

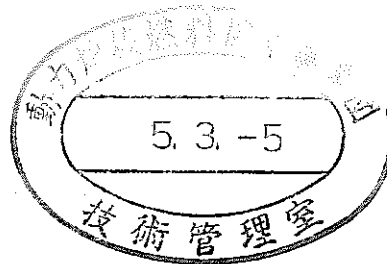
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# PRESENTATION MANAGEMENT RESEARCH IN PNC



JANUARY , 1993

## PRESENTATION MANAGEMENT RESEARCH PROGRAM

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## PRESENTATION MANAGEMENT RESEARCH IN PNC

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### Abstract

PNC is appointed as central promoting organization for the R&D's in the policy stage (2nd stage) of HLW waste disposal which target the selection of candidate disposal sites. And PNC has been made extensive R&D works to establish the technology for geologic disposal. In promoting the R&D's, it has been recognized as quite important that we must proceed the R & D activities on the base of sufficient understanding of them from the societies.

To think about the characteristic features of geologic disposal R&D's, we need other kind of approaches in addition to the experiences accumulated in the common fields of nuclear R&D's.

In a short, it is quite important to catch the anxieties or questions shared by the people and to respond them exactly.

Present activities of Presentation Management Research Program to get understanding of geologic disposal R&D's from the societies are shown briefly in this paper.

\* Presentation Management Research Program  
Radioactive Waste Management Project

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## 1. High Level Radioactive Waste Management in Japan

### 1-1. Primary Organizations for Research and Development on Nuclear Waste Management in Japan

Basic guidelines on radioactive waste management are determined by the Atomic Energy Commission(AEC) and the Nuclear Safety Commission(NSC). The Atomic Energy Commission is responsible for the planning and determination of basic policy on radioactive waste management. The Nuclear Safety Commission is responsible for the planning and determination of matters concerning safety criteria and regulations.

The Science and Technology Agency(STA) implements licensing for waste management and waste burial based on "The Law for Regulation of Nuclear Source Material and Reactors".

PNC has a role to make research and developments on High Level Radioactive Waste and Transuranium Waste management under the supervision of STA.

### 1-2. Fundamental Policy for High-Level Radioactive Waste Disposal

The fundamental policy is to vitrify high level radioactive wastes into a stable form,store it for 30~50 years for cooling,and then put it into a geological formation deeper than several hundred meters. In addition to the vitrified wastes from the reprocessing plant of PNC,those from the commercial reprocessing plant (planned to be built at Rokkasho-mura,Aomori Prefecture,by the Japan Nuclear Fuel Limited),and those which are returned from overseas are expected to be disposed of in the geological formation.

### 1-3. Four Stages for Geologic Disposal

This geologic disposal is to be performed in four stages:

- (1) Selection of acceptable geological formations(1st stage-completed in 1984 Fiscal Year with the conclusion :it is widely feasible to select the potential geological formations.)
- (2) Selection of the candidate disposal sites(2nd stage:R&D's aiming to establish the geologic disposal technology and the investigation to assess the applicability of the geological environments-underway) Candidate disposal site will be selected by the responsible organization for disposal business which shall be assigned by the government at an appropriate time.
- (3) Demonstration of disposal technology at the candidate site(3rd stage)
- (4) Construction,operation and closure of the disposal facilities(4th stage).

Also these two phases are to be implemented by the responsible organization . And now it is assumed that operation target will be between late 2030's and mid 2040's.

#### 1-4. Present Situation

##### (1) Waste treatment

Research and development activities related to the safety and reliability of the vitrification system has been undertaken in PNC.On the basis of the results achieved, PNC constructed a vitrification facility named TVF targeted to start hot operation in 1994.

##### (2) Geologic Disposal

The 1st stage,selection of acceptable geological formations,was completed in 1984. Currently the 2nd stage is underway. In this stage, PNC, as a central promoting organization,has been made extensive research and development works to establish the technology for geologic disposal.

On September 30, PNC presented a progress report on the R&D's of a geologic disposal system to a conference of scientists and technicians representing the Japanese government and related sectors. The report called H-3 summarizes the research to date and details PNC's current plans for a multibarrier approach that combines an engineered barrier system with natural geologic barriers.

## 2. Organization Charged in PNC

In PNC Radioactive Waste Management Project(RWMP) is the responsible division charged for R&D of waste management. This RWMP(H. Q) is composed of 5 groups. They are 1) Co-ordination Section, 2) Conditioning Research Program(responsible for treatment and storage research), 3) Isolation System Research Program(responsible for isolation system research of waste disposal), 4) Geosciences Research Program(responsible for geoscience research and investigation on geological environment), 5) Presentation Management Research Program.(this is the target of this paper).

Last three groups are mainly involved in the disposal R&D's.

## 3. Need of Presentation Management Research

### 3-1. Features of Disposal Research and Development

- (1) In promoting the R&D's of geologic disposal, it has been recognized as quite important that we must proceed the R&D activities on the base of sufficient understanding of them from the public.
- (2) Here we need to notice that R&D's of geologic disposal have the following characteristic features.
  - 1) When we treat HLW, disposal R&D's are composed of engineered part and natural part.
  - 2) Different from other R&D's in nuclear fields, disposal R&D's are the researches of waste isolation into the deep geological formation.

- 3) They cover quite long period of time.
- (3) So, PNC, as the central promoting organization, needs to show the basic concepts, procedures and results of R&D's to society timely in an exact and active manner and try to get the understanding from them.
- (4) To win the understanding from the target society, we need other kind of approaches, in addition to much experiences accumulated in the common fields of nuclear R&D's.
- In a short, it is quite important to catch the anxieties or questions shared by the people and to respond them exactly.

### 3-2. Principal Views of Presentation Management Research in PNC

- (1) We define the Presentation Management Research as research to get understanding of R&D's of geologic disposal from the Society. And we break it into two basic subjects.
- (2) At present, we suppose the main target society as related sectors such as experts, central and local government, utilities and industries etc which have influential power on the R&D's themselves.

## 4. Practical Images of Presentation Management Research

### 4-1. General Content of Presentation Management Research

We recognize fully the limitation of our activities.

But at present, two basic subjects in our researches are as follows,

(1) Research on Information and communication

Along with various requisites obtained through the researches on society, we complete the fundamental data to give plain information and the sametime design the information materials such as pamphlets or video tapes etc.

Moreover, we need to investigate effective communication techniques and also the monitoring methods to measure the information



effect.

## (2) Research on Society around the R&D

We analyse the response shown in communications to grasp the consciousness or needs to disposal R&D's and then seek the necessary requisites for understanding of R&D's from the society.

## 4-2. Flow Scheme of Presentation Management Research

Here the summarized flow of Presentation Management Research in PNC is briefly shown. R&D's of geologic disposal are executed through these guidelines and achieved results become original input to Research on Information of PMRP to send out produced informations to society. On the other hand, responses to informations and also the related trends are to be analysed in this research domain and their results will become inputs along these arrows to make the feedback loop.

## 5. Review of Activities

### 5-1. Research on Information and Communication

Outputs from the research on the information materials and their communication in these several years are as follows.

#### (1) Production of Information Materials

We have made written forms (pamphlets, leaflets, text etc), visual forms (video tapes for general and H-3 report) and others (handy model, long scroll)

#### (2) Investigation of Communication Techniques

Analysis of the communication rhetoric used by anti-nuclear group was made.

#### (3) Monitoring of communication Effect

Analysis of responses obtained from questionnaires designed for each videos above have been made.

## 5-2. Research on Society around the R&D

### (1) Overseas

#### 1) Overseas PA Trends about Geologic Disposal

We have continued surveys on the developing policy, planning, regulation, underground laboratory, PA strategies etc.

#### 2) Information and Communication

To get useful lessons, surveys were made on the preceding examples of informations and their communications(those in SKB,NAGRA, AECL etc.)

#### 3) Risk Communication and Risk Management

And also to get the nature of risk perception gaps, some examples were surveyed mainly on the environmental risks as Risk Communication and Risk Management.

### (2) Domestic survey

To examine the applicability of lessons learned from overseas investigations, important crosscheckings are made as follows.

#### 1) Practical Analysis of Risk Management and Risk Communication on NIMBY Facility.

We took the example of incineration of hazardous PCB liquid.

The results show that citizens recognize the necessity of high technology-related facilities but, on the other hand, feel the danger of facility operation and inequity of siting of location.

Effective actions, which contribute to improving public acceptance, are 1) step-wise incineration practice with the plan-do-see cycle, 2) faithful responses by the industry and local committee in accidents, and 3) public involvement system based environmental monitoring system. It is found that the feeling of NIMBY is relatively weakened by cautious execution of those.

## 6. Future Scope

PA aspects of R&D on geologic disposal are assumed to change, we must make careful and faithful handling of information, including the continued monitoring of related overseas trends. The general direction will be following.

### (1) To Prepare & Execute the Strategic Information Program

Communication of geologic disposal information has the character to exceed the traditional public information activities. To improve the risk perception of R&D's, we must send out the suitable informations to related society in a systematic and strategic manner.

### (2) To Grade Up The Information For Each Selected Target

Make much more effective informations and their communications considering the independent key factors of the information flow:

1)Who ?, 2)What ?, 3)To whom ?, 4)How ?, 5)What effect ?, 6) Sent out ?

# OVERVIEW OF PRESENTATION

1. HIGH LEVEL WASTE MANAGEMENT IN JAPAN  
POLICY, PROCEDURE, PRESENT SITUATION
2. ORGANIZATION CHARGED IN PNC
3. NEED OF PRESENTATION MANAGEMENT RESEARCH
4. SCOPE OF PRESENTATION MANAGEMENT RESEARCH
5. REVIEW OF ACTIVITIES

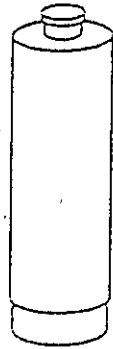


# 1-2. FUNDAMENTAL POLICY FOR HIGH-LEVEL RADIOACTIVE WASTE

10

## VITRIFIED WASTE

VITRIFICATION  
OF HLLW



STORAGE  
FOR COOLING



GEOLOGIC  
DISPOSAL

REPRO. PLANT(PNC)  
REPRO. PLANT(JNFL)  
CONTRACT. REPRO(OVERSEAS)

(30~50YEARS)

[ DEEPER THAN  
SEVERAL HUNDRED  
METERS ]

1-3. FOUR STAGES FOR GEOLOGIC DISPOSAL

1ST STAGE  
↓

SELECTION OF ACCEPTABLE  
GEOLOGICAL FORMATIONS  
(COMPLETED IN 1984 FISCAL YEAR)

2ND STAGE  
↓

SELECTION OF CANDIDATE DISPOSAL SITES

3RD STAGE  
↓

DEMONSTRATION OF DISPOSAL TECHNOLOGY  
AT THE CANDIDATE DISPOSAL SITE

4TH STAGE

CONSTRUCTION, OPERATION AND  
CLOSURE OF THE DISPOSAL FACILITY

## 1-4. PRESENT SITUATION

### 1. WASTE TREATMENT

#### ① VITRIFICATION FACILITY

(TARGETED TO START HOT OPERATION IN 1994)

### 2. HLW GEOLOGIC DISPOSAL

#### ① NOW IN 2ND STAGE (STARTED IN 1985)

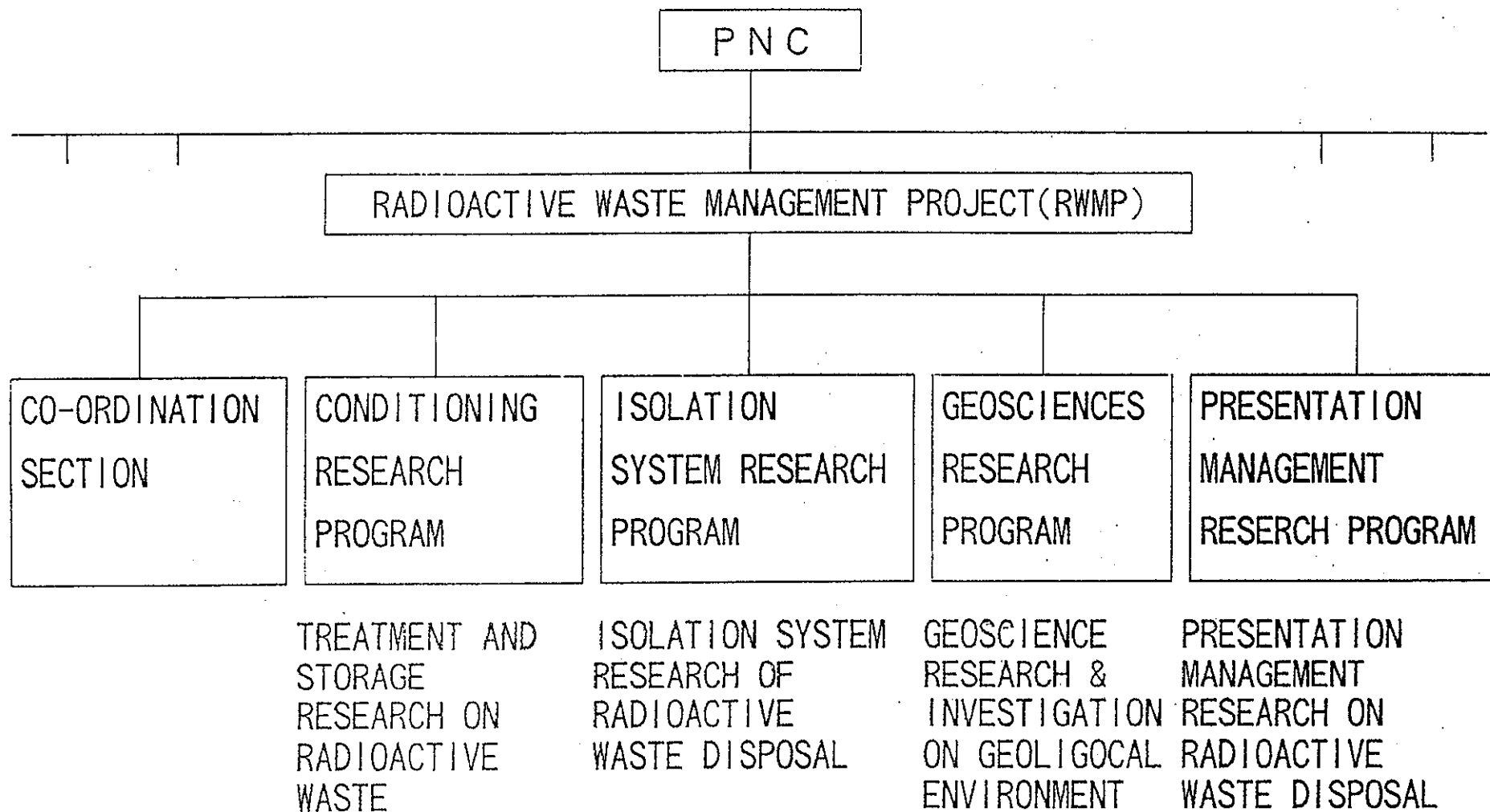
(PNC IS THE CENTRAL PROMOTING ORGANIZATION OF R&D)

#### ② PROGRESS REPORT ON THE R&D OF GEOLOGIC DISPOSAL

(PRESENTED BY PNC ON SEPT. 30. 1992)



## 2. ORGANIZATION CHARGED IN PNC

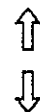


### 3-1. FEATURES OF DISPOSAL RESEARCH & DEVELOPMENT

GAP



	R&D OF GEOLOGIC DISPOSAL	R&D OF OTHER NUCLEAR ENERGY
1.	DEEP UNDERGROUND	GROUND
2.	INVISIBLE	VISIBLE
3.	10,000 YEARS	SEVERAL DECADES
4.	SUBMIT TO NATURAL CONTROL	HUMAN CONTROL
5.	ENGINEERING + NATURAL	ENGINEERING
6.	NO DIRECT DEMONSTRATION	DIRECT DEMONSTRATION
7.	NO PRECEDING EXAMPLE	WITH PRECEDING EXAMPLE
8.	NO POSITIVE IMAGE	WITH POSITIVE IMAGE



GAP

GENERAL INDUSTRIES

3-2. PRINCIPAL VIEWS OF PRESENTATION MANAGEMENT  
RESEARCH OF PNC

TO PROMOTE THE SMOOTH R&D

- ① SEND OUT THE SUITABLE INFORMATIONS
- ② TO SOCIETY (MAINLY RELATED SECTORS)
- ③ GET UNDERSTANDINGS OF R&D FROM SOCIETY



TWO MAIN TASKS

- ① RESEARCH ON INFORMATION AND COMMUNICATION
- ② RESEARCH ON SOCIETY AROUND THE R&D

#### 4-1. GENERAL CONTENTS OF PRESENTATION MANAGEMENT RESEARCH

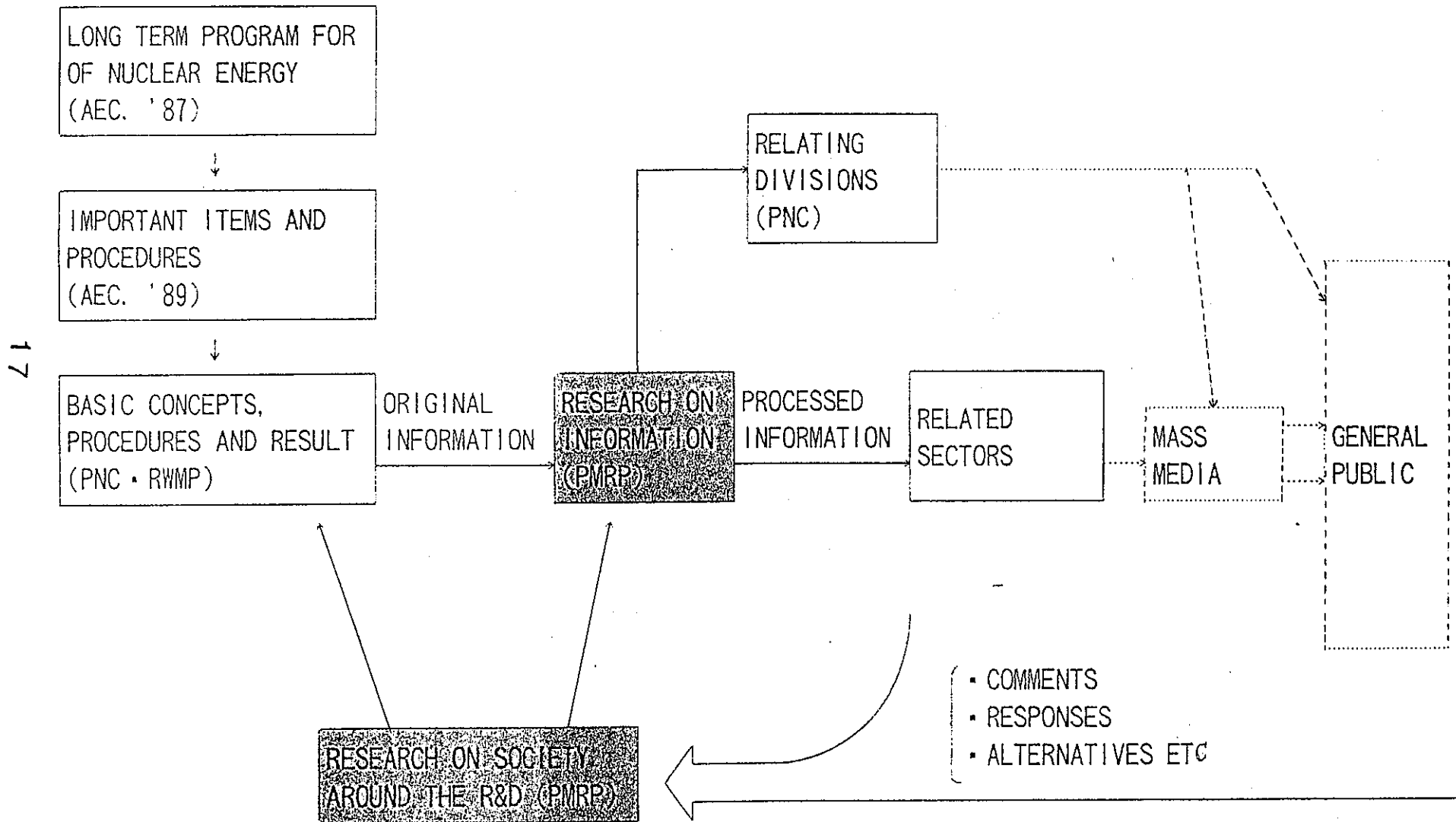
##### 1. RESEARCH ON INFORMATION AND COMMUNICATION

- ① INFORMATION MATERIALS
- ② COMMUNICATION TECHNIQUES
- ③ MONITORING OF COMMUNICATION EFFECTS

##### 2. RESEARCH ON SOCIETY AROUND THE R&D

- ① SOCIETY'S CONSCIOUSNESS, NEEDS, AND BEHAVIORS ABOUT R&D

## 4-2. FLOW SCHEME OF PRESENTATION MANAGEMENT RESEARCH



## 5-1. REVIEW OF ACTIVITIES

### [1] RESEARCH ON INFORMATION

#### (1) PRODUCTION OF INFORMATION MATERIALS

- ① VIDEO (HOW DO WE TREAT THE WASTE FROM N. P GENERATION)
- ② VIDEO (RESEARCH ON THE GEOLOGICAL DISPOSAL OF HLW ; FOR H-3 REPORT)
- ③ HANDY MODEL (MULTI BARRIER SYSTEM)
- ④ SCROLL (TO SHOW THE FEELING OF DEPTH)
- ⑤ TEXT (RADIOACTIVE WASTE MANAGEMENT - FOR LOCAL GOVERNMENT)
- ⑥ PAMPHLET, LEAFLET (FOR H-3 REPORT ETC)

#### (2) INVESTIGATION OF COMMUNICATION TECHNIQUES

- ① ANALYSIS OF COMMUNICATION RHETORIC BY ANTI-NUCLEAR GROUPS

#### (3) MONITORING OF COMMUNICATION EFFECT

- ① ANALYSIS OF RESPONSES OBTAINED FROM QUESTIONNAIRE DESIGNED FOR EACH VIDEOS ETC.

## 5-2. REVIEW OF ACTIVITIES

### [2] RESEARCH ON SOCIETY AROUND THE R&D

#### (1) OVERSEAS

##### ① OVERSEAS PA TRENDS ON GEOLOGIC DISPOSAL

(POLICY, PLAN, REGULATION, URL, STRATEGY ETC)

##### ② INFORMATION AND COMMUNICATION

(KBS REPORT, PROJECT GEWÄHR ETC)

##### ③ RISK COMMUNICATION AND RISK MANAGEMENT

(PERCEPTION GAP BETWEEN EXPERTS AND GENERAL PUBLIC)

#### (2) DOMESTIC

##### ① PRACTICAL ANALYSIS OF RISK MANAGEMENT ON NIMBY FACILITIES

(IN THE EVENT OF INCINERATION OF HAZARDOUS PCB LIQUID)