

“PIME2005”

第17回原子力コミュニケーター国際会議

(会議報告)

2005年4月

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2005

“PIME2005”第 17 回原子力コミュニケーター国際会議

(会議報告)

菖蒲信博、高下浩文

要 旨

平成 17 年 2 月 13 日から 16 日、フランス パリ市内の Chimie 会館において、欧州原子力学会主催の PIME2005 (Public Information Materials Exchange 2005) が開催された。筆者らはこの国際会議に出席し、サイクル機構東海事業所で実践してきたリスクコミュニケーションの事例について報告及び意見交換を行った。また、伴わせて欧州の原子力事業者や原子力関連機関の広報活動事例について情報収集を行った。本会議は全体セッション、ワークショップ、ポスターセッション、トレーニングセッションで構成されていた。

本報告では筆者らが参加したセッションの概要を報告する。

“PIME 2005”

17th international meeting of nuclear communicators

(Meeting Document)

Nobuhiro SHOBU, Hirofumi TAKASHITA

Abstract

The PIME2005 (“Public Information Materials Exchange 2005” 17th international meeting of nuclear communicators organised by European Nuclear Society in cooperation with the IAEA) was held at the Maison de la Chimie in Paris, France between February 13 and 16, 2005. The authors participated in the meeting and reported their contribution obtained in JNC Tokai Works, and exchange views on their activity. The PIME2005 meeting programme includes Plenary Session, Parallel Workshop, Poster Session and Hands-on Training Session.

This report describes overview of sessions in which they participated.

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添付資料 1 : 提出論文及び発表スライド

Strategic Risk Communication Activities of Tokai Works, JNC in Japan

添付資料 2 : 提出論文及びポスター

Direct dialogue with local residents: 'JNC friendly talk'

添付資料 3 : 提出論文及びポスター

Risk Information Navigator: Development of portal web site for improving of risk literacy

出張期間：平成 17 年 2 月 11 日（土）～19 日（土）

会議名称：“PIME2005”第 17 回原子力コミュニケーター国際会議

(Public Information Materials Exchange 2005,

17th international meeting of nuclear communicators)

会議開催期間：平成 17 年 2 月 13～16 日

開催場所：フランス パリ市内 Chimie 会館

1. 会議概要

PIME（パймと呼ばれている）は、欧州原子力学会（European Nuclear Society）が主催する国際会議である。本会議の主な目的は、欧州各国の原子力事業者・機関の広報手法、活動状況等について情報交換を行うことである。

今回は 17 回目で約 200 名の参加があった。本会議は全体セッション、ワークショップ、ポスターセッション及び実践型トレーニングセッションで構成されていた。

プログラムの詳細については、欧州原子力学会 PIME 事務局が運営しているウェブサイト（<http://www.euronuclear.org/events/pime/pime2005/progweb.pdf>）を参照されたい。筆者らは全体セッション、ワークショップ及びポスターセッションに出席し、サイクル機構東海事業所で実践してきたリスクコミュニケーションについて次の表題で報告及び意見交換を行うとともに、欧州の原子力事業所や原子力関連機関の広報活動事例について情報収集を行った。

(1) ワークショップでの口頭発表：Strategic Risk Communication Activities of Tokai Works, JNC in Japan

(2) ポスターセッションでのプレゼンテーション：

①Direct dialogue with local residents: 'JNC friendly talk'

②Risk Information Navigator: Development of portal web site for improving of risk literacy

2. 会議の内容

(1) 全体セッション

全体セッションの概要を以下のとおり報告する。

初日目は、まず温室効果ガス排出量の動向と今後の見通しについて基調講演があった。本年 2 月 16 日京都議定書が国際法として発効することを配慮した情報提供と推察される。次に”Energy Experts Campaign”と題して AREVA 社が実施した広告キャンペーンについての報告があった。AREVA グループの戦略変更及びスコープをターゲットオーディエンスに知らせ、異なるエネルギー業界の AREVA グループの専門的技術価値を知らしめることを目的としていた。実際のキャンペーンは、2004 年に欧州、米国及びアジアの 110 カ国に対して実施された。TV-CM、広告紙、TV ショー、ウェブバ

ーナー、航空会社を通じたフィルム上映などの様々な手法が用いられた。その結果、特に社名については、自国であるフランスのオピニオンリーダーはもとより、英国、米国及び中国のオピニオンリーダーにも認知されたとの意識調査結果が示された。次にパネルディスカッション形式でドイツ、スウェーデン、英国及びハンガリーの原子力に対する公衆の意識の推移などが紹介された。いずれの国も原子力に対する支持は意外と低くなかった。英国が示した信頼度のランキングに政府、事業者、メディアが低いという結果については日本と類似していた。次にマスメディア業界からは、BBCの“大停電が起きた場合”と題したTVシリーズの上映があった。これはテレビの力を利用するだけでなく、公衆の関心や議論を促進するために、原子力発電の必要性を恐怖喚起する内容となっていたので、業界人には違和感ないかもしれないが、心理学の観点では広く公衆に有効かどうかは議論の余地があると著者は考える。

2日目は、まず、米国及び中国より原子力エネルギーの最先端と題して報告があった。米国の20年間の原子力発電の需要及び単価の推移が示され、原子力が年々大きく寄与していることが示されるとともに、意識調査から公衆意識が年々ポジティブに動向している様子が示された。その他ユッカマウンテインプロジェクトの現状について紹介があった。中国については将来20年にわたり原子力エネルギーの需要が増大するとの見通しが示され、トピックとして中国初の高温ガスタイプの試験研究炉 HTR-10 の建設及び運転状況について、現場で行われた各種安全検査の映像を導入しつつ紹介があった。次に IAEA よりクライシスコミュニケーションと題して、これまでの核災害やテロの経験から得た教訓について紹介があった。例えば間違った情報が修正されにくいこと、電話回線がすぐにパンクすること、災害時の住民の安全の基準が不明確なことなど各国に共通する事項のほか、多言語を使う国では現地情報が読めない人への対策を備えるべきとの指摘があった。次にフランス CEA より本年4月に公開する放射性廃棄物に関連したビジターセンターの進捗状況について紹介があった。本情報は国内でも地下研究所や処分場の展示館を建設する場合には参考になると思える。次に EU の情報公開及び公衆関与の動向として、オルフス条約及び改正 EU 法の新指令について報告があった。オルフス条約は、環境情報の入手、環境問題に係る意思決定段階での公衆参加及び司法制度の利用という3つの権利を謳っており2001年10月に発効となった。なお、オルフス条約の名称は1998年6月デンマークのオルフス町でヨーロッパ経済委員会が本条約を採択したことによるものと思われる。EUはこの条約に調印したことに伴い EU 法規制の改正及び EIA 指令（環境影響アセスメントに係る指令）の修正をすることになった。これを受け、原子力業界ではこの仕組みを公衆に知らしめることを失敗、あるいは意思決定段階で公衆を関与させることに失敗すれば、事業の遅延だけでなく取り消しといった訴訟も起きるであろうとしている。つぎに放射性廃棄物管理の社会的側面の経験を共有、効果的対話を探求するために設立された NEA の「廃棄物発生者や規制当局などの関係者のフォーラム」(FSC) の事務局から、その会合で

得られた成果などについて報告があった。特に信頼確保が上手くいく秘訣について、組織の観点では、主体性を持っていること、社内の強い信頼関係と団結があること、自己評価の積極的取り組みをしていること、専門分野として品質と技能が高いレベルを有していることなど、ミッションという観点では、明確な権限と目的があり、管理プランがあることなど、組織姿勢という観点では、公開性、透明性、誠実性、一貫性、対話に向けた活発な研究、ステークホルダーの意見傾聴と回答する意思、動機付けられたスタッフの参加意欲があることとしている。最後に放射性廃棄物管理委員会(RWMC)の主催者から欧州における住民参画に係る取り組みについて紹介があった。特に参考になる活動については、TRUSTNET 組織、COWAM(Community Waste Management) 及び RISCOM プロジェクトの事例であった。TRUSTNET は欧州委員会が支援するネットワーク組織で、北米・欧州の国家レベルの有名な権威者、NGO、産業からの意思決定者、専門家(リスク評価、健康、政治、社会学、心理学、経済学、法律、倫理)などから構成され、リスクガバナンスを検討するために立ち上げられたネットワーク組織である。TRUSTNET が掲げる方法論については調査する必要がある。COWAM 及び RISCOM については欧州委員会の包括プログラムの一環で進められたプロジェクトで、上記の FSC と同様に放射性廃棄物管理に係る意思決定過程の住民参画と住民との対話についての方法論を検討している。従って既にそれぞれで得られた知見については別途整理する必要がある。

最終日は、まず全ワークショップの総括がそれぞれのモデレーターから数分程度紹介され情報共有が図られた。続いて今年から始まった PIME 受賞セレモニーにおいては、ハンガリー原子力研究所(AEKI)がフェスティバルの中で取り組んでいる数十万人の若年層に向けた対話活動が受賞対象として紹介された。次にフランス原子力学会の立場で原子力業界の動向と学会の役割について紹介があった。学会から見た喫緊の課題は、第3世代新型原子炉と呼ばれている欧州加圧水型炉(EPR)設置と高レベル放射性廃棄物管理であるとしている。AREVA より EPR に関する国内外のコミュニケーション活動実績について紹介があった。国内では2003年より始まったエネルギー政策決定プロセスに国民を参加させる政府主導の“エネルギー公開討論(The French Energy Debate)”，議会の“科学技術評価局(OPECST)”などへの情報提供、国外でも世界エネルギー会議(WEC)、国際メディア、TV番組などを介し幅広く実施している様子が窺えた。EDF より EPR 決定の背景に関連して2003年より原子力エネルギー利用に対する公衆意識はポジティブになっている調査結果が示された。次に AREVA ユーロディフ社よりジョージ・ベス濃縮工場における公開討論(Public Debate)の結果について報告があった。討論会では住民と事業者の利益を議論できたこと、リスクの受け入れというより経済的機会として見られるようになったこと、環境団体の存在がなかったなどとその成果が強調されていた。最後にフランス原子力業界を代表する CEA、ANDRA、EDF 及び AREVA の広報担当責任者の立場で放射性廃棄物管理に関する解決

に向けたポリシーが述べられ全体セッションは幕を閉じた。

(2) ワークショップ

パラレル形式で 8 つのワークショップが開催された。そのうち、筆者らが出席したのは以下の 3 件である。ここでは参加者に当日配布された Transactions 及び会議中での意見交換をもとにその要点を報告する。

① “Local communications and the role of visitor centres” セッション

まず、筆者(高下)からは “Strategic Risk Communication Activities of Tokai Works, JNC in Japan” と題して東海事業所における戦略的なリスクコミュニケーション活動事例の報告を行ったが詳細については後述する。

次に、スロバキア共和国スロバキア電力の Petrech コミュニケーション課長及びフランス EDF ダンピエール原子力発電所の Thome-Jassaud コミュニケーションマネージャーより、“Twinning programme between Dampierre and Mochovce NPPS” と題してダンピエール原子力発電所及びモホフチェ原子力発電所の結合プログラムの進捗について報告があった。本プロジェクトは数年前 WANO（世界原子力発電事業者協会）が異なる国々の発電所間におけるスタッフの技術情報、経験、様々な部門の知識の共有化を促進するために立ち上げたものである。このプロジェクトを通じて特に広報部門では次に示す徹底的な開発があったとしている。1 つは安全事項、環境影響、社会的方策など様々な情報を提供する新聞が両発電所間で毎月発行され情報交換が促進したこと、2 つめはビジターセンターの開設を契機に効果的な広報手法の情報交換ができたこと、3 つめはダンピエール発電所スタッフがバイクツアーを両発電所間（8 日間で 1600 km）で実施したことにより、モホフチェ発電所スタッフだけでなくダンピエール村長からの歓迎を受ける運びになったこと、4 つめはモホフチェ発電所スタッフがダンピエール側で主催した様々な部門のスタッフが結集する団結日 “Solidarity day” に参加し、“Solidarity day” が内部スタッフ間の交流を深めるものとして非常に有益であったとしている。報告者は同プロジェクトを通じ双方の技術部門のみならず、人間関係、ひいては広報部門へのポジティブな影響を与えると表明した。

最後に、スウェーデン SKB の Odehn 報道メディア対応マネージャーらより、“Local communications on site investigations in Oskarshamn and Osthammar” と題してサイト調査段階におけるオスカーシャム及びエストハンメル地域住民との対話活動の報告があった。SKB は高レベル放射性廃棄物（ここでは使用済燃料）の最終処分場選定において、社会と住民の信頼確保が「岩盤選定と安全確保」、「技術的信頼性と環境保全」それぞれ同様に重要なファクターと考えている。一般住民、特に事業所の周辺住民や地主などの関心層には多くの時間をかけコミュニケーションを実施した。コミュニケーション方法としては住民の環境へ出向く方法（例えば当日のプレゼンテーションではトラックを運転している住民に直接交渉し情報提供している模様を示す写真が提示され、その積極的

なやり方が筆者の脳裏に非常に印象的に残った)と事業所内施設に住民を招待する方法がある。目標は事業所にできるだけ多くの住民が訪問するようにすることであるとし、使用済燃料中間貯蔵施設 (CLAB)、低・中レベル廃棄物処分場 (SFR) 及びエスポ岩石研究所への積極的な訪問計画を実行した。報告者は通常 10 人以上の団体を施設訪問として受け入れることにしているが、サマータイムには特別にエスポ岩石研究所及び SFR への訪問を個人レベルで受け入れたことで非常に好印象を得ることができたとその成果を強調していた。

②“Stakeholder dialogue”セッション

まず、フランス AREVA の広報部門の責任者である Gallot 氏より、“AREVA Dialogue and consensus-building policy”と題して AREVA が開発した「対話と合意形成」方策についての報告があった。AREVA は 2001 年設立された政府の持ち株会社である。AREVA は環境、経済及び社会的側面をトリプルボトムラインとして企業経営を開発推進するサステナビリティ開発方針を企業戦略として打ち出し、AREVA-way と呼ばれる管理手法の一端として上記の表題を位置づけていた。フランスの原子力業界では古くからステークホルダーと対話することは有益でない、むしろ有害であるとさえ見なされ、ある時にはステークホルダーを強硬な反対派に過ぎないと決め付けていたようである。今日ではこのような企業姿勢は建設的かつ有益でないということが常識となっている。AREVA が定義するステークホルダーとは、AREVA の業務に関心を持ち利害関係がある全ての人として、いる。ステークホルダーを明確にすることはさることながら、企業は社会に対して果たすべき役割と責任を説明することも重要であるとしている。対話は企業のプラスイメージを与えるだけでなく、投資家を引き付け、企業事業の受容を実現することにも繋がる良い手法とも捉えることができる。特に企業責任（一般には CSR : Corporate Social Responsibility といわれる）に関する格付け機関がある場合は考慮すべきであるとしている。結果としてステークホルダーとの戦略的対話は全ての住民との対話に相当するものとなり、企業運営として経済性かつ効率性も生み出すことになるとの考えが示された。最後に昨今立ち上げられた次に示す 2 つの開発プロジェクトについて紹介があった。一つは形式的な「ステークホルダーセッション」と呼ばれるもので、会議運営の独立性及び円滑な進行を狙い外部の仲介者を立てた双方向の対話プロジェクトである。さらにもう一方はローカルに踏み込んだ「AREVA と外部ステークホルダーとの関係測定」と呼ばれるもので、前述した「対話と合意形成」方策では双方関係の評価が十分できないことに対し、同プロジェクトは双方関係を評価、強化及び構築化を目指す管理方策で、その成果はそれらを支援する測定手法の詳述としている。この手法は科学的ではないが管理ツールと位置づけられ、より透明性のある対話という観点で戦略を策定するマネージャーにとっては重要な機会となり得ることを強調していた。

次に、イギリス UKAEA ドーンレイ・サイトの Love コミュニケーション課長補佐よ

り、“**Stakeholder involvement in the Dounreay site restoration plan (DSRP)**”と題してドーンレイ・サイトの環境復旧計画におけるステークホルダー関与の事例報告があった。イギリスのドーンレイ・サイトにおいては、サイト内施設の廃止措置を行う環境復旧計画（DSRP）を2000年に発表したが、当時ステークホルダーの関与がDSRPに欠落していたことが非難され、ステークホルダーとの関与及びその手続きについて検討することとなった。第1ステップとして、あらゆる公共場所にステークホルダー登録のための広告紙を設置、特に有名な人物や機関に対しては手紙を送付しステークホルダーへの登録を勧めた。現在でも鋭意ステークホルダーデータベースの更新を図っているようである。結果として2002年に住民関与を表明するニュースレターを発行するまでに至りDSRPの概要をここで周知することができた。さらに本紙では事業者が考えるステークホルダー関与の手法や基準案を提示するだけでなく、住民の立場で追加的にどのような属性が好条件あるいは重要なのかを尋ねる前向きなやり取りがあった。実際の住民関与は次の2つの段階で実行された。一つはステークホルダーパネルと呼ばれる独立したファシリテーターが運営（会議録も含む）する会合であった。ステークホルダーパネルでは内部スタッフと外部のステークホルダー向けに実施された。もう一つはステークホルダーパネルで議論された内容を「サマリーレポート」として取りまとめ、広く住民へ周知することである。同レポートは登録されたステークホルダーや地域図書館へ配布、ウェブ上でも公表された。なお、レポート以外に広報誌を通じてきめ細かに情報提供が実施されていた。そして2004年これらの一連の住民関与の取り組みは外部の独立した専門評価機関“Faulkland Associates”によって評価され、評価機関の忠告を参考に新たな展開を始めているようである。最後に今後とも“open and honest”をモットーに住民参画に力を注ぎ、特にステークホルダーへの情報提供を活発に実施していくとの表明があった。

3番目に、本ワークショップの共同主催者でもあるWINの西村理事より、“**WIN public confidence – Women in nuclear**”と題して原子力・放射線利用の業界の女性メンバーで構成される広報国際組織の活動報告があった。同組織は1993年欧州で設立され、年々加入も増え、現状60カ国2000名の会員規模となっている。同組織の活動は業界が抱える様々なテーマに関する広報素材について議論、意見交換等を中心としている。特に日本で昨年実施された2004年会合について詳しい紹介があった。今後の展開については、国際WINグループ設立に向けた国際支援、教育プログラム又は滞在研修の計画策定、講師又はパネリスト派遣、ネットワークを活用した情報交換などを通じて公衆の信頼構築及び理解促進に貢献していきたいとの表明があった。

最後に、日本原子力発電広報室の小川調査役より、“**Comparative study of various risks for life expressed by LLE in Japan and practical use of its results on PA**”と題して余命損失によって表現された様々なリスクの比較研究とその成果の広報活動への適用事例の報告があった。ピッツバーグ大学バーナードコーエン教授が提示している手法を参考にしつつ独自の評価方法も交え、昨今の日本人を対象とした日常の生活行為に伴うリスクと原

子力発電事業に伴うリスクを余命損失という形式でリスク評価を行った研究事例が示された。さらにその定量的比較を以て電力会社広報部門スタッフ、主婦、企業のマネージャー等を対象に実際に広報活動及びリスクコミュニケーションとして適用した取り組みが紹介された。報告者は本研究活動を通じて、原子力エネルギーは余命損失というよりクリーンかつ安定供給のエネルギー源としての恩恵があることを踏まえるとむしろ寿命延長に貢献しているかもしれないと指摘していた。また将来、原子力エネルギーへのリスク評価が入念に行われるべきと示唆していた。

③“Communication or education : Young people as a target audience”セッション

“Youngsters about Nuclear Energy”と題して、スロベニアのヨゼフ・ステファン研究所原子力トレーニングセンターの講師である Istenic 氏より、スロベニアの若者（14～15才）の原子力に対する世論調査結果が自然科学系の専門家（多くは原子力分野ではない）の結果と合わせて示された。リュブリャナ（スロベニアの首都）にある原子力情報センターを訪れる学校生徒（年間 7～8000 人）のうち、毎年 800 人程度のアンケート調査を実施しているそうである。2004 年は 992 人に回答してもらった。アンケートは原子力情報センターでの講演や展示を見聞きする前のバイアスがかかっていない状態で行われた。結果は次のように要約される。

- ・原子力のリスクは、若者と専門家の両方に過大評価されている。
- ・環境に最も危険なものとして、若者は放射性廃棄物を選んでいる。一方、専門家は河川、大気、土壌などの汚染や温室効果を選んでいる。
- ・原子力利用の障害として、若者と専門家は原子力の事故よりも使用済燃料の処分の方を挙げている人が多い。
- ・若者は原子力、放射線、放射性廃棄物の基本的な事実の理解が乏しい。
- ・若者は原子力の経済的な有利性は認識しているが、専門家が認識している環境への効果の認識はあまり持っていない。
- ・スロベニアの原子力発電に対する若者の意見は、原発の寿命まで運転すべきという意見が多いことから、好意的であると考えられる。

次に“Communication of Young Nuclear Specialists in Hungary”と題して、ハンガリーの KFKI 原子力研究所の Kulacsy 氏より、ハンガリーにおける原子力を取り巻く課題と Young Generation Network の取り組みについての説明があった。ハンガリーでは原子力専門家の高齢化が進み、若いスタッフが不足してきており、その結果、原子力の知識が若い世代に伝わらないこと、高度な原子力教育を受ける学生が減少していること、学校教育における原子力の威信の損失と原子力エネルギー論の情報不足などの課題がある。Young Generation Network の主な取り組みは、若い世代の人々をターゲットに原子力の情報と教育を提供することである。若い人達へのコミュニケーション方法として、メディアの利用、討論会、コンファレンス、講演会、直接対話（face to face）が示され、また、

教育方法として、先生への教育が示された。直接対話の機会として 1999 年から毎年ブダペストで開催されている Island Festival が紹介された。これはコンサート、バレエ、オペラ、ダンス、展示、スポーツイベントなどが行われ、数十万の人（大半は若者）が訪れる祭りである。Young Generation Network はこの祭りに参加し、多くの若者と対話した。昨年（2004 年）は 2000 人以上の若者にアンケートに答えてもらったとのことである。

3 番目に“**Developing relationships with pupils and teachers**”と題して、フランスの CEA コミュニケーション部門の Guillaume 部門長代理より、コミュニケーション部門が開始した”Pedagogical（教育学の）project”と呼ばれるプログラムが紹介された。フランスではこの 5 年間に大学において自然科学コースを専攻する学生数が 23% 落ち込み、理科離れが進んでいる。フランスでは教師が子供たちに科学への興味と好奇心を抱かせることを期待されているが、現状は教師の大部分は自然科学の教育を受けておらず、この役割を実行するのに支援が必要と感じている。そこで、CEA では研究者を先生に会わせたり、研究所訪問を企画したり、教育的なウェブサイトを提供したり、学校の教育プログラムと連携したりして、先生たちの支援に努めている。生徒に対しては、年齢に応じて異なる方法を探っている。年少の生徒に対しては、CEA の物理学者の援助のもとで、太陽に関する物語を創作している。10～14 才の子供にはエネルギーに関する遊び感覚の小冊子を、14～18 才の若者には原子に関する特集号を使っている。10 代の若者とその教師に対して、CEA は新しい教育小冊子を発行した。現在まで 13 の科学テーマを扱っている。また、CEA や放射能に関するトランプが入っている「放射能教育ウォレット」が発行されるそうである。放射能に関する漫画はすでに印刷され、学校の図書館員に送られている。「核融合教育ウォレット」も製作されているとのことである。更に、若者向けのウェブサイトを開発し、このサイトで生徒たちは宿題をするのに必要なテーマと情報を見つけることができ、また、科学学習漫画も利用できるとのことである。

4 番目に“**A COGEMA Project at the La Hague Site**”と題して、フランスの COGEMA の広報部長である Pernot 氏より、COGEMA が 2004 年から行っている「エネルギーと環境」というタイトルの教育コンセプトの発表があった。若い世代の人達にエネルギーと環境に関する自分達の消費と行動の責任ある態度を自覚させることをねらっている。活動は Manche 地域の小学校 1 年から最終学年までの全ての学童を対象に 2 段階で行っている。1 つは学校での市民会議で、異なるエネルギー資源を示し、その長所と短所を説明し、生徒たちに現在と未来のエネルギー需要を知ってもらい、エネルギー消費に関する責任感を持たせることである（時間は 2 時間）。もう 1 つはラ・アーグサイトに関する AREVA COGEMA の環境見学で、COGEMA の環境監視と環境保護のポリシーと共に再処理プラントの活動を見てもらい、生徒たちに環境を守る必要性を自覚してもらうことである（時間は 2 時間半）。化学実験、研究所の仕事、ゲーム、プラントを取り巻く環境の見学を提供し、生徒たちがテーマを理解しやすくしている。

最後に“**SUNRAY Project : Nuclear issues online course**”と題して、フィンランドの経

済情報事務所のウェブ広報部長である Alakoski 氏より、フィンランドにおける SUNRAY プロジェクトの中の原子力問題オンラインコースの紹介がなされた。原子力問題オンラインコースは、理科と数学の先生の補助教材として開発され、先生方に放射線についての新しい教育方法を提供している。このコースで放射線の種類、原子力発電所の仕組み、放射性廃棄物の最終処分などを学ぶことができる。各セッションにはオンラインで解答する練習問題があり、保存と印刷ができる。また、各テーマは理解しやすいようにアニメーションとシミュレーションが使われている。本コースをフィンランド中に普及させるために、全国に物理と化学の先生たちのネットワークを作り、彼らにオンラインコースを用いた2日間のトレーニングに参加してもらい、地元で彼らがオンラインコースを用いたトレーニングを実行するのに必要な情報を提供している。2002～2003年にはこのトレーニングに500人以上の先生が参加した。本トレーニングはフィンランドの先生たちにオンラインコースの教材を認知させるのに役立っており、多くの先生たちが放射線物理の教育にオンラインコースを取り入れている。原子力問題オンラインコースは学習を楽しくし、短期間で著しく生徒の放射線と原子核物理の知識を増加させる効果のあることが分かった。

3. 筆者の報告と意見交換

(1) Strategic Risk Communication Activities of Tokai Works, JNC in Japan

及び Direct dialogue with local residents: 'JNC friendly talk'

筆者（高下）が添付資料の発表スライドをもとに口頭発表、ポスターをもとに事例紹介を行った。ワークショップにおいては他の発表と比して多くの質問があり、我々の取り組みに対しての関心が大きく寄せられた。質疑応答の概要を以下に示す。

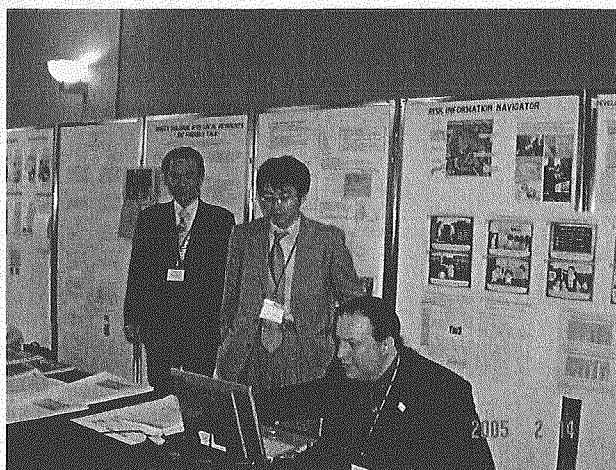


- ・フレンドリートークでの収客方法
⇒ 広告紙、案内状等を活用して告知している。
- ・PNC から JNC への組織変更に伴う印象変化 ⇒ PNC は「もんじゅ」事故とアスファルト固化処理施設の火災爆発事故を起こしたことで解体し JNC へと改組された。安全最優先、透明性の確保、社会の信頼などポリシーも変わった。名前を変えて印象も変わったと考える。
- ・フレンドリートークの各回の参加人数 ⇒ これまでフレンドリートークは19回実施し、延べ約370名の住民が参加した。各回では10～20人程度となっている。
- ・フレンドリートークの女性の参加率 ⇒ 約50%である。

- ・原子力事業に伴う恩恵の事例（金銭的なこと） ⇒ 恩恵の感じ方は古くから東海村に住んでいる年配の人と若年者では違う。例えば立地前の 50 年前に比べると公共施設なども増え利便性に富んだ地域へと発展したことに対して年配者は恩恵と感じているが、若年者にとっては生まれたときに既にその環境であったため恩恵と感じていないと推察している。
- ・若年層のフレンドリートーク参加の呼びかけ ⇒ 若年層の多くは原子力に関心がないので、結果としてフレンドリートークに参加するのは年配の人が多いのが現状。若年層を集める工夫としては、東海村に青年会・高校生会というボランティア団体があるので、そのリーダーとのコンタクトをまず取り、リーダーの呼びかけで同団体の会員である高校生や大学生を集めて実施したことがある。
- ・リスクコミュニケーションによるクライシスコミュニケーションへの影響 ⇒ 我が班のリスクコミュニケーション活動は平常時のもので事故時や緊急時のクライシスコミュニケーションではないと位置づけている。平常時に住民と原子力防災や緊急時の行動等についてはフレンドリートークで意見交換を実施しており、クライシスに備え住民が防災情報を把握する機会を事前に提供しているという視点では、クライシスコミュニケーションに影響（プラス効果）があるといえる。また、緊急時の外部への情報通報訓練は事業所一丸となって定期的に行っている。
- ・リスクコミュニケーション活動展開としての時間的スパン ⇒ 我が班は当初、事故で失われた地域住民の信頼を回復するために、テンポラリーな部署として設置されたが、現在も存続して活動を行っている。現在は長期的な展望の下に活動を行っている。
- ・村議会の議員とのコミュニケーションの有無 ⇒ 我が班では直接行っていないが、議員対応をする機会には別の部署がコミュニケーションを担当する。

(2) Risk Information Navigator: Development of portal web site for improving of risk literacy

筆者（菖蒲）が添付資料のポスターライド及びPCによるデモンストレーションをもとにコンテンツ紹介を実施した。イギリス、韓国、ルーマニア、スロバキア、ハンガリー、ドイツ、スロベニア、フランス、IAEA の広報専門家・担当者との意見交換を実施したところ、非常に簡潔明瞭で、双方向性を有し、ユーザーの関心を引く効



果的アプローチであるとの意見を頂戴した。質疑応答の概要を以下に示す。

- ・海外への売り込み計画に関すること ⇒ 現時点では想定外である。
- ・パンフレットや CD など Web 以外の媒体への 2 次加工に関すること ⇒ 検討中である。
- ・活用実績に関すること ⇒ アクセス数は増加傾向ゆえ、活用（認知）されつつあると考える。
- ・原子力情報への引き付ける仕組みに関すること ⇒ アクセスを引き起こす大きな要因は社会的関心事項が支配していると推察しており、原子力情報へのアクセスをサイト運営者がコントロールするのは非常に難しいのが現状である。
- ・ターゲットオーディエンスに関すること ⇒ アニメーションなので子供向けとの印象を受ける人もいるが、一般に大人をターゲットとしている。

4. 所見等

(1) 時代に合った環境報告書の発行

本会議で紹介があった事業活動事例の中で最も感銘を受けたのは、フランス AREVA の持続可能性（サステナビリティ）開発の取り組みであった。これは企業がステークホルダーとの対話を通じて、環境保全への取り組みのみならず、企業コンプライアンス、社会貢献など経済的かつ社会的側面に対する要請や期待を把握し、社会との持続的な発展を目指す先進的な取り組みを意味する。例えばサステナビリティレポートの発行をしている企業はこの動向を意識している企業といえる。従来の環境レポートでは環境面への取り組みのみを取り扱ってきたが、現時点ではサステナビリティレポートと称して企業活動に必然的に関わってくる経済的・社会的側面での取り組みも併せて報告書を作成している。これは欧州のみならず国内においてもその流れは非常に強まっている。例えば本年 4 月には特定の独立行政法人等に環境報告書の作成・公表を義務付ける「環境配慮事業活動促進法」が施行されている。筆者はこれまでリスクコミュニケーションツールとして発行している東海事業所の環境レポートをより時代に合った内容のものへとアップグレードしていく必要性を感じた。

(2) 広報活動の事例や動向調査の必要性

本会議では広報活動に十分有益と思われる住民関与の方法や原子力リテラシー向上等に関する文献を入手することができた。今後それらを精査しリスクコミュニケーション戦略及び実践に反映させていきたい。また本会議の範囲は広報全般を対象とするものなので、サイクル機構の広報部門に携わる職員が出席し、欧州広報実務者の体感談を拝聴しながら、情報収集を行うことも有意義ではないかと感じた。

添付資料 1 : 提出論文及び発表スライド

Strategic Risk Communication Activities of Tokai Works, JNC in Japan

STRATEGIC RISK COMMUNICATION ACTIVITIES OF TOKAI WORKS, JNC IN JAPAN

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ABSTRACT

JNC Tokai Works set up a “Risk Communication Study Team” on January 1, 2001, and has subsequently implemented risk communication activities. The purpose of this undertaking is to recover local community trust, which has eroded due to the occurrence of nuclear-related accidents, and to promote mutual understanding between JNC and the local residents. Our team conducts the following ongoing risk communication activities: research and study on risk communication, message design, development of information transmission tools, implementation of dialogue with local residents, and risk communication for employees, etc.

As a practice of risk communication, we offer “JNC Friendly Talk”, which is direct dialogue within small groups of JNC staff and local residents. Friendly Talk receives favorable comments from the participants, and is effective in promoting mutual understanding.

This paper summarizes our risk communication activities, and explains our future strategy for risk communication in Tokai Village.

1. Introduction

The accidents that the Japan Nuclear Cycle Development Institute (JNC) experienced involving MONJU (prototype fast breeder reactor in Japan) in 1995 and the bituminization facility in 1997 led to public distrust in JNC. To recover credibility and public trust, JNC restarted operations in 1998 with the introduction of several policies including assurance of safety and transparent operations.

Transparency in administration is considered to be a primary principle for JNC. Therefore, we are working actively to disseminate information to the public and solicit their input. Through effective two-way communication, JNC endeavors to respond to the demands and concerns of the public.

Since JNC recognizes that effective communication with local residents is vital for continued operations, efforts are made to build a working relationship with the local communities surrounding each JNC site. At Tokai Works, a “Risk Communication Study Team” was set up in 2001 to study effective methods of risk communication and to promote mutual understanding between the local community and JNC on safety, disaster prevention, and related topics.

This paper outlines the risk communication activities of JNC Tokai Works and its future strategy for risk communication.

2. Risk communication activities of JNC Tokai Works

2.1 Message design

It is important to understand the residents’ concerns and needs in order to design our messages. We analyzed the results of surveys on the attitude of local residents, and determined the following

message contents based on the residents' concerns expressed in the survey: (1) Safety and credibility of nuclear facilities at Tokai Works, (2) Disposal methods of radioactive waste, (3) Environmental influence on the areas surrounding the facilities, (4) Location of nuclear facilities in Tokai Village and their activities, (5) Hypothetical accident and resultant damage, and (6) Emergency response to nuclear accident.

We have prepared about 300 messages in slide format (Microsoft Power Point) and compiled them in a database and a report [1]. Figure 1 shows an example of risk messages. Our messages use many figures and fewer sentences so that lay people can easily understand them.

Our current activity related to messages involves working in collaboration with local residents to incorporate the residents' points of view. Seven residents in their 20s to 60s living in Tokai Village participate in this work. Through this project, it is expected that easy-to-understand messages are created from the viewpoint of the residents, and nuclear risk literacy of the residents is improved. The messages will be provided by means of poster panels and leaflets.

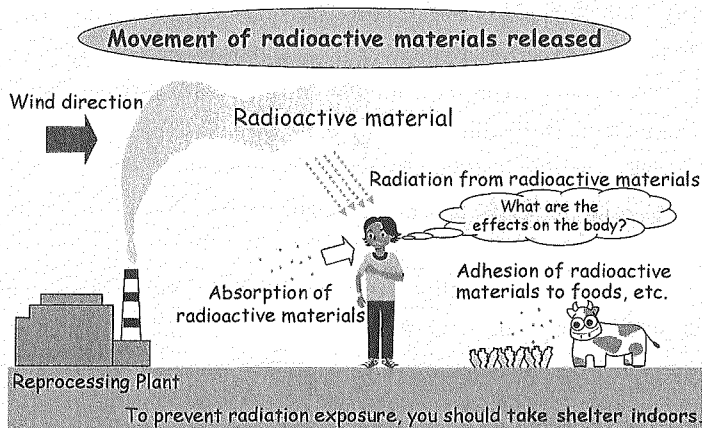


Fig. 1 An example of risk message

2.2 Development of portal website “Risk Information Navigator”

Risk sensitivity of the Japanese public is not considered high enough to enable proper risk management. Especially regarding nuclear power technologies, the Japanese tend to demand absolute safety, that is, zero risk. To improve public risk literacy, we have been developing a portal web site, “Risk Information Navigator” [2], which provides information about risks that exist in daily life such as traffic accidents and natural disasters, as well as risk information on nuclear technology. This site uses short cartoon animations including multiple-choice questions and games to capture the users' interest in risks. Detailed risk information is also available on the site, including risk contents and sources, risk reduction and prevention, and so on.

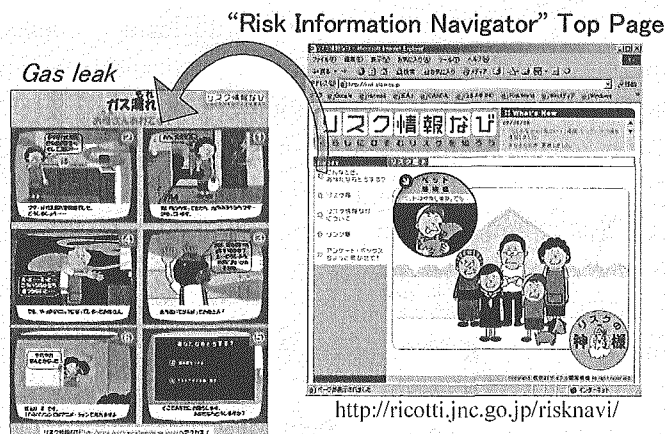


Fig. 2 Risk Information Navigator

2.3 Implementation of direct dialogue with local residents

Conventional communication between JNC Tokai Works and the community tends to be one-way communication from JNC to the local residents in the form of lecture meetings and briefing sessions. Since two-way communication is more effective for promoting mutual understanding, we started direct dialogues with local residents through the implementation of “JNC Friendly Talk” as a two-way communication method [3].

“JNC Friendly Talk” provides the opportunity for direct dialogue between JNC staff and local residents. “JNC Friendly Talk” consists of two parts, namely a lecture on nuclear risks, etc. or a facility tour, and a small group meeting between JNC staff and local residents. It is an informal round-table discussion (Fig. 3) with approximately 7 residents and 3 JNC staff in one group.

“JNC Friendly Talk” began in November 2001. We have talked with about 370 residents during a total of 19 sessions of Friendly Talk as of December 2004.

The residents’ opinions are analyzed after each session, and the results of opinion analysis are shown in Fig. 4 in which the residents’ opinions expressed at the Friendly Talk thus far are classified into 8 categories. Over 40% of the opinions are related to communication, covering such items as the importance of direct dialogue, desire for transmission of information, and information transmission methods. Accidents and troubles at nuclear facilities, nuclear disaster prevention, and nuclear safety are also of high interest to the residents. They express the desire to be informed immediately about accidents, troubles, risks, etc.

“JNC Friendly Talk” receives favorable comments from the participants (residents and JNC staff), and most participants want us to continue these talks. It has become apparent that the residents experience reduced anxiety by talking directly to JNC staff about their concerns. On the other hand, JNC staff gain an understanding of the residents’ opinions and feelings about nuclear energy, and also recognize the importance of communication with the residents. “JNC Friendly Talk” promotes mutual understanding between JNC and the local residents.

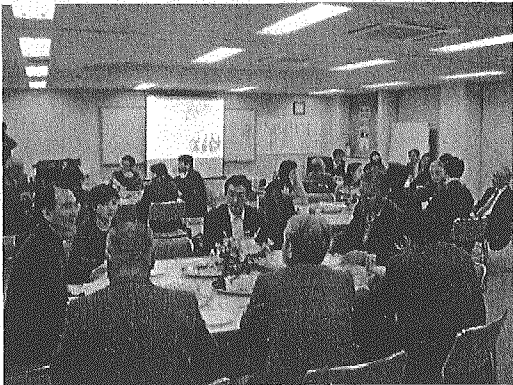


Fig. 3 JNC Friendly Talk

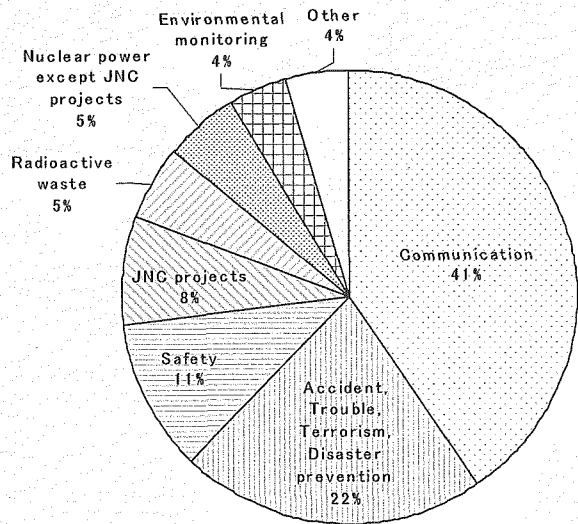


Fig. 4 Classification of the residents’ opinions at “JNC Friendly Talk”

2.4 Sharing information on risk communication with employees

Employees should know the social circumstances under which nuclear industries operate and the needs of the local community so that our organization may conduct effective risk communication activities for the residents. Therefore, it is important to share residents’ opinions and information on current risk communication with employees.

As internal (in-house) risk communication, the Risk Communication Study Team of JNC Tokai Works informs all its employees of the residents' opinions, social circumstances, and information about risk communication by means of: (a) seminars/lectures, (b) wall newspapers, and (c) Intranet.

In addition to (a)–(c), in 2002, the Risk Communication Study Team held briefings with all of the managers and discussed risk communication. Subsequently, each manager had a meeting with his staff and relayed the risk communication information that our team had explained. This was planned and implemented as a countermeasure to the potential risk of undermining the relations of mutual trust with local residents due to delay of information on troubles.

3. Future strategy for risk communication in Tokai Village

Our activities should be promoted based on the consideration that risk communication is mutual understanding between JNC and local residents through two-way communication and collaboration process for solving risk and/or risk management problems.

Our future direction of risk communication is to construct a risk communication system in Tokai Village as shown in Fig. 5. We particularly want to establish a risk communication arena where JNC, local residents, and local government can discuss risks and risk management, and exchange their opinions. To achieve this goal, we will implement risk communication strategies with the purpose of promoting further mutual understanding with local residents, and involving the residents in the JNC risk management.

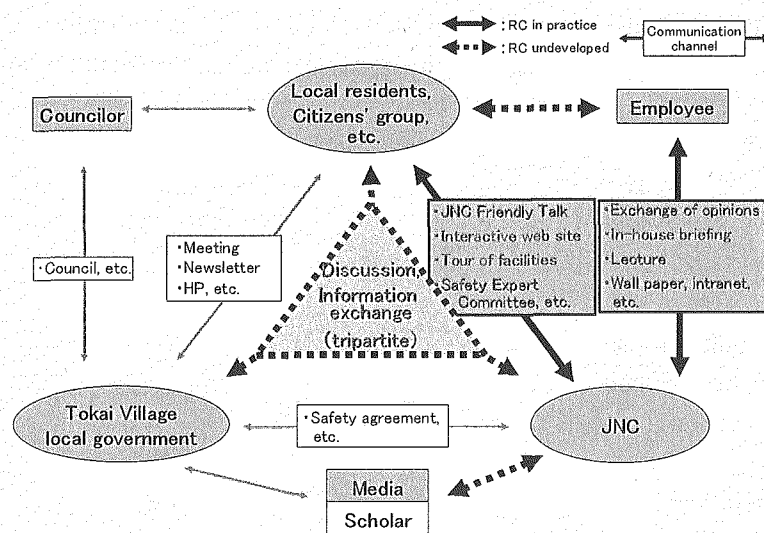


Fig. 5 Ideal risk communication system for JNC in Tokai Village

Our future risk communication strategies are as follows:

- (1) Active dissemination of risk information using various tools, i.e., “Risk Information Navigator” website, message materials including those made in collaboration with residents, etc.;
- (2) Frequent implementation of “JNC Friendly Talk”;
- (3) Fostering of communicators;
- (4) Improvement of internal risk communication; and
- (5) Involvement of residents in the JNC risk management.

As for (1), it is important to continue our efforts to understand the residents' attitudes, concerns, and needs regarding nuclear energy, and to deliver, in a timely manner, the information that the residents want to know. As information tools, we have the “Risk Information Navigator” website, the JNC home page, message materials including those made in collaboration with the residents,

environmental reports, brochures, the exhibition center, and so on.

As for (2), we will continue “JNC Friendly Talk”, and exchange information and opinions concerning risks, etc. with as many residents as possible. Sharing each other’s positions and values at these talks leads to mutual understanding between JNC and the residents.

As for (3), we are presently creating training programs for communicators to improve their communication skills.

As for (4), internal risk communication is important for all the employees to share the residents’ opinions and demands, and also to obtain information on social needs and external risk communication. The existing system using seminars, wall newspapers, and Intranet will be continued for the internal risk communication. It is considered effective to have opinion-exchange meetings according to section (department) or employee hierarchy, and to build risk communication practice into personnel training in order to further raise the level of awareness of risk communication.

As for (5), it is necessary to establish a feedback mechanism for reflecting the residents’ opinions and demands to the JNC risk management. The establishment of a Community Advisory Group (CAG) would be an effective way to involve residents in the risk management. A CAG composed of representatives from different community groups would make recommendations on risk management, business operations, and so forth. The CAG for JNC Tokai Works would ideally include representatives from Tokai Village local government, and become a tripartite arena for risk communication among JNC, local residents, and local government.

4. Summary and discussion

The Japan Nuclear Cycle Development Institute (JNC) Tokai Works set up a Risk Communication Study Team in 2001, and started risk communication activities in addition to the conventional public relations activities. Our risk communication activities are summarized as follows:

1. Risk communication information gathering and analysis;
2. Message design based on the residents’ concerns and needs;
3. Development of the portal website “Risk Information Navigator”;
4. Implementation of direct dialogue with local residents called “JNC Friendly Talk”; and
5. Risk communication information sharing among employees.


The current status of our risk communication with local residents is mainly dialogue that does not focus on nuclear risks because neither JNC Tokai Works nor Tokai Village have special nuclear issues that should be discussed, and the residents are not highly literate about nuclear power and radiation. In that sense, our risk communication is more like communication that includes the subject of risks.


However, in the future residents may become concerned about risks regarding a new nuclear site, decommissioning of a nuclear facility, and radioactive waste, and those risks will be discussed. In preparation, it is necessary to build a risk communication arena for discussing and solving risk problems with JNC (and other nuclear utilities), local residents, and local government together.

To build an effective risk communication arena, it is important to create an environment in which risk problems and risk management are discussed together, and the level of risk literacy and nuclear knowledge is raised. Therefore, our strategic risk communication for the future gives active dissemination of risk information and nuclear knowledge using various tools, frequent implementation of “JNC Friendly Talk”, and fostering of communicators as well as effective internal risk communication. Eventually, we plan to involve local residents in the JNC risk management by establishing a risk communication arena with a feedback system for reflecting the residents’ opinions and demands to the risk management.

References

- [1] H. Takashita, S. Mitsui, et al., “Information materials for risk communication”, JNC TN8450 2003-008 (2003) (in Japanese).
- [2] N. Shobu, “Risk Information Navigator: Development of Portal Web Site for Improving of Risk Literacy”, Trans. Int. Workshop on Nuclear Public Information in Practice (PIME 2005), Paris, France, February 13-16, 2005.
- [3] R. Yonezawa, H. Takashita, et al., “JNC Friendly Talk ~ Direct dialogue with local residents ~”, Trans. Int. Workshop on Nuclear Public Information in Practice (PIME 2005), Paris, France, February 13-16, 2005.



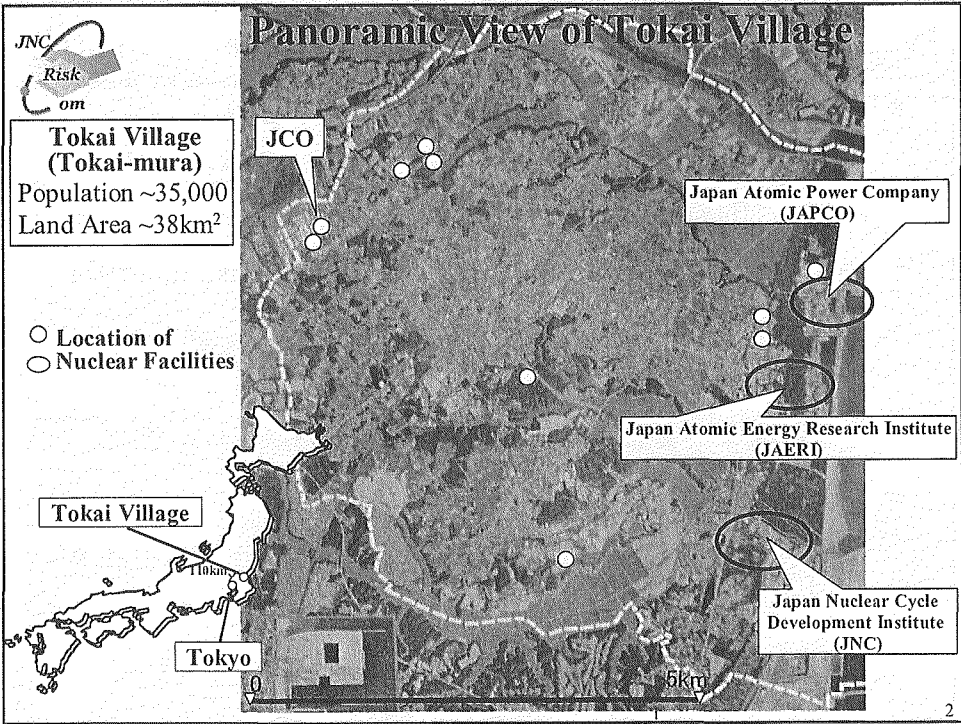


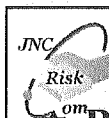
Strategic Risk Communication Activities of Tokai Works, JNC in Japan

Hirofumi Takashita

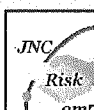
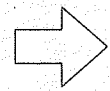
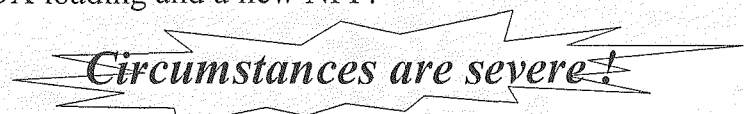
*Risk Communication Study Team,
Tokai Works,
Japan Nuclear Cycle Development Institute (JNC)*

1



	<h2 style="text-align: center; border: 1px solid black; padding: 5px;">Contents</h2> <ul style="list-style-type: none"> ★ Background <ul style="list-style-type: none"> ➤ Circumstances of Japanese Nuclear Industries ➤ Necessity of RC in Tokai Village ➤ Establishment of RC study team ★ Our Activities <ul style="list-style-type: none"> ➤ Attitude survey of local residents ➤ Message design ➤ Development of a portal website ➤ Implementation of direct dialogue with local residents ➤ Internal Risk Communication (In-house RC) ★ Future Strategy for RC in Tokai Village
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3

	<h2 style="text-align: center; border: 1px solid black; padding: 5px;">Circumstances of Japanese Nuclear Industries</h2> <ul style="list-style-type: none"> ● The following incidents lead the public to negative image and distrust of nuclear energy. <ul style="list-style-type: none"> ➤ MONJU sodium leakage (1995) ➤ ASP (bituminization facility) fire and explosion (1997) ➤ JCO nuclear criticality accident (1999) ➤ Inspection and Maintenance Problems at TEPCO's Nuclear Power Plants(NPP) (2002), etc. ● The public power is rising. <ul style="list-style-type: none"> ➤ In some areas, local referendum showed the rejection of MOX loading and a new NPP. <div style="text-align: center; margin-top: 20px;">   </div>
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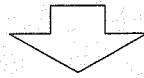
4



Necessity of Risk Communication in Tokai Village

➤ Nuclear accidents (ASP, JCO) changed the local residents' attitudes toward nuclear energy.

- To reduce anxieties and questions among the local residents about nuclear energy, we should
 - exchange opinions and information about risks in nuclear facilities with local residents
 - reflect their opinions on risk management



Risk Communication is Important.

5



Establishment of the Risk Communication Study Team at Tokai Works

Risk Communication Study Team was set up on January 1, 2001.

(Purpose)

Promote mutual understanding between the local community and JNC on safety and disaster prevention, etc.



Risk Communication Study Team

6

JNC

Risk

om

Attitude Survey of Local Residents

(Purpose)

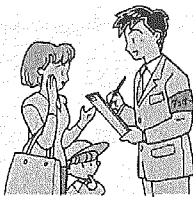
Understand the residents' concerns and needs

(Questionnaire Survey)

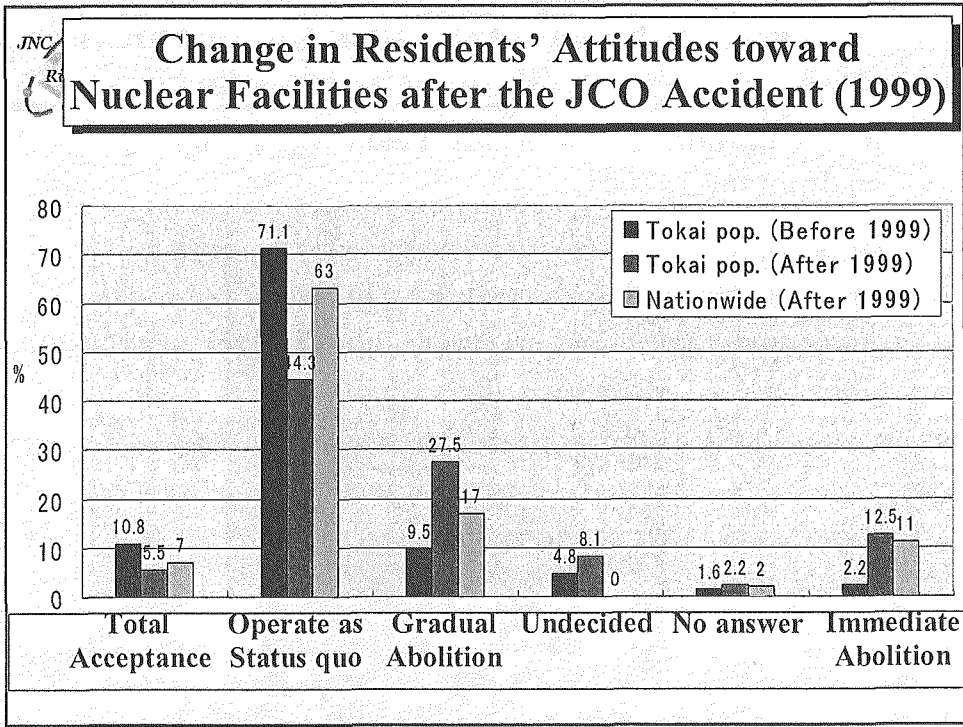
Investigate five questionnaire data surveyed after the JCO accident.


(Target Audience)

Residents in Tokai Village
(refer to nationwide survey for comparison)



7





Message Design based on the Attitude Survey

- Design messages based on the residents' concerns in the survey.

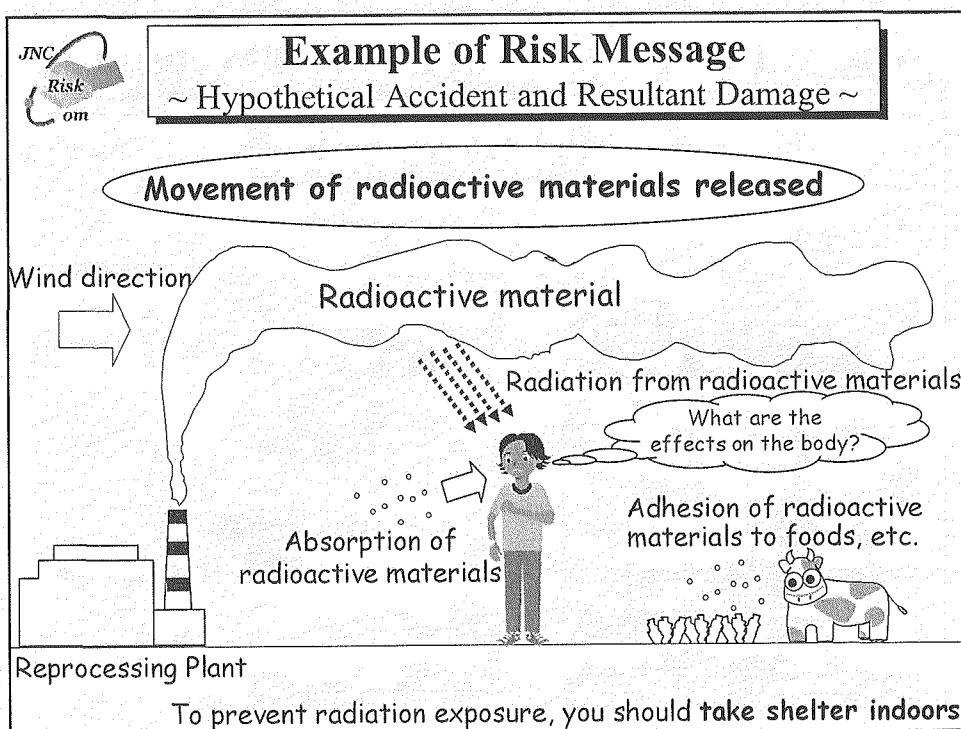
(Message Contents)

1. Safety and Credibility of Nuclear Facilities at Tokai Works.
2. Disposal Methods of Radioactive Waste.
3. Environmental Influence on the Areas surrounding the Facilities.
4. Location of Nuclear Facilities in Tokai Village and Their Activities
5. Hypothetical Accident and Resultant Damage.
6. Emergency Response to Nuclear Accident.

(Basic Policy)

- Local residents are the target.
- Easy contents understood by junior high school students.
- Use of many diagrams with slide format.
- Avoid excessive information in a slide and complement orally.

9





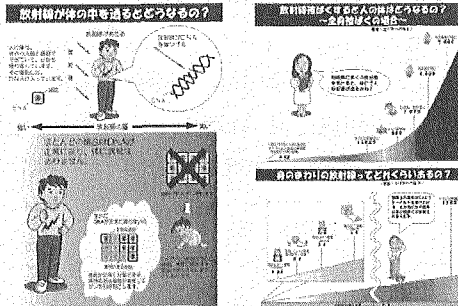
Making Messages in collaboration with Local Residents

Purpose

- To incorporate the residents' point of view.
- To make easy-to-understand messages.
- To improve nuclear risk literacy of the residents.



Message design with the residents



Examples of the messages made in collaboration with the residents

11



Development of a Portal Website


“Risk Information Navigator” Top Page

Gas leak



<http://ricotti.jnc.go.jp/risknavi/>

12



Direct Dialogue with Local Residents

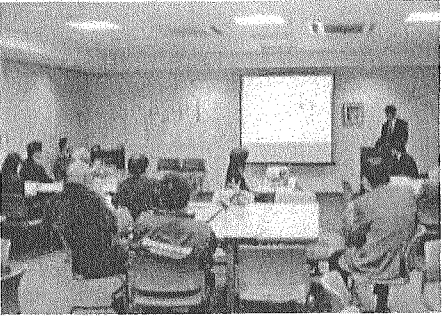
~ “JNC Friendly Talk” ~


(Purpose)

To deepen the understanding between JNC and local residents, and reflect their opinions on our future RC activities.

Small group meeting (Informal)

- Round-table talks
- About 10 people in one group (Residents: ~7, JNC: ~3)






Part I: Lecture or Facility tour

Part II: Small group meeting

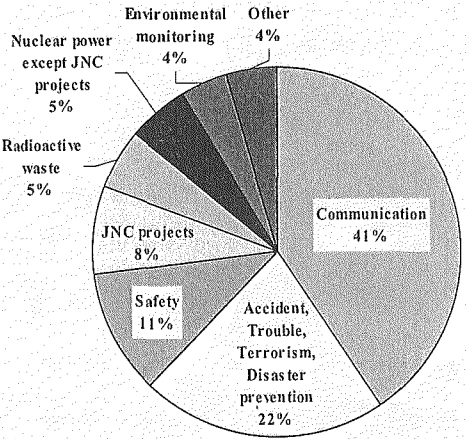
13



“JNC Friendly Talk”

~ Opinion Analysis ~

- Over 40% opinions are related to communication.
- Many participants desire that all information about accidents, troubles, risks, etc. should be informed immediately.



Topic	Percentage
Communication	41%
Accident, Trouble, Terrorism, Disaster prevention	22%
Safety	11%
JNC projects	8%
Radioactive waste	5%
Nuclear power except JNC projects	5%
Environmental monitoring	4%
Other	4%

14



“JNC Friendly Talk” ~ Effects ~

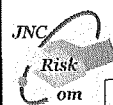
(Effects on the Residents)

- To resolve or reduce questions and anxieties.
- To improve awareness of nuclear energy.
- To change the image of JNC.

(Effects on JNC staff)

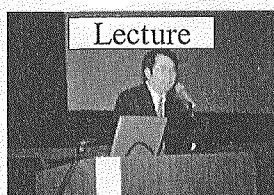
- To understand the residents' opinions and feelings about nuclear energy.
- To recognize the importance of communication with the residents.

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Internal (In-house) Risk Communication

- ★ Seminars/Lectures
- ★ Wall newspapers
- ★ Intranet



Lecture



Seminar

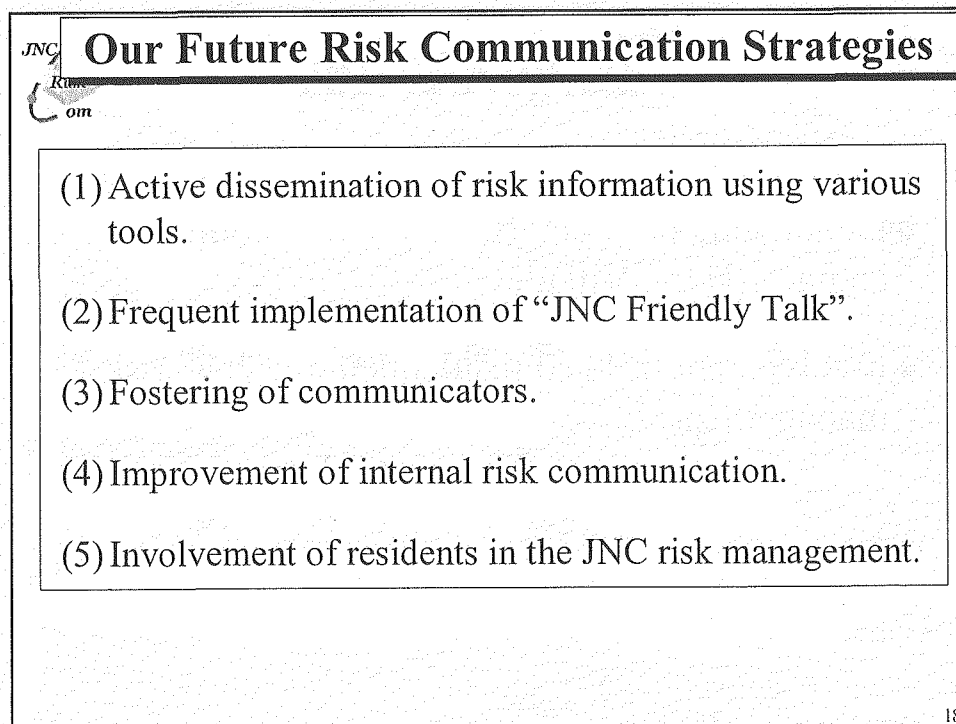
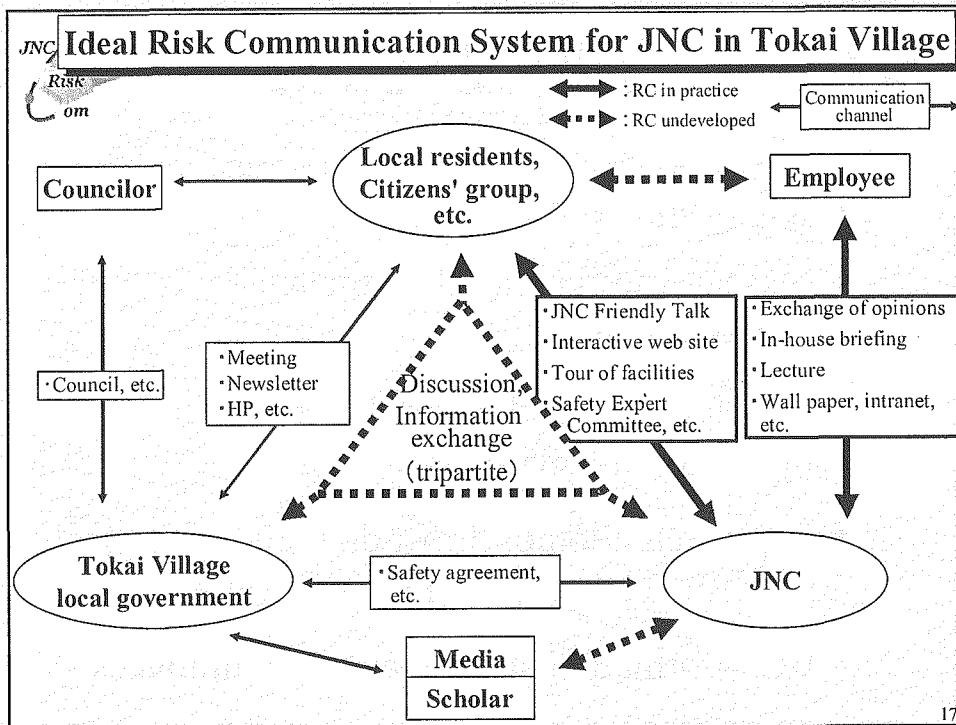


Wall newspaper



Intranet
(RC team home page)

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Summary (1/2)

● Our activities are :

- ★ RC information gathering and analysis
- ★ Message design based on the residents' concerns and needs
- ★ Development of the portal website “Risk Information Navigator”
- ★ Implementation of direct dialogue with local residents called “JNC Friendly Talk”
- ★ RC information sharing among employees

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Summary (2/2)

Our goal

- Establishment of an effective risk communication arena in Tokai Village.
- Involvement of local residents in the JNC risk management.

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添付資料 2 : 提出論文及びポスター

Direct dialogue with local residents: 'JNC friendly talk'

DIRECT DIALOGUE WITH LOCAL RESIDENTS - “JNC FRIENDLY TALK” -

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ABSTRACT

The Japan Nuclear Cycle Development Institute (JNC) Tokai Works established a “Risk Communication Study Team” in January 2001 with the goal of recovering its credibility and rebuilding the trust of the local community that had eroded after the accidents at MONJU and the Bituminization Facility in Tokai Works. The Team studied risk communication from various viewpoints and developed communication methods and tools such as face-to-face meetings, inspection tours of the facilities, poster panels, videos, newsletters, and websites. The implementation of “JNC Friendly Talk” which is basically a two-way communication meeting between small groups of JNC employees and local residents, has received positive feedback from the participants.

This paper summarizes the features and different types of Friendly Talk, implementation status, results, effects and issues, and its future direction.

1. Introduction

The two major accidents that the Japan Nuclear Cycle Development Institute (JNC) experienced involving the sodium leakage at MONJU in 1995 and the fire/explosion at the Tokai Works Bituminization Facility in 1997 led to feelings of distrust and anxiety on the part of the Japanese people toward nuclear energy activities. Furthermore, the JCO criticality accident that occurred at Tokai-mura in 1999 forced nearby residents to either evacuate from the area or stay indoors to avoid radiation, intensifying the negative attitude toward nuclear development. These experiences taught us that gaining the public’s trust and understanding, particularly that of the local residents, was essential for continuing our nuclear research and development. We also recognized the need to accomplish the following:

- Active dissemination of risk information on nuclear power and facilities
- Promotion of mutual understanding about its contents between the residents and JNC employees

Under such circumstances, JNC Tokai Works started a risk communication study in January 2001, which covers areas from literature research to a wide range of activities to develop methods and tools for risk communication. Among these, we designed a face-to-face, two-way communication meeting divided into small groups between JNC employees and local residents. We named it “JNC Friendly Talk”, because the word “friendly” gives a casual and informal impression. It was expected that the local residents do not hesitate to participate in the meeting. We have been carrying out JNC Friendly Talk since November 2001 and have accumulated extensive experience. This paper describes its implementation and the results, including feedback from the participants.

2. What is “JNC Friendly Talk”?

2.1. Purpose

JNC Friendly Talk provides an opportunity for small groups of JNC employees and local residents to participate in face-to-face dialogue about various themes such as nuclear power, irradiation, radioactive waste, safety, and risk. The purpose is to promote mutual understanding between the institute and the local residents through the implementation of continuous activities.

2.2. Features

The main aspects of JNC Friendly Talk are described as three changes from the conventional communication style.

(1) A change from “what the institute wants to report to the residents” to “what the residents want to hear from the institute”

Previously, JNC explained their public focusing on the safety of nuclear power, but the series of recent nuclear accidents and subsequent nuclear scandals have increased the residents’ suspicions and concerns about nuclear safety. Based on the results of surveys on the public’s attitude towards nuclear power, we recognized the necessity for JNC to:

- Provide information that the residents want to know, not just information that the institute wants to announce
- Provide information not only about the safety of nuclear power, but also about its risks
- Communicate in plain words, avoiding technical terms and complex expressions

(2) A change from “assembling people” to “promoting the voluntary participation”

- To assemble many participants does not necessarily guarantee successful communication. It is important to satisfy the participants even if it’s a small number.
- We encourage the voluntary participation of people who are interested in nuclear energy.

(3) A change from “one-way communication” to “dialogue”

- Friendly Talk is an opportunity for the exchange of views between small groups of JNC employees and the residents.
- JNC provides information to start the dialogue and ensures that it never becomes a forum for one-sided explanations.
- JNC gives priority to listening to as many participants’ opinions as possible, because it is presumed that most residents come to the meeting with something to communicate.

2.3. Style

In Friendly Talk, several small groups consisting of the residents and JNC staff are set up to freely exchange views. Before initiating dialogue, a lecture or a facility tour is planned to provide topics for discussion. Thus, Friendly Talk consists of two parts: Part I is a lecture or a facility tour, and Part II is a dialogue meeting in small groups. Each group basically consists of 7 residents and 3 JNC staff (one from a management post, one man and one woman from general levels) who play the role of moderator, responder to the questions and clerk taking note respectively. JNC staff is chosen from the employees registered as communicators in advance.

Friendly Talk is divided into four types according to the method of implementation.

(1) Type I (Caravan type)

Friendly Talk - Type I was carried out at the community facilities in Tokai-mura. In this case, the date, place and theme are decided based on JNC’s plan. Basically, the target participants are not specified, and anyone can join without prior application. The disadvantage of this type is that the number of participants is small compared to the other types. If this type is practiced it will be necessary to devise some effective ways to disseminate Friendly Talk to the residents.

(2) Type II (Part of an event)

Here, Friendly Talk forms a part of a larger event, such as the JNC Forum, or the annual meeting to

report on JNC performance or research results. We hope that members of the audience who are interested in the dialogue meeting will participate in Friendly Talk. Since the audience comes from neighboring communities of Tokai-mura, various views from a wide area would be heard.

(3) Type III (Visiting a designated place)

The target participants of this type of Friendly Talk are members of a community group or activity circle. JNC staff goes out to the place where the group is conducting its activities, and carries out the dialogue meeting. Since the participants are identified in advance, it is possible to meet their needs as to place, date, time and theme of the meeting. Such dialogue will proceed actively because the members are familiar with each other.

(4) Type IV (Tied-in facility tour)

In this type, a facility tour is set up before the dialogue meeting. The participants can choose one in advance, from among several courses that JNC prepares based on the residents' needs.

These four types were devised in the process of implementing JNC Friendly Talk. We started with Type I, but found that the number of residents participating was fewer than expected. Through trial and error, we developed Types II, III and IV.

Even if JNC presents lectures in plain words and delivers messages in slide format, information videos or brochures, there are limits to the participants' ability to accurately understand all the information. After trying various approaches, we found it effective to have the participants see the facility site with their own eyes. The dialogue will be more effective with input from participants who have personally experienced a facility tour. Thus, Type IV has been adopted more frequently.

3. Implementation Results

3.1. Review of the Implementation

From November 2001 to November 2004, Friendly Talk was held nineteen times mainly at the community facilities in Tokai-mura, with the number of participants totaling 373. Figures 1 and 2 show images of Friendly Talk in progress.

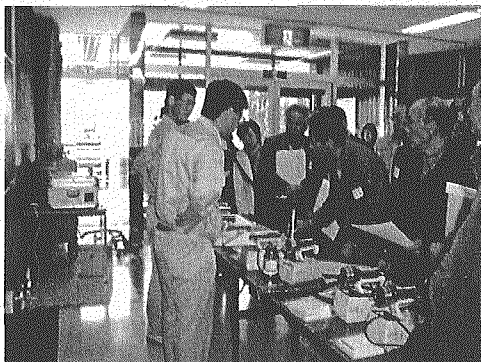


Fig.1 "JNC Friendly Talk"
Part I: Explanation and demonstration



Fig.2 "JNC Friendly Talk"
Part II: Small group meeting

The characteristics of the participants are as follows:

- Most of the participants were in their 60s, and those above 50 occupied about 80% of the total.
- As to gender, the total number of men slightly exceeded that of women, although this varied depending on the time of Friendly Talk and the target participants.
- The participants included retired employees related to the nuclear industry; ward heads; farmers who have lived a long time in Tokai-mura; housewives, members of the Tokai-mura Junior Chamber and others. Most participants were rather interested in nuclear energy.

3.2. Opinions of the Participants

The participants’ opinions, collected from the dialogue meetings and questionnaires, were analyzed and categorized. The common main topics at each dialogue meeting were related to: “communication” such as the methods for organizing and managing Friendly Talk; “accidents, troubles and disaster prevention” including participants’ anxiety towards nuclear accidents, or fear experienced in the JCO accident; and the facilities that the residents actually visited. Figure 3 shows the classification of topics of all the opinions collected at each small group meeting.

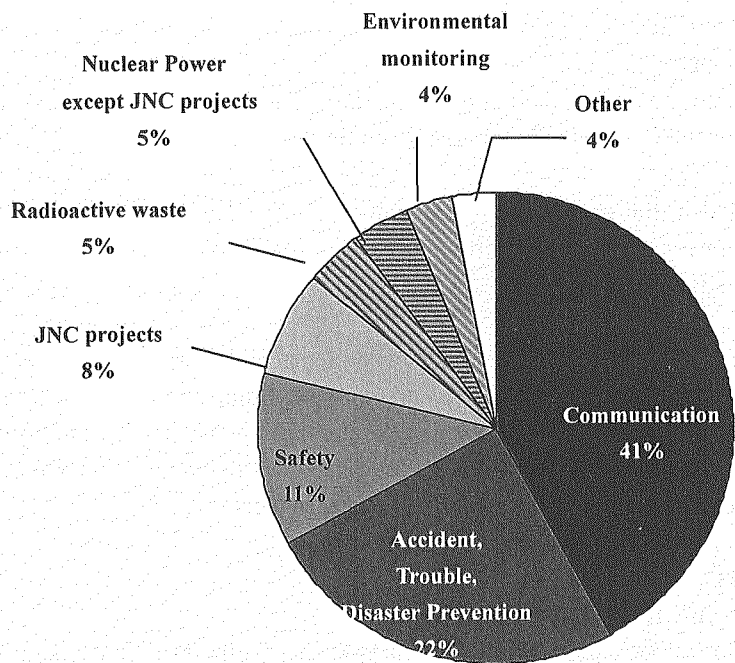


Fig.3 Analysis of opinions expressed at the small group meetings

The main opinions and demands expressed in the dialogue meeting were as follows:
As to “communication”, most of the participants stated that having dialogue meetings in small groups is meaningful, and they expressed their wish to continue this activity in the future. On the other hand, they felt it necessary to develop ways to attract residents to the meeting. Thus, it appears that having two-way dialogue in small groups is supported by the residents.

As to the topic of “accidents, troubles and disaster prevention”, the participants brought up the subject of other nuclear industries. Consequently, JNC staff realized the necessity to understand nuclear-related accidents other than those at JNC and to prepare for responding to the residents’ queries as thoroughly as possible. Since the residents of Tokai-mura had experienced evacuation and sheltering during the JCO criticality accident, and were influenced by harmful rumors, their experiences from that time and anxieties over nuclear accidents have been topical in the meetings even though more than five years have passed. Regarding nuclear accidents, the residents do not distinguish between JNC and other industries, and they express opinions and demands on nuclear-related organizations as a whole, including administration.

As to the topic of “facility tours”, tour courses related to environmental monitoring and radioactive waste were conducted numerous times, at which views and questions on how to read monitoring data

or the storage of radioactive waste were offered.

3.3. Response from JNC Staff

Surveys in the form of questionnaires were conducted for the JNC employees who responded as communicators. The results of the questionnaires revealed that JNC staff are positive about continuing Friendly Talk in the future, mainly because they think it is a good opportunity to raise their level of knowledge and awareness. On the other hand, they point out the need to contrive ways such as setting the meetings at convenient times or distributing publicity handouts, to encourage the voluntary participation of a greater number of people.

3.4. Response after Implementation

To promote mutual understanding between the local residents and JNC, appropriate measures must be taken on a continuous basis after implementing a dialogue meeting. The measures taken are:

- To collect and summarize the participants' opinions and questions
- To share the above information among the participants and JNC employees
- To show JNC's responses to the participants' opinions and questions

As one of the measures, JNC sends a newsletter to the participants reporting on the implementation results of Friendly Talk. Another purpose of the newsletter is to ensure an ongoing relationship between the residents and JNC. The content of the newsletter includes a brief summary, the main opinions and the results of the questionnaire. Recently, additional information has been included such as easy-to-understand explanations on irradiation and nuclear energy, and the introduction of JNC events or Tokai Works facilities.

The participants' opinions are open to all JNC employees through the Intranet and wall newspapers. Thus, through information dissemination inside JNC, we share the residents' impressions and views on JNC.

4. Effects

4.1. Effects on the Residents

The effects on the residents are summarized into the following three points:

- To resolve or reduce doubts and concerns
- To improve awareness of nuclear energy
- To change the image of JNC

The residents found that they could resolve or reduce their doubts and anxieties by talking directly to JNC staff and obtaining responses in the dialogue meeting. By enhancing nuclear knowledge, the participants increase their level of awareness on appropriate action in the case of a nuclear accident. Furthermore, through direct dialogue with JNC staff, the residents' impression of JNC has changed to a more favorable one.

4.2. Effect on JNC employees

Most of the JNC staff who do not have an opportunity in daily life to talk directly with the local residents recognized the importance of communication with the residents through Friendly Talk. After implementation, JNC staff relate the impression, contents and atmosphere of the dialogue meetings to other employees at each workplace. Thus, we hope that employees of Tokai Works gradually come to understand the importance of dialogue with the residents.

5. Conclusion

We have engaged in dialogue meetings divided into small groups with the local residents for three years and have obtained a number of favorable effects. Through direct talks, JNC and the local

residents are able to share views and values. So, the continued implementation of Friendly Talk is considered an effective method for promoting mutual understanding. In conducting Friendly Talk in the future, we will have to consider the following issues, and depending on the social climate, we may have to change the style or method according to the local residents' needs.

(1) Dialogue with the younger generation

Most of the participants of Friendly Talk up to now have a positive attitude about nuclear energy or JNC, and their nuclear awareness is fairly high. Their age bracket is relatively high (above 50). Our target in the future is the younger generation who do not show as high an interest in nuclear energy. An effective way of reaching this target group is to utilize the community groups or circles that the young people belong to.

(2) Fostering of communicators

For successful dialogue, the JNC communicators need response capabilities to provide easy-to-understand explanations about what the participants want to know. Initially, the communicators were neither trained nor educated to respond to the residents. To solve this issue, a registration system for communicators was introduced in March 2003, and to further improve the system, we plan to review methods for fostering and securing well-qualified employees.

References

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- [2] H. Takashita, "Strategic Risk Communication Activities of Tokai Works, JNC in Japan", Trans. Int. Workshop on Nuclear Public Information in Practice (PIME 2005), Paris, France, February 13-16, 2005

DIRECT DIALOGUE WITH LOCAL RESIDENTS

– “JNC FRIENDLY TALK” –

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ABSTRACT

The Japan Nuclear Cycle Development Institute (JNC) Tokai Works established a “Risk Communication Study Team” in January 2001 with the goal of recovering its credibility and rebuilding the trust of the local community that had eroded after the accidents at MONJU and the Bituminization Facility in Tokai Works. The Team studied risk communication from various viewpoints and developed communication methods and tools such as face-to-face meetings, inspection tours of the facilities, poster panels, videos, newsletters, and websites. The implementation of “JNC Friendly Talk”, which is basically a two-way communication meeting between small groups of JNC employees and local residents, has received positive feedback from the participants.

This paper summarizes the features and different types of Friendly Talk, implementation status, results, effects and issues, and its future direction.

1. Outline of Tokaimura

Tokaimura is the birthplace of Japan's nuclear power and in this area there are thirteen nuclear establishments.

(1) History

- 1955 Birth of Tokaimura
- 1956 Foundation of the Japan Atomic Energy Research Institute
- 1957 First criticality of JRR-1, Japan's first nuclear research reactor
- 1959 Opening of Tokai Works, Atomic Fuel Corporation (AFC)
- 1960 Start of construction of Tokai Power Station, Japan Atomic Power Company (Criticality in 1966)

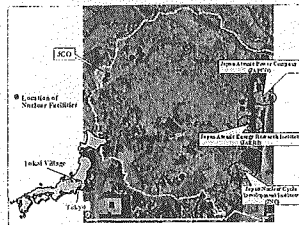


Fig. 1 Panoramic View of Tokaimura

2. Summary of Friendly Talk

(1) What is “JNC Friendly Talk”?

- A place where JNC staff and local residents have a face-to-face dialogue about various themes such as energy, nuclear power, safety, risk, etc.
- To promote mutual understanding between JNC and local residents, by repeating the dialogue meeting.
- To pursue an ideal form of the meeting in the future: tripartite talks among JNC, local residents and local government.

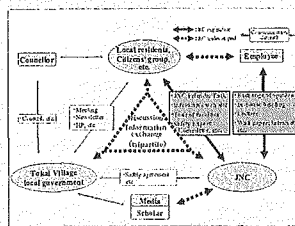


Fig. 2 Ideal Risk Communication System for JNC in Tokai Village

(2) Profile

- Location : About 110km northeast of Tokyo, Facing the Pacific Ocean to the east
- Population : About 35,000 (About 13,000 households) (As of January 2005)
- Assembly : Village assembly member 22
Prefecture assembly member 1
- Industries : Local enterprises (107 establishments, 357 stores)
- Agriculture : 1025 households (Specialty products: dry sweet potatoes, grapes, pears, etc.)
- Schools : Nursery school 6, elementary school 6, Junior high school 2, high school 1
- Local activities : Volunteer circle 200

(2) Features:

Table 1 Difference between conventional style and Friendly Talk style

Conventional style	Friendly Talk style
Explain what JNC wants to report to the residents	Explain what the residents want to hear from JNC
Assembling people	Promoting the voluntary participation
One-way communication	Two-way communication

(3) Style:

Friendly Talk consists of two parts:

- Part I : Lecture or facility tour
- Part II : Informal dialogue meeting in small groups

Lecture

<Characteristics of explanation materials>

- Appeal to eye using illustration and photos
- Explain in plain words, not using technical terms
- Not providing too much information

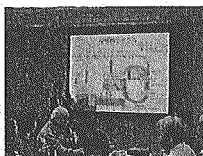


Fig. 3 Image of lecture

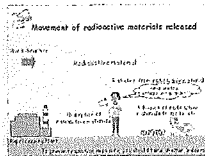


Fig. 4 Example of risk message

Facility tour



Fig. 5 Panoramic View of Tokai Works, JNC

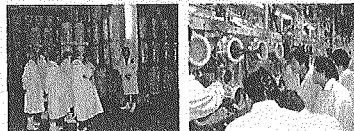


Fig. 6 Image of facility tour at Tokai Works

Dialogue meeting in small groups

- Group composition : About 10 (7 residents and 3 communicators)
- Roles of 3 communicators : Moderator, Responder of Q&A, Taking note



Fig. 7 Image of the dialogue meeting With the younger generation in Tokaimura



Fig. 8 Image of the whole venue

(4) Results

Number of implementation : 19

(November 2001~January 2005)

[Participants]

- Total number : 373
- Age : above 50 (80% of the total)
- Degree of interest in nuclear energy : high

[JNC staff]

- Total number : 400
- Role : communicators, logistics supporters and secretariat
- Communicators : registered employees (mainly in charge of work related to the theme)

[Newsletters]

- Purpose : report on the results
- Dispatch : 8 times



Fig. 9 Newsletter “Friendly Communication”

3. Analysis of Opinions of the Participants

(1) Topics expressed at the small meeting

The participants' opinions, collected from the dialogue meetings, are analyzed and categorized as shown in Figure 10.

Aspects

- Early Friendly Talk, the opinions are related to communication and JCO accident.
- Recently, by introducing a facility tour, the topics have focused on the nuclear themes related to the facility.
- The topic on the disaster prevention has always been discussed by the residents.

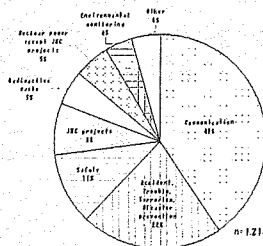


Fig. 10 Opinion Analysis

[Participants' opinions]

- "JNC should make efforts so that many local residents might participate in such a dialogue meeting."
- "How much radioactive waste is produced all over the country?"
- "It is important to prepare the system for transmitting information to the residents in case anything unusual happens."

(2) Results of the questionnaire

① Impression of the Friendly Talk

The residents' impression of the Friendly Talk is generally good. They wish continuation of the Friendly Talk in the future, because they think they can enhance nuclear knowledge by participating in the small group meeting repeatedly.

Q. How did you feel about the Friendly Talk?

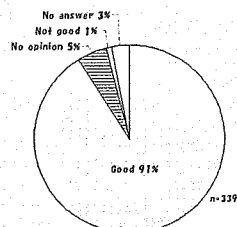


Fig. 11 Impression of the Friendly Talk

Q. Do you think JNC should continue the Friendly Talk?

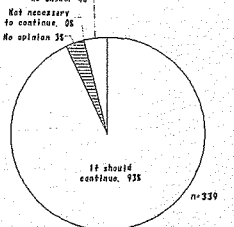


Fig. 12 Continuation of the Friendly Talk in the future

② Residents' Interests

Figure 13 shows that many participants have interest in the topics especially related to the safety of nuclear facilities, and the disposal of nuclear waste.

Q. What topic have you been interested in after participating in the Friendly Talk?

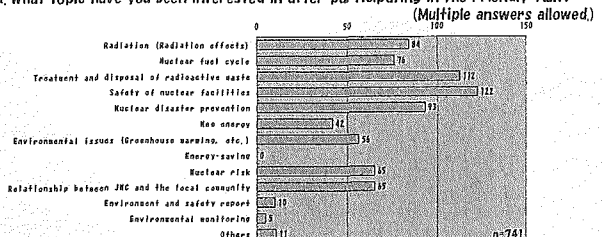


Fig. 13 Residents' Interests

③ Effects on the Residents

By talking directly to JNC employees in the small group meeting, the residents could see what kind of persons are working at JNC.

Q. Has your image of nuclear energy and JNC changed after participating in the Friendly Talk?

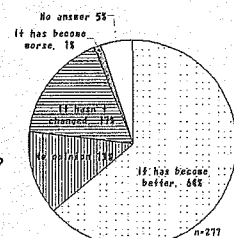


Fig. 14 Effects on the Residents

4. Analysis of Opinions of JNC Staff

Results of the Questionnaire

Q. Do you think that listening to local residents' opinions was beneficial to you as JNC employees?

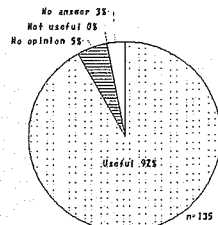


Fig. 15 Effects on JNC through dialogue with the residents

Q. Did you discuss (or report) the content of the dialogue meeting with your coworkers after the Friendly Talk?

As repeating the Friendly Talk, considerable JNC staff have become to report the residents' opinions, etc to their coworkers. We expect that through such a follow-up response of JNC staff to their coworkers, understanding and recognition of the necessity of dialogue with the local residents will spread over among all the JNC employees.

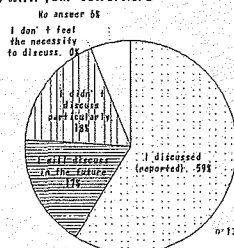


Fig. 17 Spreading effect on all the Tokai Works employees

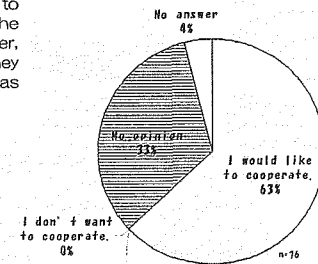


Fig. 16 Involvement as a staff

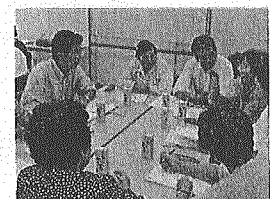


Fig. 18 Image of the dialogue meeting With the housewives circle in Tokaimura

5. Conclusion

- Through implementation of the direct dialogue with local residents, we have obtained favorable effects on both the residents and JNC.
- The Friendly Talk is an effective method for promoting mutual understanding between the local residents and JNC.
- However, there are some issues to overcome in carrying on the Friendly Talk in the future.

Main issues in the future

(1) Dialogue with the younger generation

- Our target in the future is the younger generation who do not show as high an interest in nuclear energy.
- An effective way of reaching the target group is to utilize the community groups or circles that the young people belong to.

(2) Fostering of communicators

- For successful dialogue, the JNC communicators need response capabilities to provide easy-to-understand explanations.
- We utilize the existing registration system for communicators' training and education.
- We plan to review the methods for fostering and securing well-qualified employees.

添付資料 3 : 提出論文及びポスター

Risk Information Navigator: Development of portal web site for
improving of risk literacy

RISK INFORMATION NAVIGATOR: DEVELOPMENT OF PORTAL WEB SITE FOR IMPROVING OF RISK LITERACY

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ABSTRACT

Risk communication activities are important for promoting mutual understanding between local communities and the Japan Nuclear Cycle Development Institute (hereinafter referred to as JNC). In addition to conventional public relation activities, the Risk Communication Study Team of JNC Tokai Works has started practical studies to promote further mutual understanding with the local communities. Several communication tools such as poster panels, slide materials, videos, website contents and newsletters were developed as part of its risk communication activities.

This paper describes the concept and design of the website "Risk Information Navigator" (<http://ricotti.jnc.go.jp/risknavi/>), developed to improve risk literacy by providing risk information on nuclear energy in parallel with risk information on daily life, and analyzes the website from the user's perspective.

1. Introduction

Since the fire/explosion accident at JNC Tokai Works in 1997 and the criticality accident at "JCO", a uranium fuel fabrication plant in Tokai-mura, the Japanese public has been anxious and suspicious about nuclear safety management. Conspicuous changes, particularly in the level of awareness, have been noticed in residents living in areas where nuclear facilities are located.^[1] Under these circumstances, to smooth the technical development of the nuclear fuel cycle - the mission of Tokai Works - it is essential to promote mutual understanding through the exchange of information and opinions with local residents about the risks posed by the nuclear activities of JNC Tokai Works. The activities related to recovering the trust of the local residents is defined as "risk communication" and are performed in addition to the conventional public relations activities. In January 2001, the JNC Tokai Works established a department engaged in the research and practice of risk communication, in order to promote the development of risk communication methods at Tokai Works. We analyzed the results of surveys on the attitude of the local residents, carried out case study on risk communication in Japan and in overseas countries, and developed several communication tools such as poster panels, slide materials, videos, website contents and newsletters.

This paper describes the design and concept of a website, hereinafter referred to as "Risk Information Navigator" (<http://ricotti.jnc.go.jp/risknavi/>), developed to improve risk literacy. "Risk Information Navigator" is expected to provide learning opportunities concerning the risks to the Japanese general public as well as to local residents.

2. Background and concept of the website

Many people in Japan contend that nuclear power technology should be subjected to stricter safety criteria than other mega-technologies, and some insist that every risk should be eliminated from the technology. They have a strict zero-risk perception toward nuclear power technology.^[2] However, life is a risky business; we all face risks of some type or another on a continuous basis, for example not only radiation caused by nuclear activities but also traffic accidents, natural disasters, fire, cancer and so on. First of all, risk sensitivity of the Japanese is hardly high enough to conduct proper risk management. Therefore, we considered it very important to improve the risk literacy of the public and developed "Risk Information Navigator" in an attempt to provide the risk information on nuclear power technology in parallel with the daily risk information mentioned above.

The concept of "Risk Information Navigator" is as follows:

- (1) Evoking interest in risks
- (2) Providing sufficient information on risks to those who request it
- (3) Guiding users to further specialized information on risks when requested

3. Setup of the website

3.1 Evoking interest in risks

The website was designed based on the following concrete items to realize the foregoing concept of “Evoking interest in risks”.

3.1.1 Providing a warm, friendly feeling

The term “risk” is seen in Japanese magazines and journals with increasing visibility^[3], but it still seems to be unfamiliar to the public and still has a *negative* image. We have created a virtual family, “the Risks”, who range from children to elderly persons and a pet, in order to provide a warm, friendly feeling for *positively* discussed risks (see Fig. 1).

3.1.2 Raising awareness of risks using day-to-day contents

(1) Day-to-day slogans

Day-to-day slogans regarding risk information as shown in Fig. 2 are provided to draw out concerns about risks.

(2) Risk-related news from the past [Risk calendar]

Information on well-known events and accidents that occurred in Japan and in foreign countries is provided in order to remind the users of risks possibly forgotten. By accessing this website, users can view information on past events that happened on the same day (see Fig 1).

3.1.3 Perception of risks encountered by watching short cartoon animations

Short Flash cartoon animations, which could be introductory material, are posted on this website. Watching the animations makes the users aware of the risks likely to be encountered in daily life. Every animation includes

multiple-choice questions or games to inform the users of approaches to take for reducing the risk or basic facts concerning the risk. In order for this information to be accessible to a broader audience, the contents of the risk information are selected from the viewpoints of familiarity and possible links to information on nuclear business (see Fig 2). The website is an attempt to

provide risk information

related to the nuclear business in parallel with daily risk information. The risk information on “Nuclear facilities and radiation” is available not only in Japanese but also in English. However, the risk information

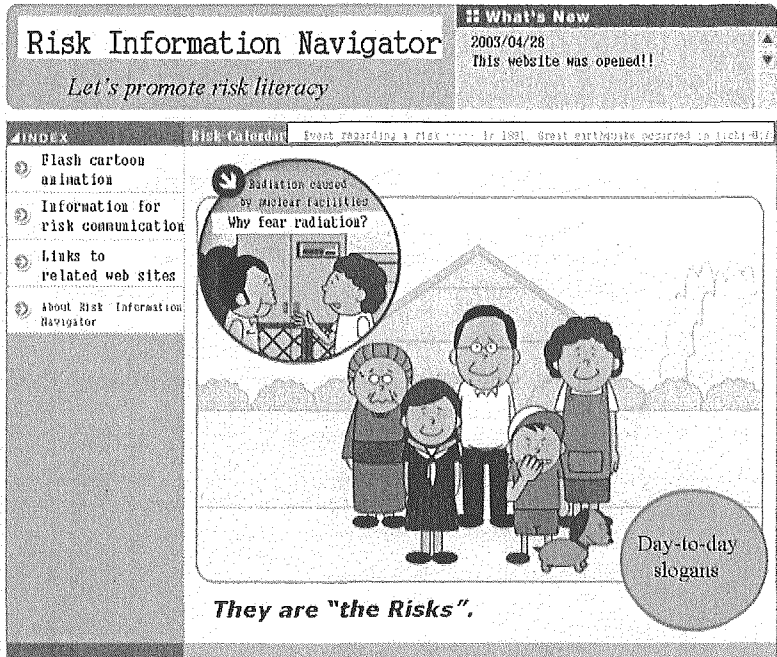


Fig 1. Top page of Risk Information Navigator

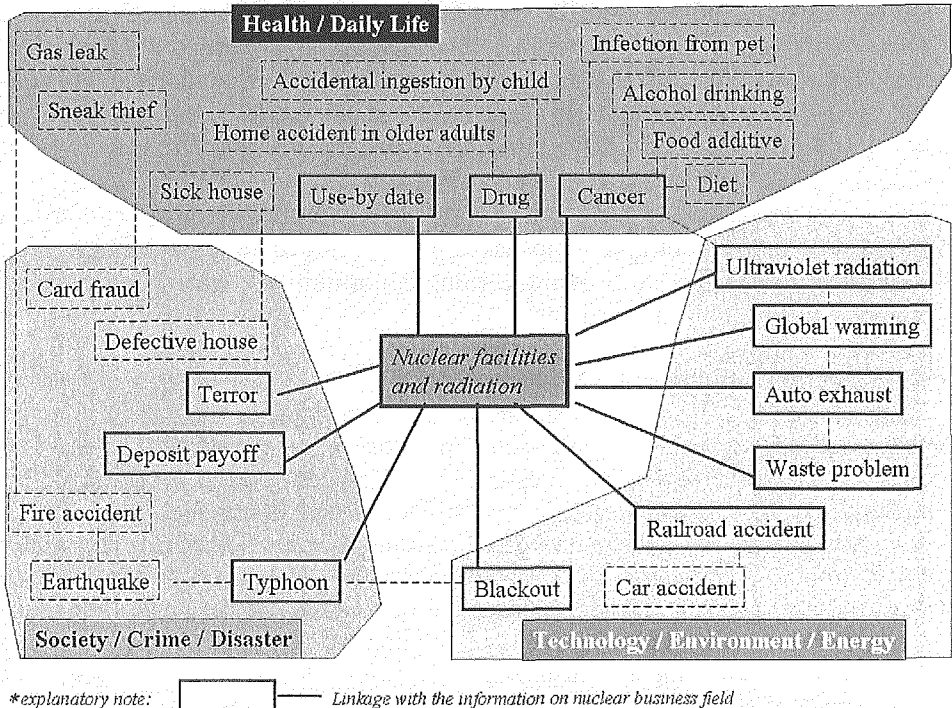


Fig 2. Selected risk information items and interconnectedness of each item on the website

without “Nuclear facilities and radiation” is only provided in Japanese.

3.2 Providing sufficient information on risks to those who request it

When users develop an interest or concern about a particular risk after watching the cartoon animation, this website provides them with descriptive literature supplemented with pictures and text. To realize the foregoing concept of “Providing sufficient information on risks to those who request it”, the website was configured as follows:

- (1) Introduction
 - (2) Hazard perception or risk perception
 - (3) Risk assessment or risk management
 - (4) Accident prevention
 - (5) Emergency preparedness or crisis management
 - (6) Column
- (see Fig 3)

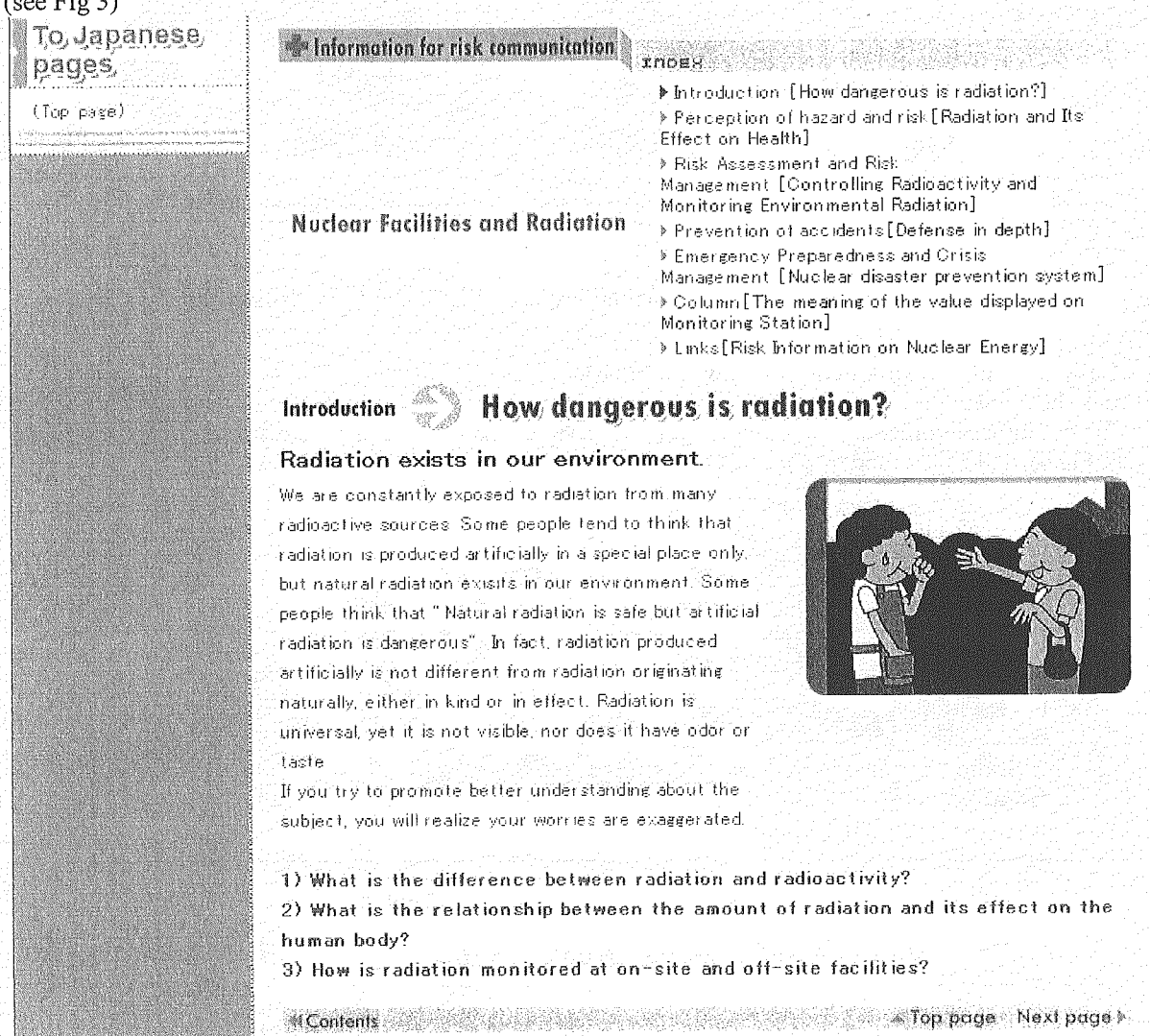


Fig 3. Image sample of “Information for risk communication” menu

3.3 Guiding users to further specialized information on risks when requested

The website enables users to access useful Japanese websites related to particular risks in order to realize the foregoing concept of “Guiding users to further specialized information on risks when requested”.

4. Results

4.1 Measurement of the effect of the website information

A questionnaire survey on 504 Internet users was carried out in order to measure the effectiveness of the method for realizing “Evoking interest in risks” and “Providing sufficient information on risks to those who request it”. The main survey results are as follows.

4.1.1 Evoking interest

(1) Friendliness

Seventy-six percent of the respondents answered that they got a warm, friendly feeling from the virtual family on the website (see Fig 4).

(2) Interest in risks encountered by watching the Flash cartoon animations

From the viewpoint of “Understandability” and “Amusingness”, which are critical success factors for evoking interest, 79% of the respondents answered, “easy-to-understand”, and 74% of the respondents answered, “amusing” (see Fig 5).

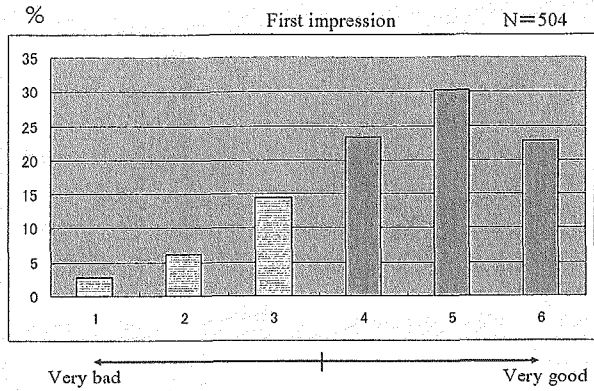


Fig 4. Friendly feeling from the website’s virtual family

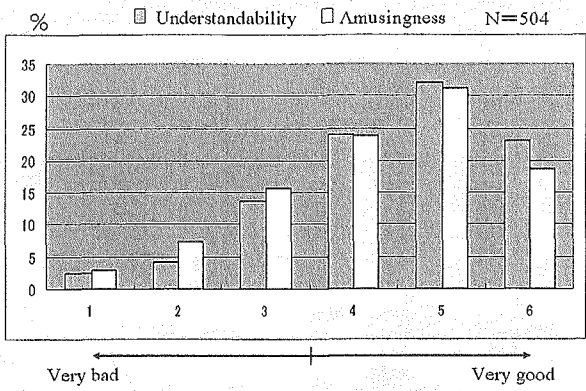


Fig 5. Understandability and amusingness

4.1.2 Availability of sufficient information on risks

From the viewpoint of “Contents” and “Usefulness”, which are critical factors for judging whether sufficient information could be provided to users, 84% of the respondents were satisfied with the contents (see Fig 6), and 74% of the respondents intended to revisit the website in the future (see Fig 7).

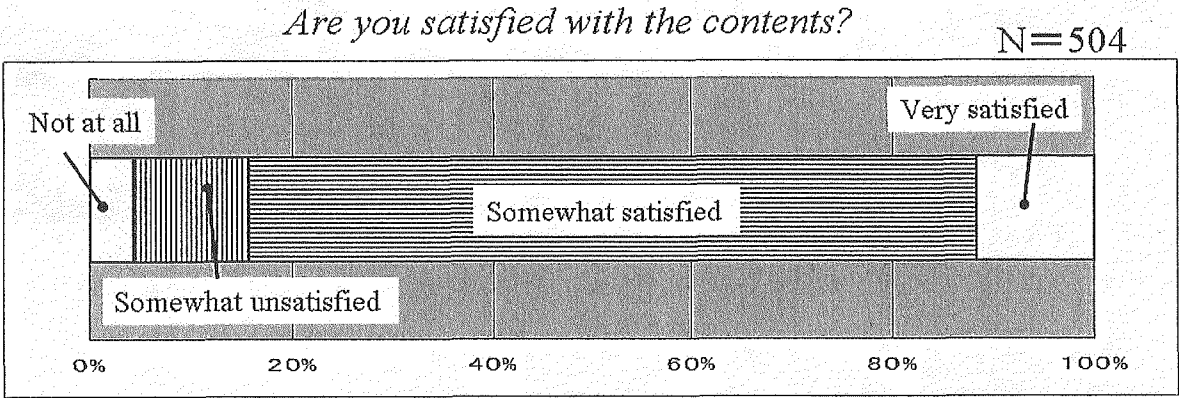


Fig 6. User satisfaction level (Contents)

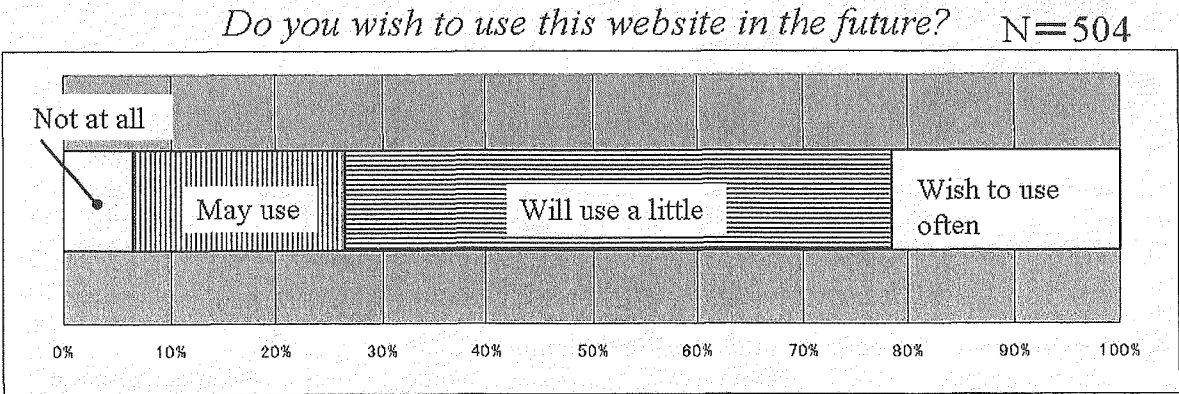


Fig 7. User satisfaction level (Usefulness)

4.2 Website visits

Website traffic was analyzed based on the access log on the web server for about one year and eight months to look at what the website was being used for. The total number of page-views for each month demonstrates an upward trend (see Fig 8). The website recorded approximately 200,000 page-views during the period.

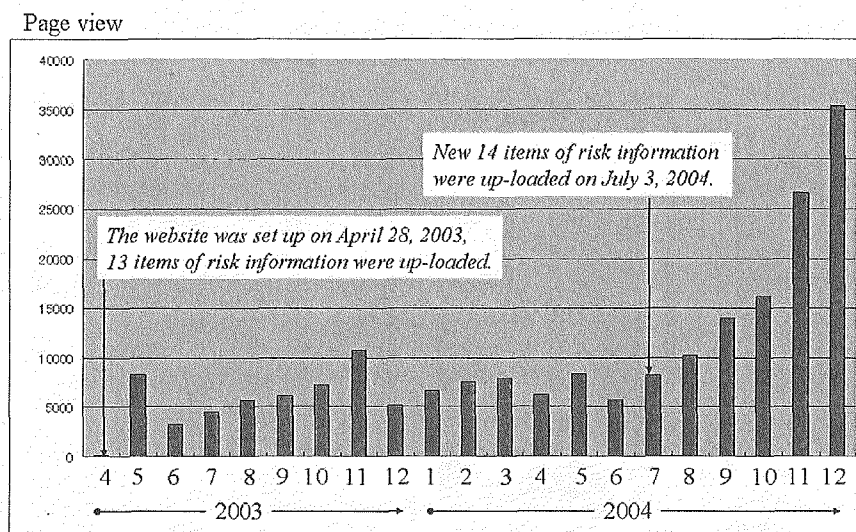


Fig 8. Website visits

5. Discussion

We discussed the results assuming that 60% or more of the respondents gave a positive answer as a guide of effectiveness. Given the above survey results, we consider that this website has the potential to be an effective tool for improving risk literacy. However, we believe it is necessary to validate the effectiveness in another way such as through survey interviews to hear opinions directly from users.

Given the above results of website visits, it is difficult to make a sweeping judgment about whether or not this website receives a relatively large number of visits because we were unable to obtain comparison visit data of a corresponding website. We can, however, make a good guess that the website would become a recognized site. Indeed, there has been a recent surge in traffic at the website because it was prominently featured on well-known websites such as “Nifty” and “Yahoo”.

6. Conclusion

We conclude that the Risk Information Navigator could provide qualitative risk information for users as a portal site. In the future, we would like to develop a mechanism to provide quantitative risk information for users and also aim to develop the website in collaboration with others, including local residents who have different cultures and viewpoints.

Acknowledgments

This study was supported in part by Seiichiro Mitsui (JNC-HQ) who designed the concept of this website and set it up, and Naomi Ohuchi (NESI) who was in charge of website maintenance such as monthly calculation of website visits and updating of the information on the website.

References

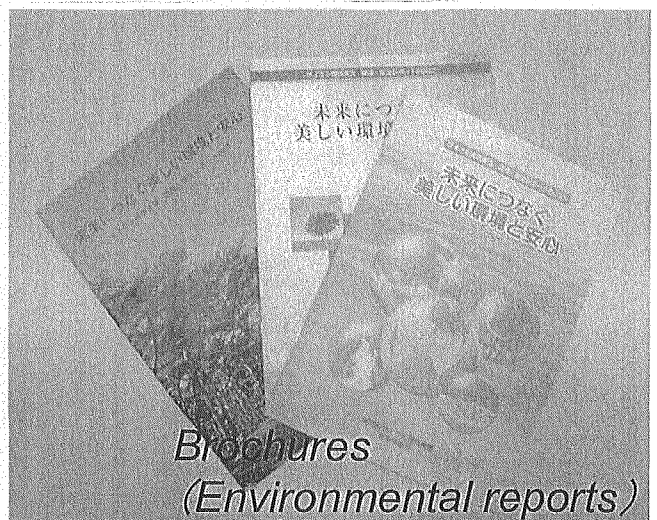
- [1] Ibaraki prefecture, March, 2000, Survey of local resident's perception of nuclear power technology at Tokai mura, p46, 65 (in Japanese)
- [2] S. Tsuchida and M. Kawabata, Kansai University, Society for Risk Analysis 2001 Annual Meeting, The Japanese Psychological and Demographic Determinants of Zero-Risk Perception and Attitude Structures. December 2-5, 2001, (<http://www.riskworld.com/Abstract/AB01ME01.HTM>)
- [3] H. Hideyuki, Kyoto Women's University, Workshop on Science, Politics, and Governance. June 21-23, 2002, (http://www.cs.kyoto-wu.ac.jp/~hirakawa/sts_archive/regulatory/berlinwkshp2002/RiskdiscourseJapan.pdf)
- [4] N. Shobu, S. Mitsui, et al. Development of portal web site for fostering of risk literacy "Risk Information Navigator", JNC TN1340 2003-006, p51-58 (in Japanese)
- [5] N. Shobu, H. Horikoshi, et al. Discussion of A Method for Providing General Risk Information by Linking with the Nuclear Information, JNC TN8450 2004-004, June, 2004 (in Japanese)

Risk communication tools for nuclear activities

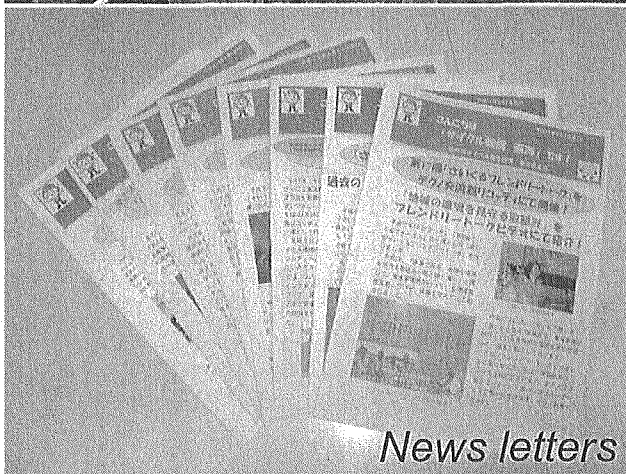
Several communication tools such as poster panels, Brochures, slide materials, newsletters, website contents and videos were developed as part of risk communication tools for JNC nuclear activities.



Poster panels



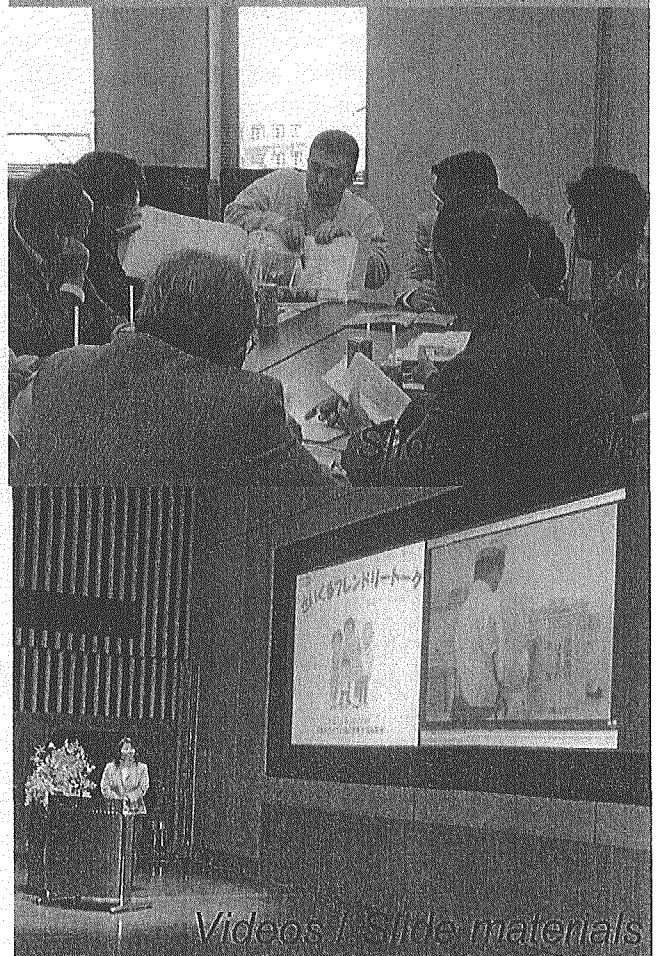
Brochures
(Environmental reports)



News letters

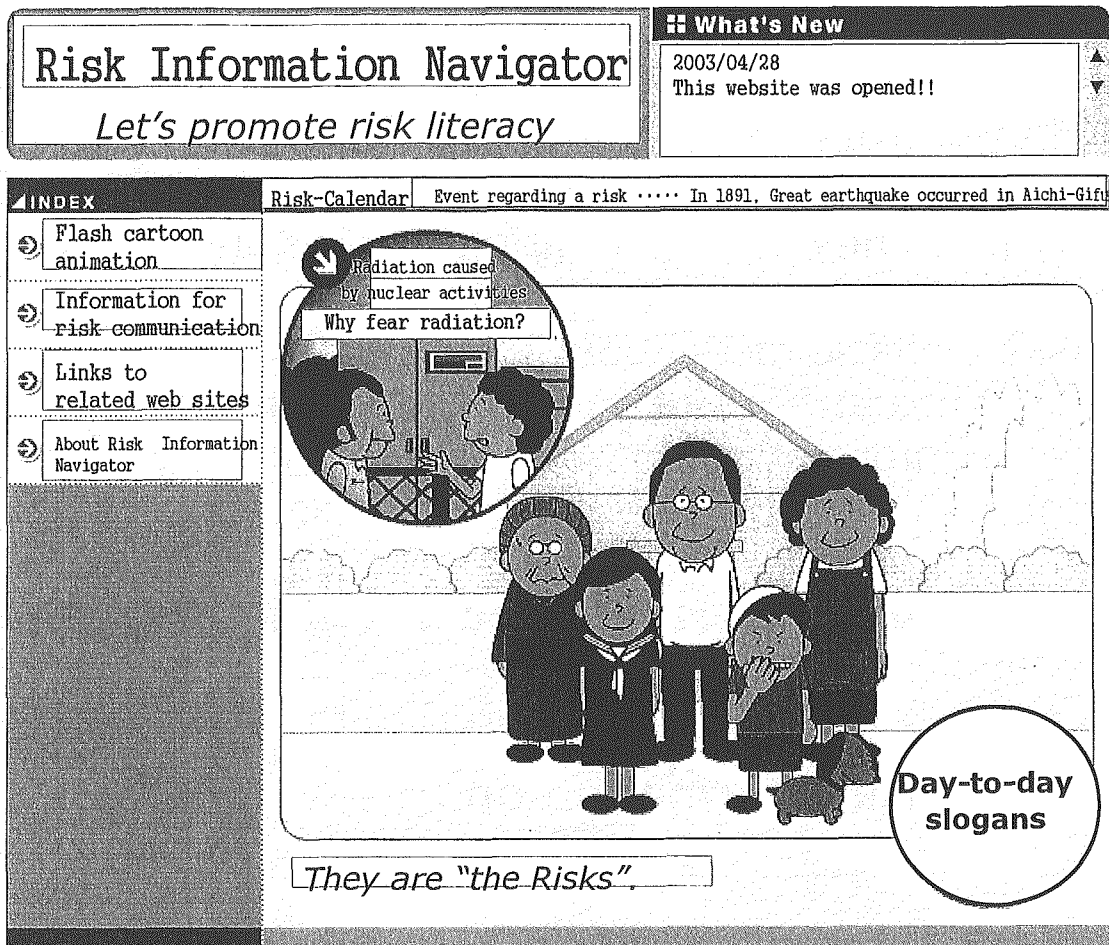


Website contents



Videos / Slide materials

Front page image of "Risk Information Navigator"



In Japan, the risk of nuclear power tends to be more overestimated than various kinds of risk involved in our daily life (e.g. traffic accident, natural disaster, house fire, cancer and so on). Furthermore it is said that the Japanese risk sensitivity is hardly high enough to manage risks. The Japanese want zero-risk for nuclear power especially. We found it was very important to improve risk literacy of the public, and therefore we have set up this web, "Risk Information Navigator" has been trying to provide the risk information of nuclear power in parallel with the daily risk information.

"Risk Information Navigator" is expected to provide learning opportunities concerning the risks to the Japanese general public.

The concept of "Risk Information Navigator"

1. Evoking interest in risks

① Animated characters "the Risks" show up in this website to provide a warm and friendly feeling.

② "The Risks" animated cartoons make users percept risks in daily life, They include multiple-choice questions or games to make you notify the approaches for reducing the risks or basic facts about the risks.

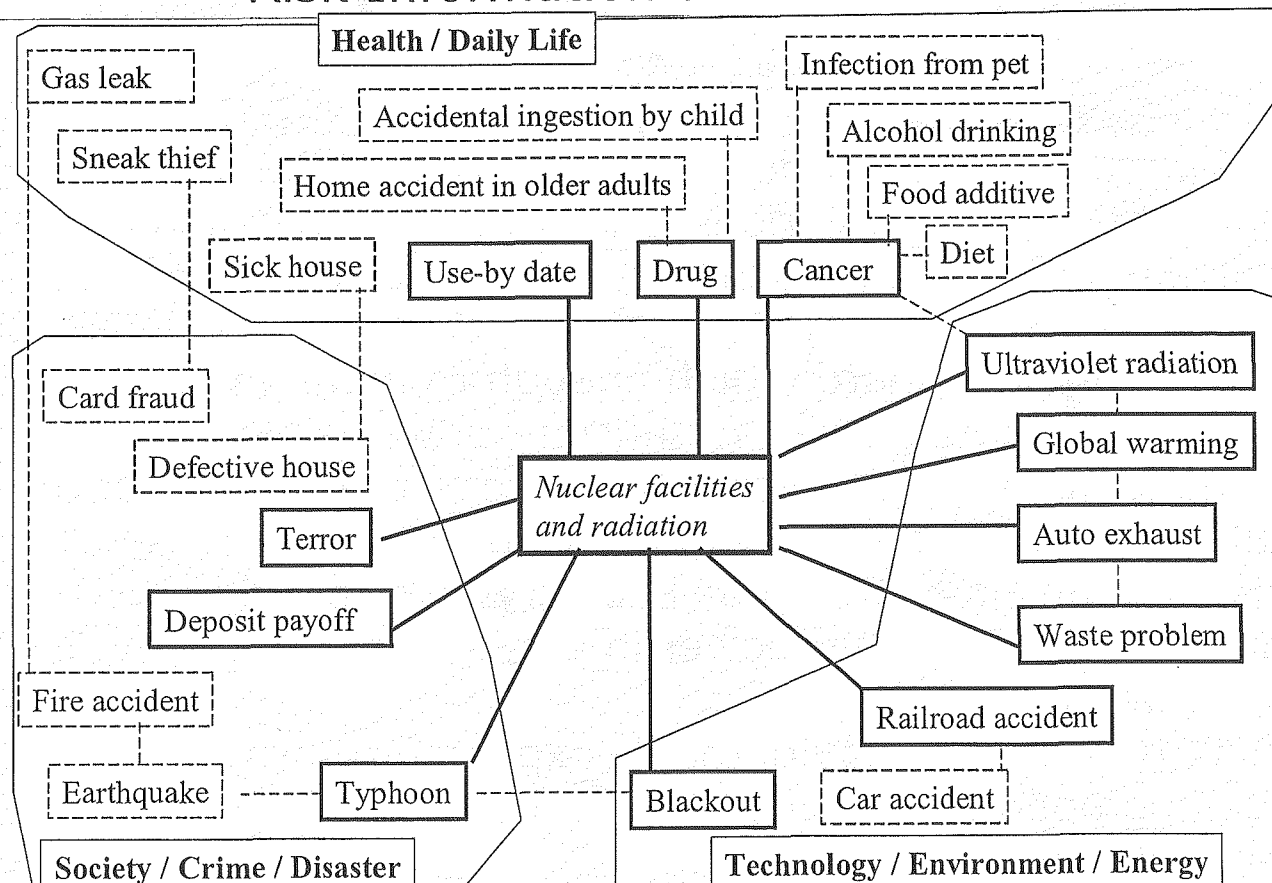
2. Providing sufficient information on risks

The detail information on risk assessment, risk management, crisis management and so on is prepared in the next menu.

3. Guiding to the further specialized information on risks

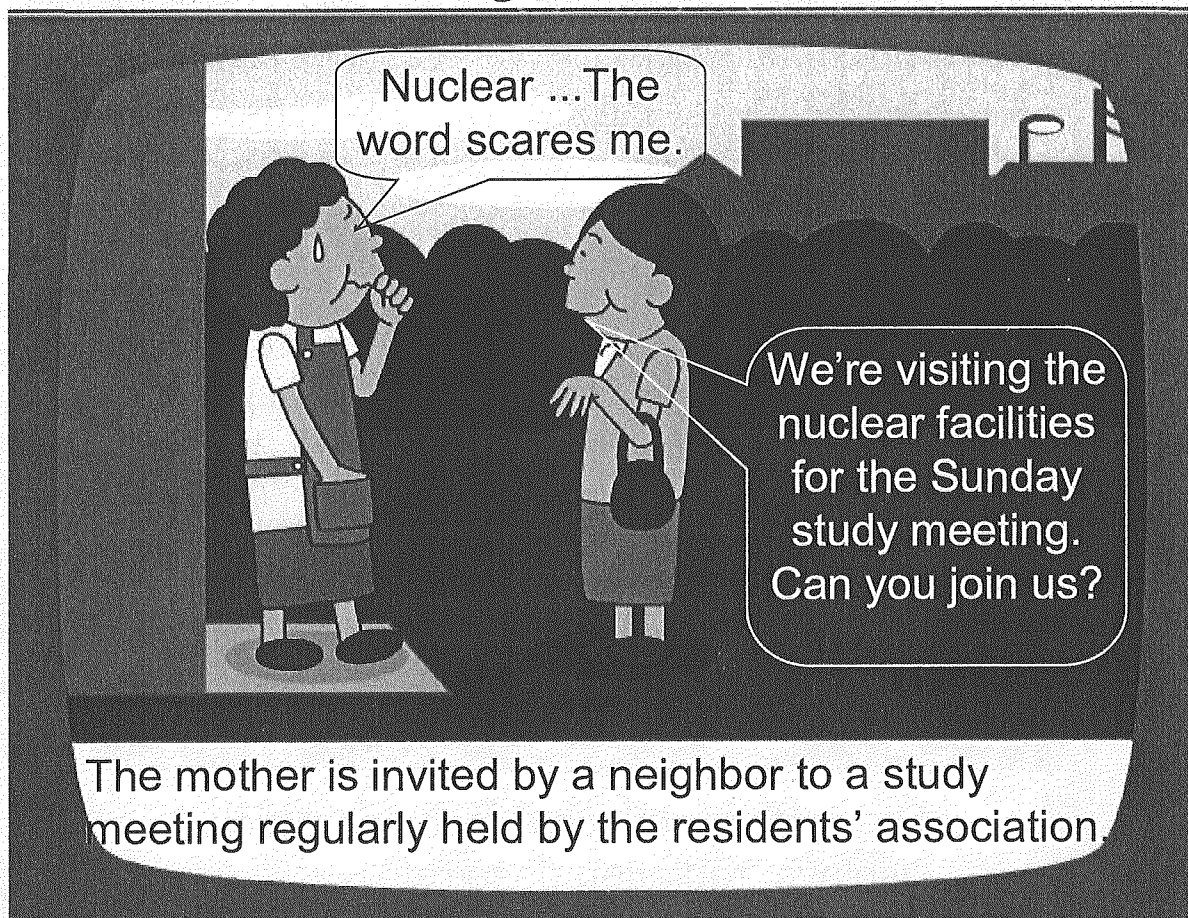
Links to the Japanese sites related to the risks are

Risk Information on this website



1. Evoking interest in risks

①



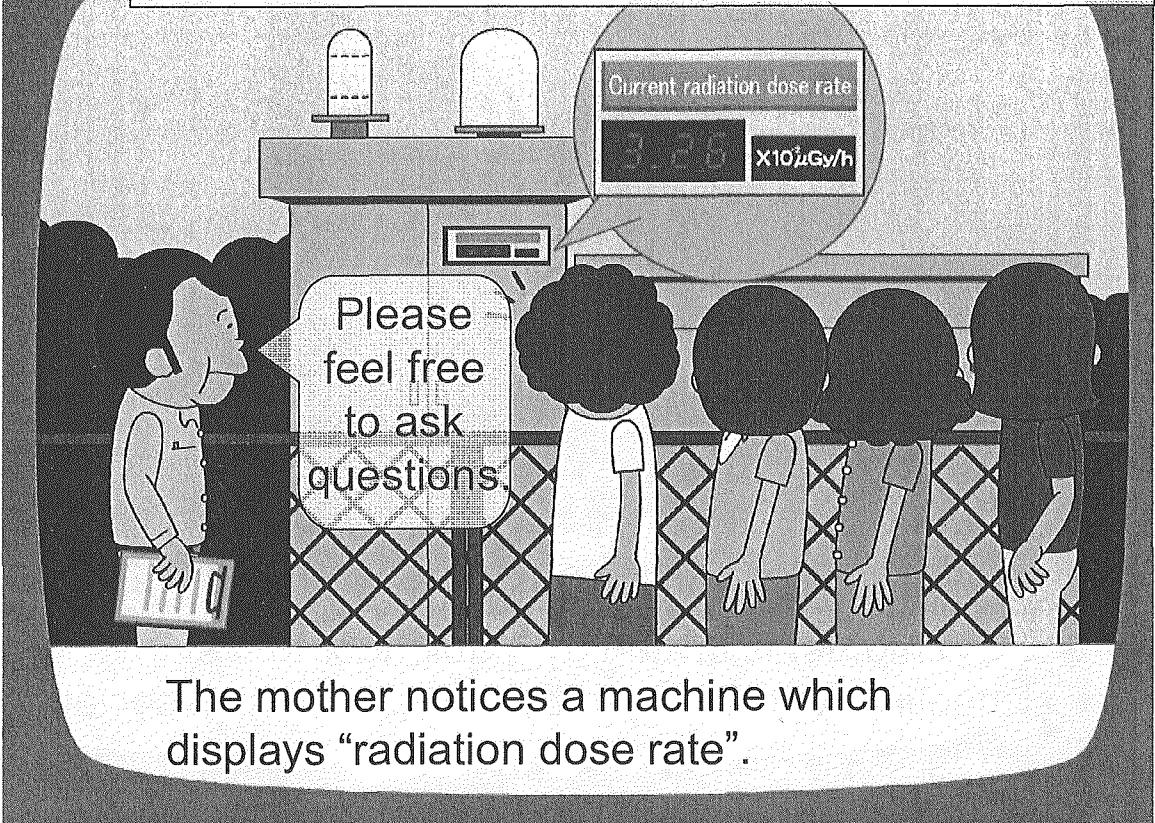
②



1. Evoking interest in risks

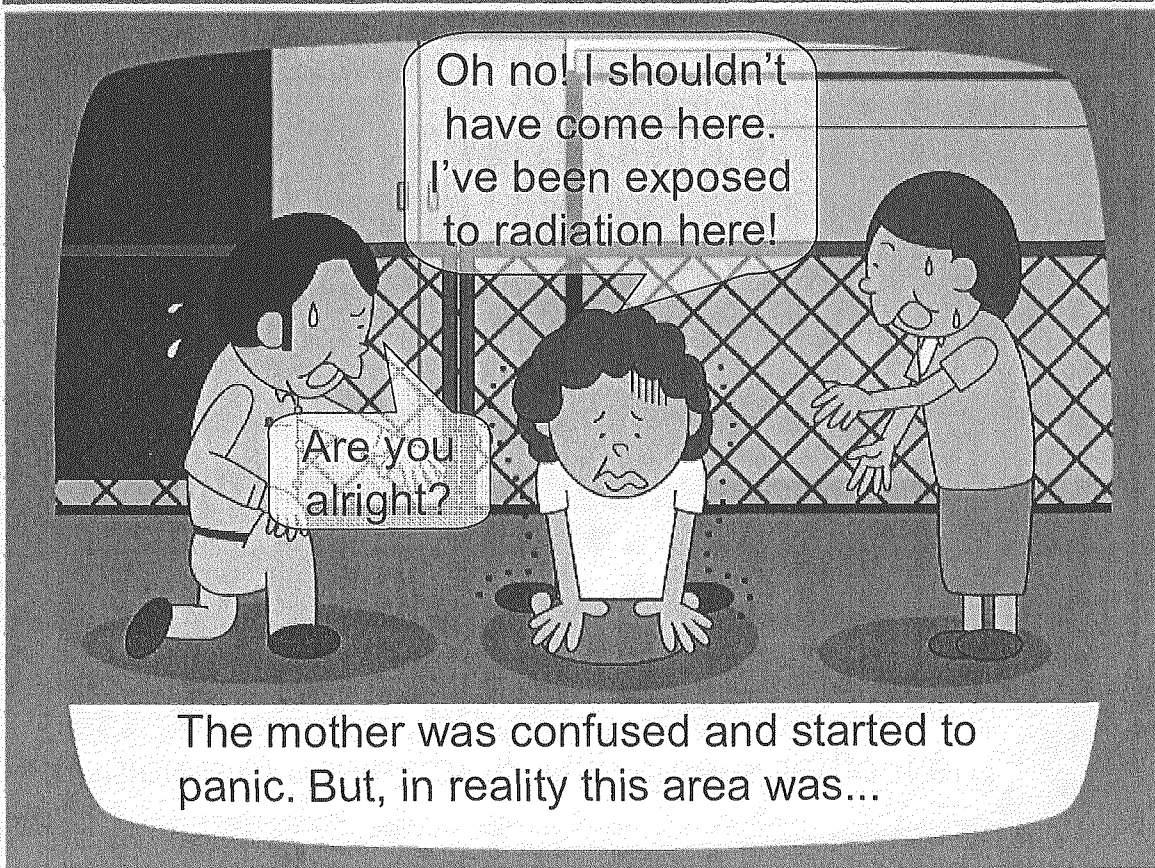
③

(Sunday) the members of the residents' association are listening to an explanation at the nuclear facility.



The mother notices a machine which displays "radiation dose rate".

④



The mother was confused and started to panic. But, in reality this area was...

1. Evoking interest in risks

⑤

What do you think?

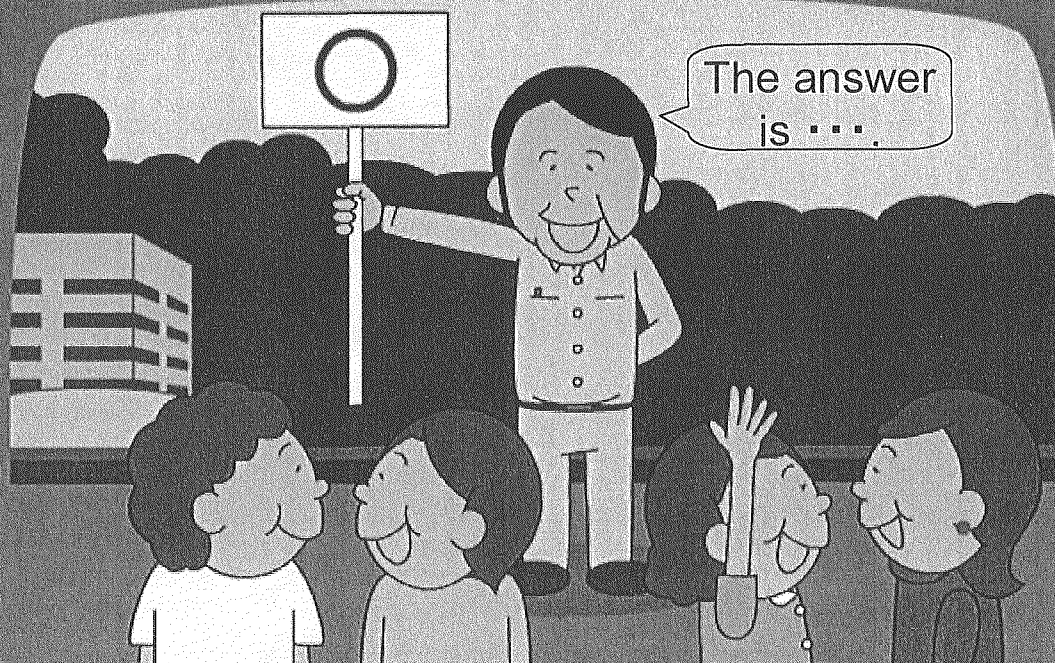
Question: Is the radiation level shown in this area xxxx in your town?

- ☐ A larger than (approx. 10 times)
- ☐ B almost the same as
- ☐ C smaller than (approx. one-tenth)

* Select your answer

Actually, radiation is naturally occurring all around us.

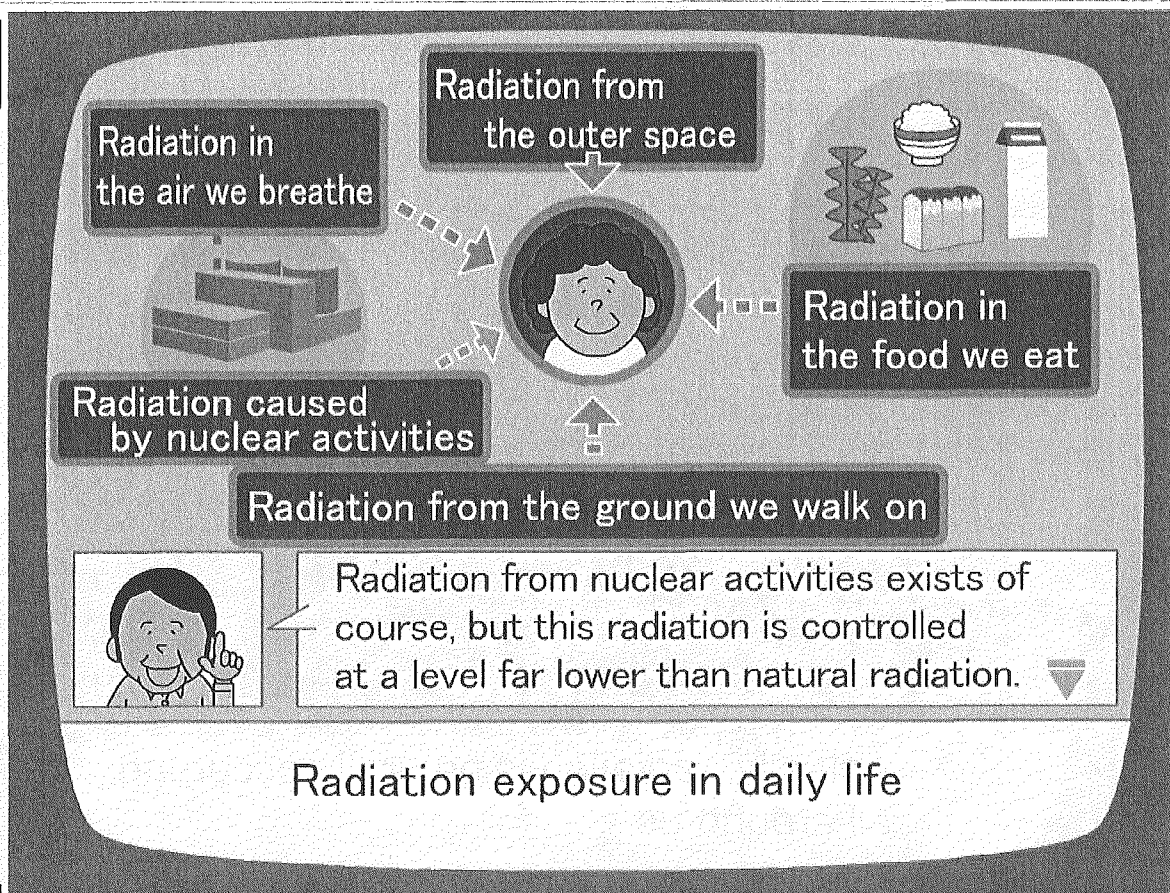
⑥



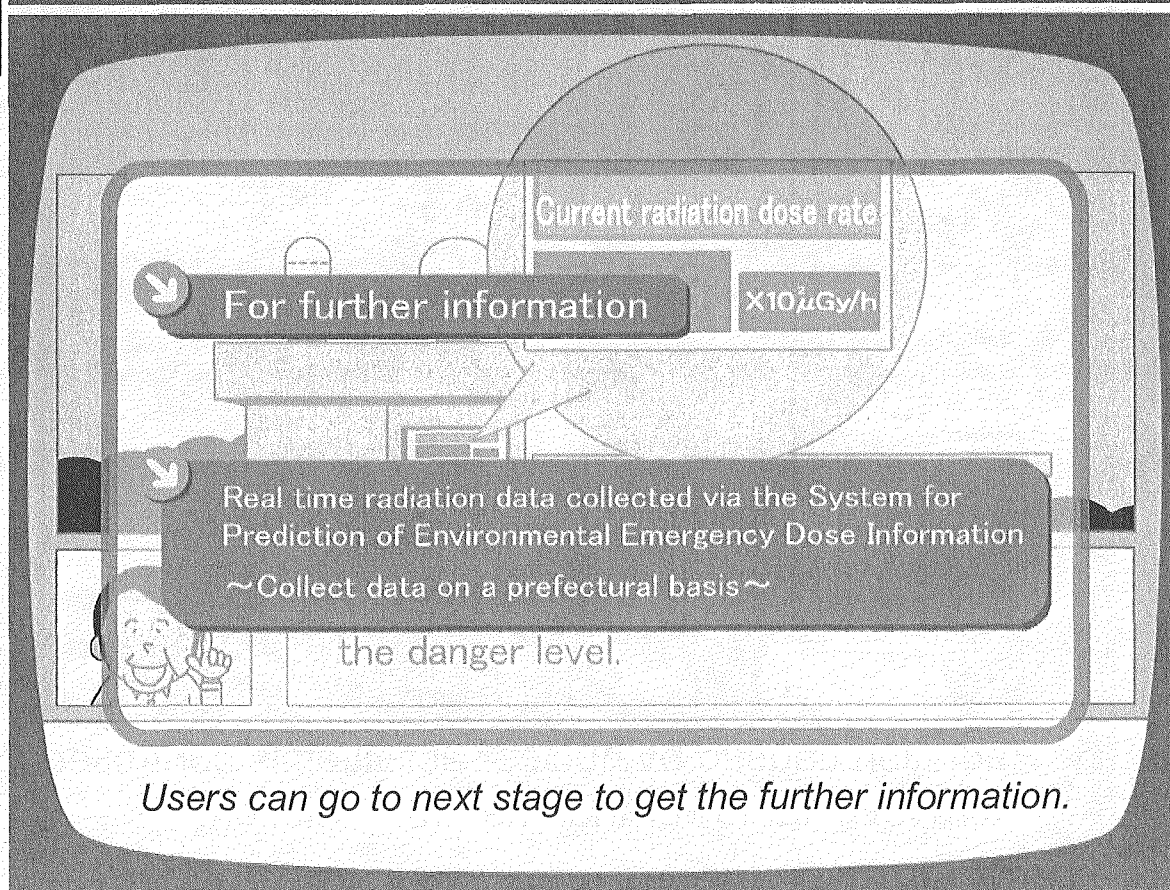
Radiation caused by nuclear activities is controlled at a level far lower than natural radiation.

1. Evoking interest in risks

⑦

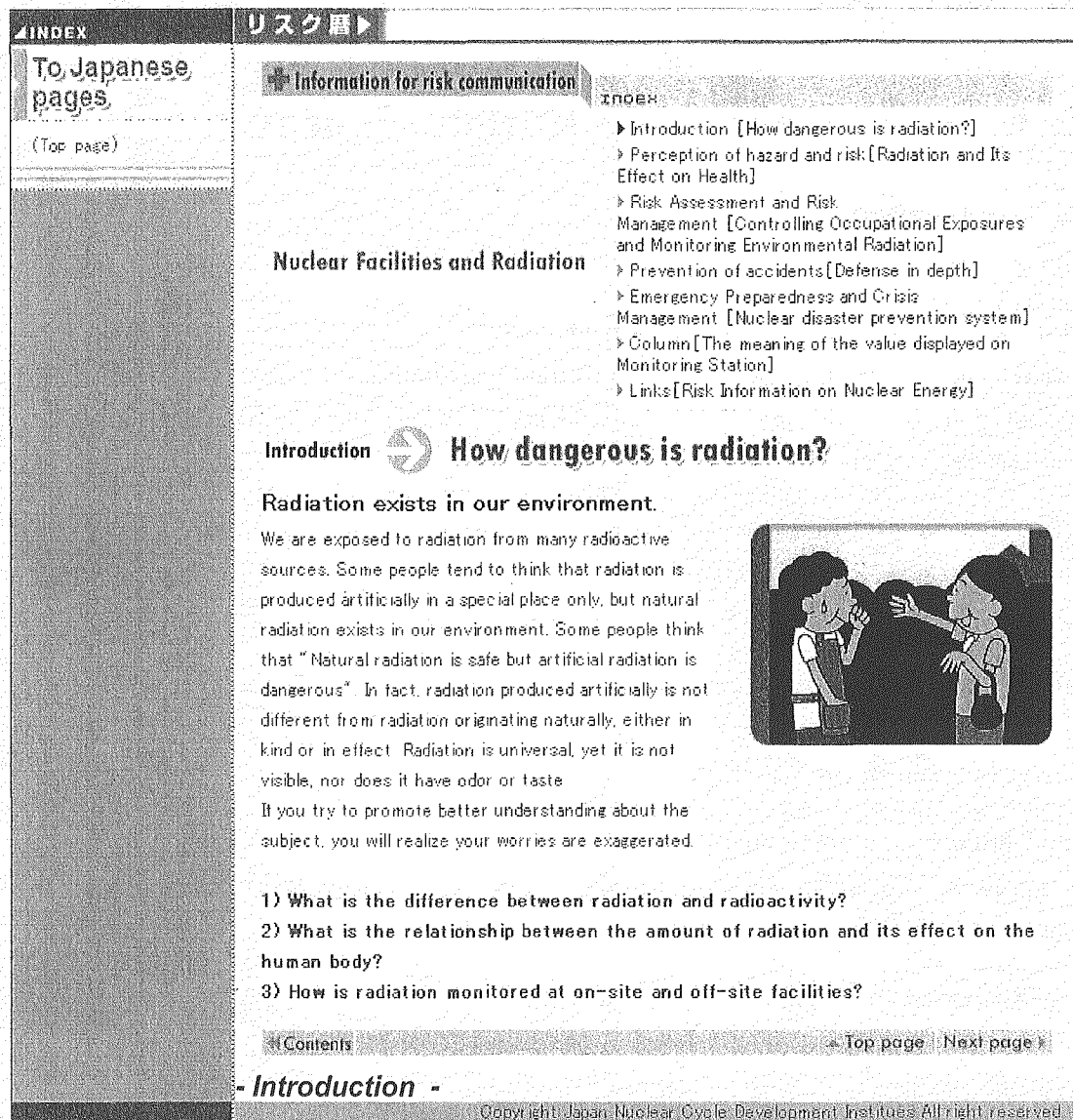


⑧



2. Providing sufficient information on risks

When users develop an interest or concern about a particular risk after watching the cartoon animation, this website provides them with descriptive literature supplemented with pictures and text.



INDEX リスク 階 ▶


To Japanese pages
(Top page)

Information for risk communication

Index

- ▶ Introduction [How dangerous is radiation?]
- ▶ Perception of hazard and risk [Radiation and Its Effect on Health]
- ▶ Risk Assessment and Risk Management [Controlling Occupational Exposures and Monitoring Environmental Radiation]
- ▶ Prevention of accidents [Defense in depth]
- ▶ Emergency Preparedness and Crisis Management [Nuclear disaster prevention system]
- ▶ Column [The meaning of the value displayed on Monitoring Station]
- ▶ Links [Risk Information on Nuclear Energy]

Nuclear Facilities and Radiation

Introduction  **How dangerous is radiation?**

Radiation exists in our environment.

We are exposed to radiation from many radioactive sources. Some people tend to think that radiation is produced artificially in a special place only, but natural radiation exists in our environment. Some people think that "Natural radiation is safe but artificial radiation is dangerous". In fact, radiation produced artificially is not different from radiation originating naturally, either in kind or in effect. Radiation is universal, yet it is not visible, nor does it have odor or taste.

If you try to promote better understanding about the subject, you will realize your worries are exaggerated.

1) What is the difference between radiation and radioactivity?
2) What is the relationship between the amount of radiation and its effect on the human body?
3) How is radiation monitored at on-site and off-site facilities?

[Contents](#) [Top page](#) [Next page](#)

- Introduction -

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- Information on hazard perception or risk perception -

- Information on risk assessment or risk management -

- Information on emergency preparedness or crisis management -

- Information on accident prevention -

- Column -

Further specialized information

3. Guiding to the further specialized information on risks

The website enables users to access useful Japanese websites related to particular risks.

Links Risk Information on Nuclear Energy

▶ **Nuclear Safety Commision of Japan.**

This website provides information on nuclear safety policy in Japan.

▶ **Environmental Radioactivity and Radiation in Japan.**

This website provides information on the results of the radioactivity and radiation survey carried out by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The Japan Chemical Analysis Center has edited this web site, as directed by MEXT

▶ **Disaster Prevention and Nuclear Safety Network for Nuclear Environment**

This website provides Primary information on the prevention of nuclear disasters. Nuclear safety Technology Center has edited this web site, as directed by MEXT.

▶ **Japan Nuclear Energy Safety Organization (JNES)**

This website provides information on operating experience of nuclear power plants, nuclear emergency preparedness such as law and training in Japan.

▶ **Nuclear and Industrial Safety Agency "NISA" of METI**

This website provides information on accidents and trouble at nuclear power plants and reprocessing plants.

▶ **National Institute of Radiological Sciences (NIRS)**

This website provides information on R&D activities of biological effects of radiation and their mechanisms, medical and social countermeasures against radiation damage, and disease diagnosis and treatment using radiation and radioisotopes in Japan.

▶ **Radiation Effects Research Foundation (RERF)**

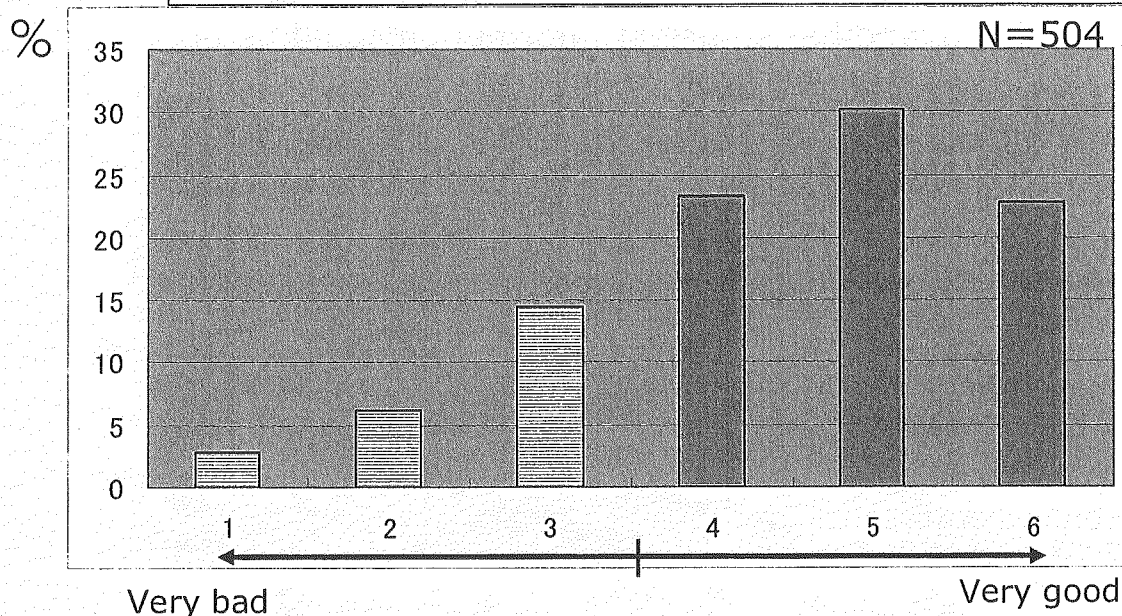
This website provides information on the study of health effects of radiation in survivors of the atomic bombings in Hiroshima and Nagasaki.

▶ **Japan Nuclear Cycle Development Institute (JNC)**

This website provides information on real-time radiation data monitored by JNC in areas where JNC nuclear facilities are located.

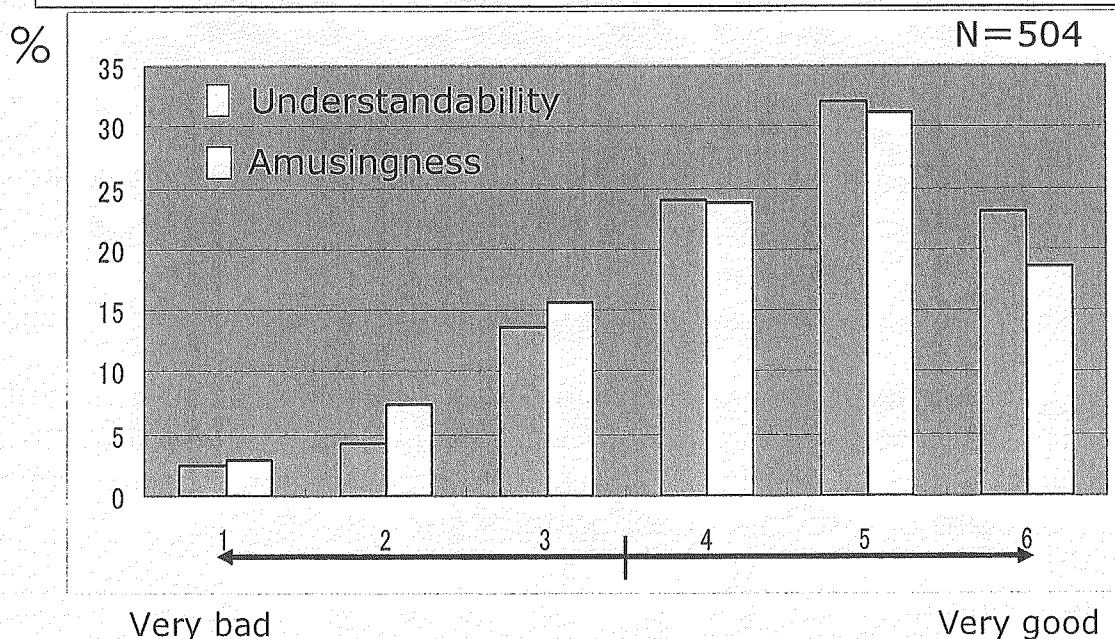
Results -The effect of the website information- *Evoking interest in risks*

First impression created by the animated characters



Seventy-six percent of the respondents answered that they got a warm, friendly feeling from the animated characters on the website.

Understandability & Amusingness created by animated movies

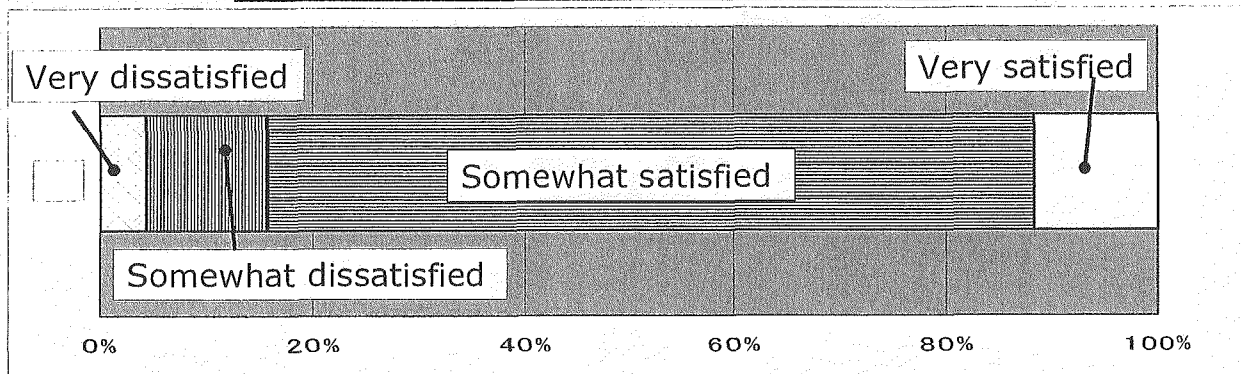


From the viewpoint of "Understandability" and "Amusingness", which are critical success factors for evoking interest, 79% of the respondents answered, "easy-to-understand", and 74% of the respondents answered, "amusing"

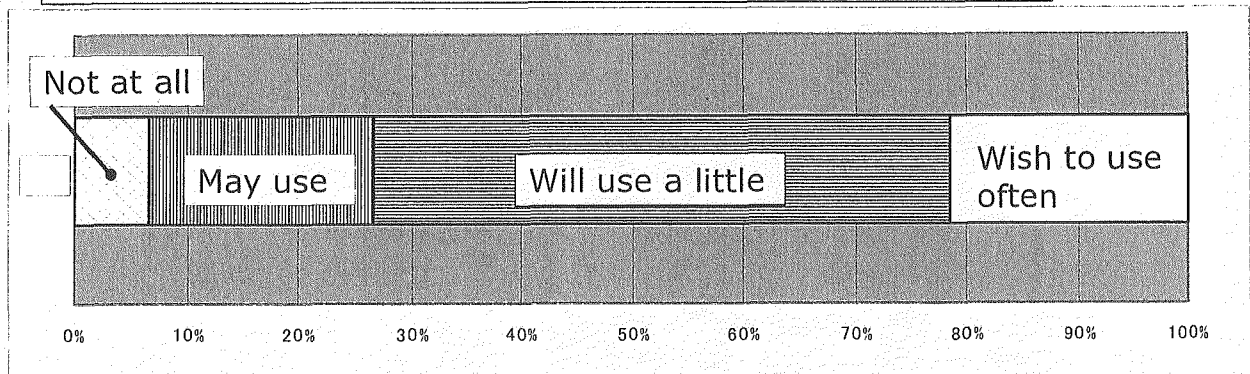
Results -The effect of the website information- *Availability of sufficient information on risks*

From the viewpoint of "Contents" and "Usefulness", which are critical factors for judging whether sufficient information could be provided to users, 84% of the respondents were satisfied with the contents, and 74% of the respondents intended to revisit the website in the future.

Are you satisfied with the contents? N=504



Do you wish to use this website in the future? N=504



<Note> A questionnaire survey on 504 Internet users was carried out in order to measure the effectiveness of website information during three days(6th/Nov./2003 – 8th/Nov./2003). 98% of the Respondent didn't know this website before this questionnaire survey.

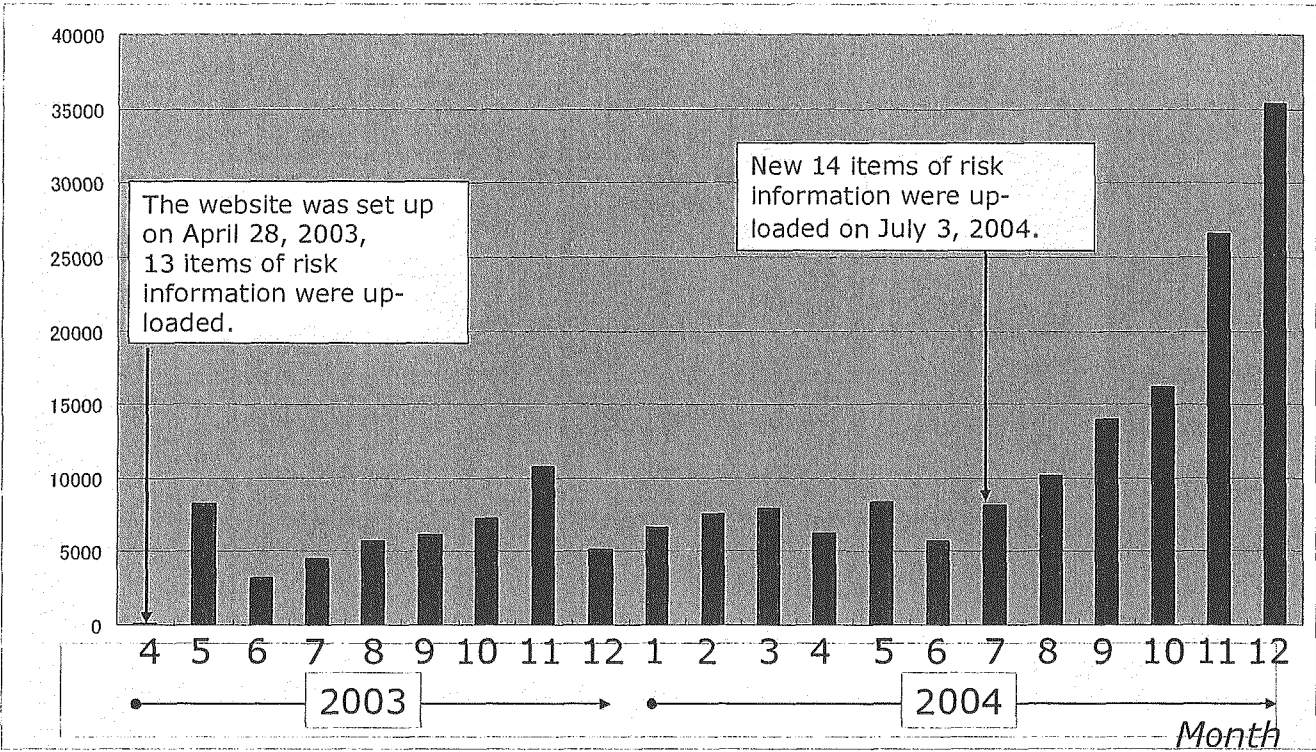
Respondent demographics was as follows.

- Respondent population by gender → males:50.4%, females:49.6%
- Respondent population by age → 10-19:18.8%, 20-29:21.4%, 30-39:20.4%, 40-49:19.0%, 50+:20.2%

Results -Website visits-

The total number of page-views for each month demonstrates an upward trend. The website recorded approximately 200,000 page-views during the following period.

Page view



Discussion & Conclusion

We discussed the results assuming that 60% or more of the respondents gave a positive answer as a guide of effectiveness. Given the above survey results, we consider that this website has the potential to be an effective tool for improving risk literacy. Given the above results of website visits, We can make a good guess that the website would become a recognized site. We conclude that this website could provide qualitative risk information for users as a portal site. In the future, we would like to develop a mechanism to provide quantitative risk information for users and also aim to develop the website in collaboration with others, including local residents who have different cultures and viewpoints.