course preparation and delivery is left to the experts who are the instructors, some activities at this stage are still important for the agency monitoring the training. If courses, instructors and participants are not assessed, it is very difficult, if not impossible, to determine if the course or courses have been developed properly.

Merging Courses Into Curricula

In Part I we described the "Curriculum Spiral" which establishes the order in which in is appropriate to instruct. Generally, this spiral suggests that it is most appropriate to cover material from simplest to most complex but it also suggests that it is necessary to give learners a holistic view of the information so that they can see how it fits together. Another way to organize information and courses is three basic categories:

Core of basic Knowledge, skills, and abilities;

Broad technical knowledge, skills, and abilities; and

Specialized technical knowledge, skills, and abilities.

Dowling applied the "spiral curriculum" approach to technical training curricula in order to show the logical, organized progression of courses in a curriculum:

- courses should be organized in a simple-to-complex, general-to-detailed, abstract-to-concrete manner; and,
- in order for a student to progress from one level to another more complex level, certain requisite skills must first be mastered.[18]

This "spiral" organization becomes even more critical if modules are included in a curriculum. These modules may actually be courses addressing one or more of the enabling objectives, organized to

form a logical path to the ultimate objective.

Delivery of Courses

Once again, we note that the delivery method selected for a course, curriculum or model is heavily dependant upon the learning objective. Efficiency, convenience, and effectiveness are key issues in determining method of delivery and the location of a training program or course. If it is cost-effective to bring participants to a central location or school-site and if it does not compromise the participant's ability to perform the tasks, activities, or skills when they return to the environment where the information must be applied, centralized or regionalized instruction is often appropriate. If work-site skills and activities are of highest importance, and it is efficient to transport the instructional-delivery to the participant, this is the best, most effective method. Efficiency and effectiveness are sometimes incompatible. A professional and properly conducted train-the-trainer program can accommodate both. It must, however, clearly define the expectations, measure the participants against the expectations, teach the participants, and evaluate their abilities through demonstrations.

WMD training is particularly sensitive to issues associated with individualized instruction versus grouped instruction. Direct instruction, or the face-to-face interaction between the instructor and the learner is another category of delivery to be considered. It is the most frequently used method and can include lecture, discussion, problem-solving, role-playing, and other exercises. Higher level objectives require particular delivery methods to be effective.

Once again, we described the essential need to define performance levels or competencies if instruction is to be meaningful. Delivery methods for competency-based instruction may include individualized instruction while delivery methods for performance-based instruction may most often be grouped methods. Ideally, the instruction for performance-based learning would be group, work-site instruction, incorporating discussion, demonstration, and real-life experiences. Appendix 7 includes a Standard Operating Procedure which could be disseminated to organizations and agencies to guide them in framing the proper delivery method for a course or courses being developed.

Evaluating the Training

Throughout Part I we stressed the need to develop learning objectives in order to design, develop, and deliver the appropriate courses and information. We also discussed competency-based instruction and performance-based instruction as the preferred approaches in developing a curriculum. We have reaffirmed those principles in Part II of the strategy. If they have been accommodated, and objectives specified, the evaluation component of a curriculum or course in WMD is simple and straightforward. The only task remaining is to test the effectiveness of the method, the instruction, and the participants.

Assessing or evaluating the training program is one aspect of quality control. The assessment may address "process" issues, such as the efficiency of the program, the enrollment, the costs, the attendance, etc. Or the assessment of the program may address the impact of the program or course. Impact, or "product" is more difficult to judge but far more important. In WMD training, the impact

of a program can best be assessed through live exercises. This is often considered the penultimate test of a training initiative. Since its costs are typically high, other methods must be considered.

At the most elementary levels, a program can be assessed through questionnaires or surveys of participants to determine the degree to which they feel their knowledge, skills or abilities were enhanced by the training. If the curriculum and course has been established, designed, and developed properly, this would be a viable method. If the design or predicate of a course or program is in question, it may not be providing the appropriate instruction so the degree to which it is doing a bad thing well is not important.

Often the assessment of a program concerns the balance, scope, relevancy, sequencing, continuity, articulation, and transferability. Rather than construct a convoluted and complex method of assessing each of those variables, a training program or training component in WMD should be assessed periodically by a panel of independent experts to address each of those issues. Additionally, the ODP training initiative could empanel a "curriculum review board" or committee to assess programmatic issues, to include curriculum, periodically (quarterly, for example).

Assessing instructors should be a component of the course proposals. The qualifications of the instructors should serve as prima facie evidence of their ability. Other methods to assess instruction would include self-evaluation and end-of-course assessments by participants, reviewed by ODP and the "curriculum review board."

Assessing participants is sometimes ignored in professional training. The assumption is that professionals will know when they are receiving quality information and when they are not so it is sufficient to use end-of-course assessments that are ipsative. Another assumption sometimes associated with professional training is that the enrollment is a proxy for quality. If quality deteriorates, enrollment will suffer. Neither of these assumptions are necessarily true. Reluctance to assess participants should be interpreted as fear that "value-added" is insufficient. If courses are designed with objectives, and the objectives can be articulated, they can also be measured. If they can be measured, they should be done in a summative fashion. The two approaches in evaluating performance of participants are normative and criterion-referenced. Either will allow an assessment, not just of the participant, but of the course, the instruction, and the content. It may be that a course is too complex to accommodate the objectives and should be divided into modules with enabling objectives measured in each. Additionally, formative evaluation can be useful in assessing the course, curriculum and sequencing of objectives.

Revising the curriculum

The information gleaned in the assessment of program(s), instruction, and participants should feed back into the planning and design of the program and future courses. The "systems" approach to curriculum as well as strategic planning, both described in Part I, demand a feedback component. As suggested in the previous section, a "curriculum review board" or panel can consider the information from assessments, review the educational objectives, and make recommendations for program or course revisions. Additionally, the needs assessment process is an on-going one and may contribute new audiences and new needs to the process. The curriculum is likely to swell and

contract as the new needs are identified and others are determined to be satisfied or no longer appropriate.

As new needs are suggested within the area of WMD, they should be subjected to a review process which would include the following issues:

Does the need/audience fit within the mission statement?
How critical is the need/audience?
Can other existing courses accommodate the need/audience?
    If so, will its inclusion compromise existing offerings?
    If not, will it require inordinate resources to develop, balanced against the benefits?
What are the articulable reasons for inclusion?
What are the reasons for declining?
    (A process for submitting recommendations or requests to the Curriculum Review Board or panel would allow an external, objective assessment of these questions, along with a proposal including anticipated costs.)
What are the educational objectives of a new course?
What is the sequencing within the curriculum of such a course or audience?
What are the implications to the balance of the curriculum?

These questions and issues are used to exemplify the process which can be used to address and assess recommendations for additions but also could address recommendations for revisions.

We include in Appendix 9 a screening form which exemplifies the kinds of issues or questions which apply to existing courses as well as new courses and audiences.

There is, of course, other phases following the Germinal Phase. These will be transitional for the entire existence of the training and educational initiative. We do not suggest the direction these phases will go, only that they will exist and the curriculum will always be in a transitional or developmental period. If the theories, recommendations, and guidance provided by volumes of educational texts and articles are followed in the curricular process, the development will always be "appropriate."

Finally, we provide a set of questions, consistent with Part II which can be used in directing the development of the WMD curriculum. The questions represent a process, based on sound methodology, and we believe the questions will assist in the progression of the curriculum through the germinal or developmental phase. Process cannot nor should it attempt to take the place of experts on topics related to WMD, but a defensible curriculum development process can be a critical and valuable adjunct to that expertise.

Critical Questions in Developing the WMD Curriculum Process

There are five overarching questions to be addressed in the development of WMD courses and curricula. They are:

- Who should be trained?

- What tasks should they be able to perform?
- Which training delivery/instruction methods and training sites need to be paired with which tasks to maximize success in training?
- What methods are the most capable of evaluating competency and performance upon completion of training?
- What gaps need to be remedied in existing training to assure consistency with the findings of *The Training Strategy*?

In answering those questions, the strategic planning process compels us to answer other relevant questions:

What is the "Mission" or Statement of Purpose of the training initiative?
(Methods-Committee, panel, experts, nominal group, strategic planning workshops. Purpose: To give direction, focus, and parameters to the training initiative.)

How can we reliably and validly assess the answers to each of the following?

What "disciplines" or agencies represent the targeted learners?

What are the knowledge, skills, and abilities desired of the targeted learners?

What do we expect each discipline, by function, to be able to do (ultimate objectives)?

What intermediate tasks are performed by each category of targeted learners (enabling objectives)?

What are the existing training levels of each category of the targeted learners?

What are the gaps, deficiencies, and needs which can be addressed in training?

(Methods-Discussions, interviews, Delphi panels, questionnaires, task analysis, direct observation, proficiency tests, audits, strategic planning. Purpose: To determine the type and amount of training needed for each group and category of targeted learners.)

Is the training performance-based, competency-based, or non-specific in its outcome?
(Method-Excerpted from ultimate objectives. Purpose: To orient the objective to the proper domain - cognitive, affective, psychomotor)

Within the three domains, what are the "learning objectives" for each group and category of targeted learners?
(Method-Excerpted from ultimate objectives. Purposes: Assists in Ordering Goals and Objectives, Progression of Courses, Determination of Competencies, Starting Points and Entry Points for Learners, Courses Skipped or Tested-out, Evaluating Participants and Courses, Revising Curriculum, Determining Training Delivery Techniques and Locations)

What courses can be offered to address the needs of each group and category of targeted learners (approved for offering based on consistency with learning objectives)?
(Method-Scanning existing courses in companion disciplines, developing new courses, requests for proposals for courses. Purpose: Meets a proven need with appropriate course work)

What is the appropriate sequencing of courses, by category and group of targeted learners, so that the objectives "spiral" from the simplest to the most complex?
(Method- Utilizing enabling objectives and ultimate objectives, sequence activities within categories, based on complexity - simple to complex. Purpose: Assists in organizing the curriculum, modules, and assessments.)

How is each course to be delivered so that it accomplishes the learning objectives in the most convenient, cost-effective method? (Method-Plot the learning objective in the matrix of delivery methods, considering direct instruction and distance instruction, work-site and school-site. Purpose: Provide the most effective and efficient instructional method)

What are the evaluation components of each course? (Method-Insure that courses/programs, instruction/instructors, and participants are evaluated, using learning objectives as the product measures; for entire initiative, exercises or live simulations should be used to test impact of training holistically. Purpose: Unless courses, instruction, and participants are assessed, there is no evidence that the courses, instruction, and programs are accomplishing their purposes or objectives)

What strategies insure that evaluation will feed back into revision of courses and curricular planning? (Method-Empanel a Curriculum Review Board to convene periodically as well as an objective panel of experts to assess courses and curricula. Curriculum Review Board should be the key element in revision and addition. Purpose: Complete the defensible process for curriculum design, development, delivery, evaluation, and revision)

Notes to Phase II

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5. Ibid.

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