



**THE ROLE OF THE PUBLIC IN THE FRENCH NUCLEAR
SECTOR**

**THE CASE OF “LOCAL INFORMATION COMMISSIONS” (CLIS) FOR NUCLEAR
ACTIVITIES IN THE WEST OF FRANCE**

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LE ROLE DU PUBLIC DANS LA GOUVERNANCE DU RISQUE NUCLEAIRE

**ETUDE DE CAS DES “COMMISSIONS LOCALES D’INFORMATION” (CLI) DES
INSTALLATIONS NUCLEAIRES DU NORD COTENTIN**

I. Introduction : Construire le Public de la Gouvernance du Risque Nucléaire en France

Cette thèse s'intéresse à la question de la participation et du rôle du public dans la gouvernance des risques nucléaires. La question de recherche principale de la thèse est la suivante : comment un public potentiellement impacté par des activités à haut risque, parvient à se constituer en acteur social qui participe activement à leur gouvernance ? Grâce à une étude de cas, la thèse explore comment, à travers le temps, des acteurs de la société civile, progressivement institutionnalisés par le biais des Commissions Locales d'Information (CLI¹), peuvent avoir des effets sur la gouvernance du risque nucléaire en France. La thèse se demande également si les différentes parties prenantes du nucléaire en France souhaitent réellement arriver à une compréhension partagée des situations et des enjeux.

Pour tenter de répondre à ces questions, l'auteure procède à une analyse critique d'un certain nombre de travaux de la littérature des organisations (notamment la théorie des parties prenantes) qui considèrent que le public existe de fait et qui font ainsi l'économie d'une étude de sa construction et de son organisation dans le temps. L'auteure soutient en effet que lorsque les termes du débat sont techniques et complexes, le processus de constitution du public joue un rôle crucial, qui mérite d'être étudié. Pour analyser ce processus de constitution du public, l'auteure mobilise des concepts développés par le courant de la philosophie pragmatiste, plus particulièrement par les auteurs Mary Parker Follett (1918), John Dewey (1925) et Walter Lippmann (1927). Ces auteurs

¹ Ces institutions représentent les différents membres de la société civile et avaient initialement une mission de suivi, d'information et de concertation en matière de sûreté nucléaire. La loi TSN (Transparence et Sécurité en matière Nucléaire) de 2006 a donné plus de poids aux CLI dans la gouvernance du risque nucléaire, les rendant obligatoire pour tout site nucléaire civil et leur confiant un rôle d'investigation.

se sont en effet penchés sur la question de la construction du public et se sont demandés comment associer un public aux choix scientifiques et techniques complexes, susceptibles d'avoir un effet sur sa vie. La question de la définition et de l'émergence de différents publics – en d'autres termes des communautés d'acteurs potentiellement impactés directement ou indirectement par certaines décisions ou activités organisationnelles - était au cœur des débats. De tels publics peuvent s'organiser au sein d'entités actives pour tenter de limiter collectivement les conséquences négatives, ou pour profiter de conséquences positives. Le concept de public adopté dans cette thèse, inspiré du débat entre les auteurs pragmatistes cités précédemment, est très proche du concept de partie prenante (Freeman, 1984 ; 1994), malgré quelques différences développées dans la thèse. En effet, la thèse propose que les parties prenantes qui ont réussi à s'organiser en groupes sociaux forment un public et donc le concept du public implique un statut actif pour ses participants. Ils se sentent concernés par un sujet en particulier et s'organisent pour agir ensemble et amener des changements.

Dans la thèse, l'auteure soutient l'idée que le processus de construction du public est encore plus crucial quand les enjeux concernent une partie importante de la population, et quand la complexité des sujets traités suppose des connaissances spécifiques ou techniques. C'est en particulier le cas des activités dites à haut risque, comme par exemple les activités nucléaires. Pour étudier la constitution d'un public et son maintien dans le temps, l'auteure a choisi d'étudier le cas de l'interCLI de la Manche depuis sa création au début des années 1980 jusqu'à aujourd'hui. Les questions suivantes sont abordées : comment un ensemble de personnes, concerné par une question donnée, se constitue en groupe capable d'exprimer ses points de vue ? Comment les membres de la CLI ont fait évoluer leurs pratiques au cours du temps, en réponse à des événements externes et des changements institutionnels et quels en ont été les impacts sur la gouvernance des risques nucléaires ? La principale originalité de cette recherche réside dans la richesse de sa collecte de

données, dans un contexte où les données sont particulièrement difficiles à obtenir. Ce cadre empirique est en effet très intéressant car il offre un excellent environnement pour étudier l'émergence de nouvelles formes de relations individuelles et collectives, entre les pro- et les anti-nucléaires, mais aussi entre les spécialistes et les « profanes ».

Le secteur nucléaire Français est traditionnellement contrôlé par le gouvernement et de grandes entreprises industrielles. Par conséquence, les premières tentatives de construction du public dans le secteur nucléaire, ont dû surmonter de nombreux obstacles. C'est d'ailleurs toujours un véritable défi pour les CLI de se faire une place en tant que véritable partie prenante de la gouvernance du risque nucléaire.

Afin d'appréhender les dynamiques de construction du public, l'auteure adopte dans sa thèse une épistémologie pragmatique d'enquête (Peirce, 1931 ; Dewey, 1938). Le but de cette approche est d'expliquer les facteurs qui ont contribué à l'émergence et au maintien d'un public au fil du temps, et de décrire comment les pratiques de ses membres ont évolué et quels en sont les effets dans la gouvernance d'un secteur spécifique. Par cette approche, le but du chercheur n'est plus de fournir une vérité scientifique – pour laquelle la théorie et la réalité s'accordent – mais de fournir une explication plausible d'une situation donnée, afin de permettre aux acteurs d'agir (Peirce, 1931 ; Lorino, 2013). Quand le chercheur enquête, il ne se limite pas à des observations, des entretiens ou des analyses de documents mais il essaie d'obtenir au fil du temps une fine connaissance humaine, sociale et culturelle de son sujet d'étude. L'enquête menée par l'auteure pendant trois années sur le terrain pour recueillir le matériel de cette thèse inclut donc de multiples sources : des observations, mais aussi plusieurs participations à des séminaires et formations, des visites de sites nucléaires, des analyses de documents, de mails et de sites Internet, l'étude d'enregistrements de réunions passées, des entretiens formels ainsi que des discussions informelles

avec des personnes aux profils extrêmement variés, etc. Toutes ces informations ont permis à l'auteure d'acquérir un point de vue d'« initié » et de comprendre en profondeur ce qu'il arrive lorsque des acteurs de la société civile, institutionnalisés dans des CLI, cherchent à participer à la gouvernance du risque nucléaire.

Dans les parties suivantes, l'auteure va exposer les trois chapitres de sa thèse de façon brève, en dégagant la question de recherche, les objectifs théoriques et empiriques de chaque chapitre ainsi que les principaux résultats. Dans une dernière partie, l'auteure résumera la conclusion de sa thèse, ses contributions théoriques et pratiques, ainsi que ses implications sur le terrain.

II. Premier Chapitre : le Public existe-t-il vraiment ? Etude de son Processus de Construction dans le Temps.

L'objectif du premier chapitre est double. Il cherche tout d'abord à comprendre comment un groupe social, intéressé par un sujet particulier, se construit délibérément au fil du temps, malgré l'hétérogénéité de ses membres. Grâce à l'acquisition de réelles compétences et à la possibilité de participer de façon pertinente à la gouvernance d'activités complexes, ce groupe social peut alors devenir un acteur majeur de cette gouvernance. Le premier chapitre cherche également à comprendre les conditions grâce auxquelles le public, une fois constitué, peut continuer à exister et à se maintenir en tant que public actif. L'analyse souligne que c'est en fait de la responsabilité des acteurs que de devenir des participants structurés des débats qui les intéressent. Cependant, la thèse met l'accent sur le fait que les parties prenantes d'une gouvernance en particulier (i.e. les entreprises, les organismes de régulation, l'Etat...) peuvent aider le public à s'impliquer dans cette gouvernance.

L'auteure soutient qu'un public n'existe pas a priori, qu'il est le produit d'une perpétuelle évolution et qu'il est crucial de s'intéresser à la dynamique de son émergence et de son maintien au cours du temps, en s'appuyant sur Mary Parker Follett (1918), John Dewey (1925) et Walter Lippmann (1927). Ces auteurs pragmatistes ont développé des points de vue différents concernant l'opérationnalisation d'un tel public : le « gouvernement de proximité » et la « réponse communautaire » pour Mary Parker Follett (1918), la mobilisation des experts pour Walter Lippmann (1925) et le développement d'une « communauté d'enquête » pour John Dewey (1927). Ces trois dimensions sont en fait complémentaires et permettent de comprendre *comment un groupe social qui est concerné par une question spécifique devient un groupe social qui s'est organisé formellement afin de pouvoir s'exprimer*.

Dans une première partie, le premier chapitre s'appuie sur une étude de l'évolution de la structuration du public autour des installations du Nord Cotentin, depuis les précurseurs au début des années 1980, jusqu'à aujourd'hui. L'auteure se penche sur les conditions initiales préalables à la construction du public et décrit en profondeur le contexte du Nord-Cotentin : les voisins mécontents agissant chacun de leur côté se sont érigés au fil du temps, en une communauté forte qui continue à exister et à agir depuis plusieurs décennies, grâce notamment à la motivation et aux compétences de ses membres.

Le concept de gouvernement de proximité proposé par Follett est mobilisé, soulignant ainsi l'importance de développer des débats avec un public à petite échelle, où les personnes entretiennent une certaine proximité avec les questions traitées. La thèse souligne ainsi l'importance de cette communauté et décrit ses spécificités dans le cas de l'interCLI du Nord-Cotentin. Les personnes impliquées dans la création des CLI furent ainsi aidés par des experts scientifiques locaux et nationaux, des syndicats, des associations environnementales, etc. Plusieurs

incidents ayant eu lieu dans les sites nucléaires restèrent inexpliqués, ce qui était intolérable pour la population, ce qui conduit l'Etat et les exploitants à créer une entité permettant aux CLI d'obtenir des informations. La communauté de la CLI était ainsi née. La thèse analyse la mobilisation des experts, tel que proposé par Lippmann, dans la création de la CLI depuis ses débuts et montre qu'il y a en fait deux types d'expertise différents. Tout d'abord, une expertise scientifique et technique qu'avaient dès le départ certains membres, grâce à leur profil d'ingénieur, à leur connaissance fine des installations en tant qu'employé ou ancien employé ou encore grâce à leur montée en compétence au fil du temps sur ces sujets techniques. De plus, une précieuse expertise citoyenne a été acquise par d'autres membres de la CLI au fil du temps, leur permettant souvent de remettre en question ce qui leur est exposé et de prendre position sur de nombreux sujets. Ces différents types d'expertise se sont nourries les unes les autres et ont permis à la CLI, grâce à l'important travail sur le long terme de ses membres, de gagner en légitimité pour les autres parties prenantes et de devenir une communauté crédible et impliquée dans la gouvernance du risque nucléaire. Cette communauté devient rapidement une « communauté d'enquête » (concept proposé par John Dewey) et les membres de la CLI se lancent dans diverses investigations. Même si les enquêtes se révèlent parfois être peu concluantes, il y a le plus souvent dans la CLI, un désir de soumettre chaque débat, chaque décision et chaque action à un processus d'enquête. Ce processus d'enquête a pour but d'obtenir des informations et de challenger les exploitants et les régulateurs sur la gouvernance du risque nucléaire.

Dans une deuxième partie, le premier chapitre montre que malgré ces réussites de la CLI, maintenir la motivation et l'implication d'un tel public sur un temps long est extrêmement compliqué, et suppose de nombreux efforts. En effet, les habitants du Nord-Cotentin vivent à côté des installations nucléaires depuis maintenant plus de 60 ans. Ce qui était un sujet crucial pour eux

lors de la construction des différentes installations, est parfois devenu moins important : les installations sont là et représentent une partie importante des emplois de la région. C'est souvent difficile pour les habitants de continuer à se battre contre le nucléaire dans la région. Ainsi, certains se désintéressent progressivement du sujet de la gouvernance du risque nucléaire, qui reste un sujet complexe et peu accessible pour le plus grand nombre. L'institutionnalisation progressive des CLI, transformant un groupe social informel en une entité formelle et légale, a certainement essoufflé quelque peu l'initiative, rendant l'exercice plus administratif et moins personnel qu'il ne l'était initialement. De plus, la gestion des CLI revient aujourd'hui aux conseils généraux, ce qui implique des conflits d'intérêt importants : ils reçoivent en effet des sommes importantes de la part des entreprises du nucléaire, et il est donc délicat pour eux de les challenger via les CLI.

Finalement, le chapitre montre que le contexte initial du Nord-Cotentin, à la fin des années 1970, était particulièrement favorable à la création d'une communauté impliquée et compétente, capable de s'exprimer, de générer des enquêtes et de devenir au fil du temps, un acteur incontournable de la gouvernance du risque nucléaire en France. Cependant, lorsque le public perd sa capacité de générer des enquêtes, ce processus de construction perd de sa puissance. En conclusion, ce n'est uniquement grâce à un processus dialogique d'enquête que les parties prenantes peuvent se construire et se maintenir en tant que « public ».

III. Deuxième Chapitre : Les Mécanismes d'Accountability au sein de la CLI : Etude du Reporting d'Incidents

Dans un second chapitre, l'auteure introduit la notion d' « accountability », en constatant que l'exigence de rendre des comptes s'applique à toutes les grandes organisations dont l'activité a un impact sur leur environnement, que ce soit les banques, les industries à risques, les institutions

publiques, etc. Le chapitre propose une vision processuelle, dynamique et dialogique du concept d'*accountability* en mobilisant le concept de « communauté d'enquête » développé par Dewey. L'auteure avance la thèse selon laquelle on ne peut pas considérer que les comptes existent en tant que tel – qu'ils soient définis a priori par l'organisation concernée (*accounter*) ou le public (*accountee*) – car ils doivent être co-construits par les différentes parties prenantes au sein d'une communauté d'enquête. Selon Dewey, l'enquête associe *accounters* et *accountees* dans un processus où chacun accepte qu'il n'y ait pas de certitude préalable, que toute question soit donc recevable. L'enquête suppose un recueil de données permettant de construire un récit plausible de la situation et non pas une vérité définitive.

Dans le deuxième chapitre, l'auteure se penche sur les pratiques d'*accountability* des exploitants envers la CLI, en concentrant son analyse sur le rôle joué par le reporting d'incident dans la constitution d'une communauté d'enquête pour investiguer la sûreté des activités nucléaires. Ce chapitre se focalise ainsi sur le processus de reporting d'incidents fait par un des exploitants nucléaires à la CLI. Les acteurs français du nucléaire semblent partager le désir d'accroître la transparence et l'ouverture à la société, en favorisant l'implication croissante du public dans la gouvernance du risque nucléaire. Cela s'est traduit en particulier par l'institutionnalisation des CLI en France et par des lois récentes, leur donnant plus de pouvoir. Par exemple, les exploitants doivent maintenant rendre des comptes à la CLI sur les incidents ayant eu lieu dans leurs installations. Ce reporting d'incidents devrait en principe permettre aux CLI de conduire leurs propres enquêtes afin que les membres comprennent les enjeux de chaque situation et qu'ils puissent continuer à jouer le rôle de public « informé », sinon ce reporting n'a que peu d'utilité. L'étude prend la forme d'une analyse pragmatique de cette pratique d'*accountability*, et des débats suivant les présentations et rapports fournis à la CLI.

L'auteure cherche à comprendre si les membres des CLI ont la capacité de saisir pleinement le reporting d'incidents qui est fait par l'exploitant ; quels sont les instruments et les techniques utilisés pour faire ce retour ; et quelles sont les conditions nécessaires pour établir un véritable dialogue entre les différentes parties prenantes, afin que les membres des CLI comprennent les incidents et leurs enjeux. Le retour d'incidents est crucial dans l'industrie nucléaire car il permet d'établir un lien entre le passé, le présent et le futur, et de constituer une véritable courbe d'apprentissage organisationnel si le processus est fructueux. Discuter des incidents et accidents nucléaires est toujours délicat pour toutes les parties prenantes de la gouvernance du risque nucléaire car le moindre événement fait écho aux catastrophes nucléaires de Fukushima et Tchernobyl. Ainsi, pendant les assemblées générales de la CLI lorsque les incidents ayant eu lieu sur les sites nucléaires sont abordés, les membres de la CLI posent en général de nombreuses questions sur ces incidents et cherchent à en comprendre les enjeux sous-jacents. En pratique, le reporting d'incidents consiste en un compte-rendu de l'incident par l'exploitant fait à la CLI, quelques jours après l'incident, un compte-rendu rendu public par l'ASN de l'incident et une présentation de l'exploitant devant la CLI en assemblée générale, avec un support écrit (incluant des photos et des schémas). Ce processus de reporting d'incidents est en fait tout d'abord un exercice de communication, mais il se révèle être souvent le point de démarrage d'enquêtes. En effet, si les membres de la CLI pourraient écouter passivement le compte-rendu de l'exploitant, en pratique ils essaient souvent d'analyser et de comprendre en profondeur les incidents qui leur sont présentés.

Ce chapitre montre en effet que, dans certaines conditions, le processus de retour d'incidents peut déclencher le processus d'enquête : les membres de la CLI ont des informations à leur disposition grâce auxquelles le processus d'enquête démarre. Certains désirent sincèrement

mener une enquête sur ces incidents et ainsi développent et maintiennent l'identité de la CLI comme communauté d'enquête qui sert l'intérêt de la société civile dans la gouvernance du risque nucléaire. Il y a donc de nombreux signes montrant que les pratiques d'*accountability* progressent au sein de la CLI.

Cependant, les différents récits de compte-rendus d'incidents relatés dans le chapitre montrent que même si la plupart des acteurs déclarent avoir l'intention d'impliquer le public dans le processus de retour d'incidents, une telle pratique d'*accountability* gêne parfois la dynamique d'enquête et peut également contribuer à maintenir une certaine forme d'opacité. En effet, le processus de retour d'incidents omet souvent des éléments majeurs de l'incident et les informations données aux membres des CLI sont donc insuffisantes pour leur permettre de mener leur enquête convenablement. Par exemple, ce processus n'oblige pas les membres à prendre en compte les causes organisationnelles des incidents, confinant ainsi certaines enquêtes à des sujets purement techniques et s'éloignant du sujet principal. Enfin, le processus de retour d'incidents ne permet pas d'informer les membres de la CLI de ce qui s'est réellement passé, principalement à cause de filtres provenant d'autres parties prenantes de la gouvernance du risque nucléaire. En pratique, lorsque l'enquête s'oriente sur des sujets techniques, proches des compétences de certains membres de la CLI, les différentes parties prenantes parviennent à faire progresser l'enquête. En revanche, lorsque l'enquête s'oriente vers des sujets managériaux ou de gouvernance, l'enquête est souvent interrompue.

L'auteure conclut que ce reporting ne favorise pas le processus d'enquête et que la « communauté d'enquête » reste encore une utopie. En effet, les membres de la CLI ne parviennent pas à mener des enquêtes concluantes, à cause de multiples facteurs de blocage analysés dans le chapitre. Si la CLI avait à sa disposition un outil de reporting d'incidents leur fournissant une

compréhension en profondeur des incidents survenus dans les installations nucléaires voisines, cela pourrait permettre à ses membres de continuer à jouer pleinement leur rôle de communauté d'enquête, vigilante et compétente sur les sujets de risque nucléaire.

IV. Chapitre III : Contrôle ou Participation des Parties Prenantes ?

Deux Visions différentes du Contrôle du Risque Nucléaire

En France, les instituts de régulation - l'Autorité de Sûreté Nucléaire (ASN) et l'Institut de Radioprotection et de Sûreté Nucléaire (IRSN) - sont responsables du contrôle du risque nucléaire et la participation du public à ce contrôle se fait notamment par le biais des Commissions Locales d'Information (CLI). Ces institutions représentent les différents membres de la société civile et ont initialement une mission de suivi, d'information et de concertation en matière de sûreté nucléaire.

Ces dernières années, et plus spécifiquement depuis la loi TSN de 2006 et l'accident de Fukushima en 2011, les autorités nucléaires ont établi que lorsque la société civile - représentée par les CLI - était plus à même d'appréhender les risques nucléaires, elle contribuait à améliorer globalement la sûreté nucléaire en France. Ainsi, en 2015, la loi de transition énergétique a confirmé la volonté politique de renforcer le pouvoir des CLI dans la gouvernance du risque nucléaire et a étendu leurs pouvoirs d'investigation. Le modèle de gouvernance mis en place par le gouvernement français est un modèle de contrôle de la sûreté nucléaire vertical, et l'ASN se voit donc confier des pouvoirs illimités pour exercer un tel contrôle : les inspecteurs ont généralement le dernier mot sur les sujets liés aux activités nucléaires. Impliquer les CLI dans la gouvernance du risque nucléaire n'est donc pas si simple.

Ce chapitre pose la question suivante : *Dans quelle mesure le renforcement de la participation du public dans la gouvernance du risque nucléaire a-t-elle un impact concret sur l'activité de contrôle des institutions de régulations et sur l'identité professionnelle de ses membres ?* Au-delà des lois et des discours politiques, l'auteure étudie la transition d'un modèle traditionnel de la gouvernance du risque nucléaire (le contrôle exercé par les instituts de régulation) vers un nouveau modèle de gouvernance (une pratique plus dialogique de la gouvernance impliquant activement le public) et pose la question de la compatibilité de ces deux modèles.

Le chapitre présente le contexte du contrôle du risque nucléaire et tente de clarifier les origines de l'ambiguïté de la situation pour les acteurs. L'identité professionnelle des inspecteurs s'est en effet construite sur un modèle de gouvernance du risque nucléaire de contrôle vertical, confié par l'Etat. Ce modèle de gouvernance est difficilement compatible avec un modèle plus participatif - dans lequel la voix de la CLI peut être considérée comme aussi légitime que celle des inspecteurs - que semblent privilégier actuellement les discours politiques et les nouvelles lois. Les inspecteurs se retrouvent donc confrontés à un nouveau modèle de gouvernance pluraliste, ouvert, impliquant de multiples parties prenantes et faisant émerger des processus délibératifs parfois contradictoires. En effet, décider de consulter une autre partie prenante implique de l'écouter véritablement et d'accepter qu'elle formule son point de vue et ses points de désaccord. De plus, la contradiction entre le discours politique donnant une mission d'investigation aux CLI et le manque de ressources allouées pour l'accomplissement de cette mission crée une situation ambivalente et problématique pour les acteurs, et le rôle des CLI est souvent soumis à leur interprétation.

Ce changement du modèle de gouvernance est analysé du point de vue des inspecteurs de l'ASN, à qui l'on demande de jouer un rôle important dans la mise en œuvre de ce modèle. Les inspecteurs ne sont pas familiers de ce nouveau type d'approche qui implique des points de vue

pluralistes et multiples, des discussions dialogiques et des compromis. Cela tranche en effet avec l'ancien modèle de contrôle de la sûreté nucléaire, holistique, au sein duquel les inspecteurs ont construit leur identité professionnelle. Ainsi, l'implication croissante des CLI dans la gouvernance du risque nucléaire fait émerger de réels défis pour les inspecteurs, qui doivent faire face à de nouvelles exigences. Le but du chapitre est de comprendre comment les inspecteurs de l'ASN font sens de ce nouveau modèle de gouvernance, comment ils voient le rôle des CLI et leurs impacts sur leurs pratiques. L'auteure mobilise la théorie du sensemaking organisationnel de Karl Weick (Weick, 1995 ; Weick, 2003 ; Weick et al. 2005) pour interpréter les données empiriques. Les discours politiques tendent à présenter l'implication de la société civile comme étant positive, sans s'interroger sur ce qui se passe en pratique ni se demander comment les acteurs de l'industrie nucléaire le perçoivent. La théorie du sensemaking permet justement d'aller plus loin en se penchant sur le ressenti des acteurs et leurs perceptions des situations (Ericson, 2001) tout en reconnaissant l'importance de l'identité sociale et organisationnelle des inspecteurs (Pratt, 2000).

En résumé, les inspecteurs considèrent l'implication des CLI dans la gouvernance du risque nucléaire comme ambiguë et floue. Il est montré dans le chapitre que cette ambiguïté provient en partie d'un manque de définition claire du rôle des CLI d'un point de vue institutionnel et d'un double discours politique : les inspecteurs se doivent d'être transparents avec le public, mais pas trop ; les CLI doivent gagner du pouvoir, mais pas trop. Cela est donc ambigu pour les inspecteurs à qui l'on demande de faciliter l'implication des CLI dans la gouvernance du risque nucléaire. Cette situation fut accentuée avec la loi de transition énergétique de 2015 qui donne encore plus de pouvoir aux CLI. Les inspecteurs doivent donc faire sens du rôle des CLI et pour ce, ils procèdent à un processus de classification de ses rôles.

La plupart des participants décrivent la CLI comme étant l'endroit où l'on discute des sujets nucléaires avec les représentants de la société civile, de façon compétente. Le chapitre montre que les CLI sont donc, à leurs yeux, **un contre-expert de la société civile**, capable de discuter, de façon pertinente, des sujets liés à la gouvernance du risque nucléaire. Cette expertise "profane", du sens commun, constitue une réelle contribution de la CLI, et peut résulter en mesures concrètes. De plus, comme la CLI est fermement ancrée dans son contexte spatial et social, elle porte la voix d'un groupe social, capable de faire émerger les préoccupations des habitants d'un territoire spécifique. Les CLI jouent le rôle d'aiguillon, rappelant aux inspecteurs qu'il ne faut pas oublier certains sujets, comme les sujets environnementaux. Finalement, les CLI constituent un niveau d'exigence supplémentaire pour les instituts de régulations qui savent qu'il y a toujours un troisième partenaire compétent qui observe leurs décisions et qui est capable de les remettre en question. Ce troisième œil est donc une garantie additionnelle de sûreté et de vigilance, permettant aux exploitants et aux instituts de régulation d'éviter de fonctionner en circuit fermé. En conséquence, les inspecteurs reconnaissent en général que les CLI contribuent à une meilleure sûreté nucléaire.

En revanche, les inspecteurs ont tendance à limiter cette expertise à certains domaines de compétence (la faune et la flore, les politiques de communication, les problèmes locaux, etc.). Ces sujets ne sont pas considérés comme cruciaux pour la sûreté nucléaire et n'interfèrent pas avec leurs domaines d'expertise technique. Les inspecteurs minimisent en général les apports des CLI concernant tous les sujets techniques et considèrent que les CLI n'ont pas l'expertise technique suffisante pour être un réel contre-expert du risque nucléaire. Même s'ils reconnaissent que les CLI peuvent parfois produire des études sérieuses, ils admettent rarement apprendre quelque chose de nouveau de ces études. Ainsi, les inspecteurs sont parfois sceptiques quant à l'utilité de l'implication des CLI dans la gouvernance du risque nucléaire.

Les inspecteurs décrivent également la CLI comme un groupe à qui ils rendent des comptes sur leurs activités. Ainsi, lorsqu'ils doivent prendre une décision, ils s'imaginent souvent en rendre compte et l'expliquer à la CLI ultérieurement. La CLI a donc ici un **rôle d'Autrui Généralisé**². Cet Autrui Généralisé peut être perçu comme une troisième partie prenante dans la gouvernance du risque nucléaire, capable de faire pression sur les exploitants. Les inspecteurs peuvent parfois se servir des CLI à leur avantage : n'étant plus dans une pure confrontation avec l'exploitant, ils se retrouvent dans la position d'arbitre, ce qui est nettement plus confortable pour eux. L'implication des CLI change donc le rapport de force entre les acteurs et force les exploitants à être plus transparents, ce qui bénéficie à la gouvernance du risque nucléaire. Le rôle d'Autrui Généralisé peut constituer un réel stimulus pour les autres parties prenantes grâce à l'expertise de la CLI sur des sujets variés, son expérience et l'utilisation du sens commun pour rendre ses avis. C'est un rôle important : c'est la fonction démocratique de la CLI.

Le chapitre soutient qu'il semble difficile de remplir à la fois le rôle d'Autrui Généralisé et de contre-expert civil. En effet, peut-on séparer le fait de comprendre, d'informer, de questionner et d'enquêter ? Par exemple, afin d'être un Autrui Généralisé crédible, la CLI se doit d'avoir un certain niveau d'expertise. Autrement, elle risque de perdre sa légitimité de partie prenante de la sûreté nucléaire. Cependant, lorsque la CLI se positionne en tant qu'expert, cela peut sembler difficile d'être en même temps la voix du public.

² En 1934, George Herbert Mead introduit le concept d'Autrui Généralisé qui évoque la nature intrinsèquement sociale du « Self », du Moi humain, qui se définit et se développe toujours dans l'adresse aux autres. Même lorsque la personne semble agir de manière solitaire, isolée de toute interaction sociale, elle est en fait engagée dans un dialogue invisible mais essentiel avec le groupe social auquel elle appartient, et est soumise au regard de cet "Autrui Généralisé", acteur collectif fictif et invisible, mais primordial, qui l'observe, le juge et lui répond.

En conclusion, ce chapitre montre qu'il existe des tensions non résolues entre l'identité professionnelle des inspecteurs et leur obligation d'impliquer les CLI dans la gouvernance du risque nucléaire. Les régulateurs du nucléaire semblent en effet réticents à ce que les CLI interfèrent avec leur pouvoir de contrôle et leur préfèrent un rôle d'observateur. Les inspecteurs semblent donc avoir des difficultés pour passer de leur vision de contrôle du risque nucléaire à un modèle de gouvernance plus démocratique, mettant en jeu de multiples parties prenantes. Tant que ce conflit reste irrésolu, les différents acteurs resteront frustrés et la situation ambiguë.

V. Conclusion : Vers une Gouvernance du Risque Nucléaire Français par le Public ?

Cette thèse cherche à comprendre quel rôle joue le public, via les CLI, dans la gouvernance du risque nucléaire. La thèse établit que lorsque les CLI acquièrent une compréhension suffisamment fine des sujets liés au risque nucléaire pour jouer à la fois le rôle d'Autrui Généralisé mais aussi celui de contre-expert civil, elles deviennent une partie prenante puissante et légitime de la gouvernance du risque nucléaire. Dans ces conditions, les CLI peuvent mener des enquêtes qui sont à la fois « de sens commun » et techniques, rendant ces enquêtes précieuses pour la gouvernance du risque nucléaire en s'attellant aux sujets d'une manière créative. Les CLI pourraient s'appuyer pour cela sur une contre-expertise externe, potentiellement à l'étranger. L'aspect technique renforce en effet la légitimité des CLI et l'aspect du sens commun, du "profane", contribue à une autre vision des questions liées au risque nucléaire, aboutissant potentiellement à une nouvelle façon de voir ces questions et enjeux.

Mobiliser ces deux aspects dans leurs investigations est particulièrement difficile pour les CLI et nécessite qu'elles maintiennent un lien fort avec la société civile. Les CLI jouent en effet

leur rôle pleinement lorsqu'elles posent des questions naïves, de bon sens et qu'elles apportent de la créativité dans le débat du risque nucléaire. La thèse montre en effet que même si les CLI ne sont pas spécialistes des sujets techniques, elles ont d'autres compétences qui sont également importantes pour la gouvernance du risque nucléaire. La contribution des CLI ne se limite pas à l'expertise traditionnelle leur permettant de comprendre les sujets liés aux activités nucléaires mais elle comprend une faculté de s'ériger en contre-expert de la société civile, incluant une connaissance fine de l'environnement et des facteurs contextuels ainsi qu'une faculté à porter la voix du sens commun.

La thèse montre qu'il existe de nombreux défis pour que le public puisse s'impliquer véritablement dans la gouvernance du risque nucléaire.

Le premier défi réside dans la complexité des sujets liés aux activités nucléaires : sans une véritable compréhension de ces sujets par le public, son rôle ne pourrait être que limité dans la gouvernance du risque nucléaire. Les compétences nécessaires sont difficiles à acquérir, et demandent aux membres de la CLI une implication sur le long terme.

Le deuxième défi réside dans l'organisation de ce public : qui pourrait en être en charge ? L'auteure avance la thèse selon laquelle c'est de la responsabilité du public de se constituer en entité active, cependant, les autres parties prenantes du nucléaire pourraient aider ce public à acquérir un rôle accru dans la gouvernance du risque nucléaire.

Le troisième défi réside dans l'opérationnalisation de ce public : comment garantir sa place dans la gouvernance du risque nucléaire ? Le danger, comme le montre le premier chapitre de cette thèse, est que les CLI deviennent, au fil du temps, une autre instance bureaucratique, qui perd progressivement le lien avec le public.

Enfin, la thèse démontre qu'un quatrième défi pour les CLI est de maintenir le lien avec son public sur le long terme. En effet, lorsque la CLI perd sa capacité d'être la voix du public, elle perd aussi sa raison d'être et sa légitimité : les CLI ne peuvent remplir tous les rôles identifiés dans la thèse que lorsqu'elles restent en phase avec la société civile. C'est en gardant au fil du temps de forts liens avec les questionnements de leur public, que les CLI sont plus à même de jouer le rôle de stimulus et d'offrir des idées novatrices sur la manière d'appréhender le risque nucléaire.

Impliquer les CLI dans la gouvernance du risque nucléaire représente un changement de paradigme total pour l'industrie nucléaire : dans cette vision, la contribution de sens commun de la CLI est précieuse et peut être considérée comme une forme d'expertise. Pour aller plus loin, une relation dialogique pourrait être établie entre tous les acteurs du secteur nucléaire mais cela voudrait dire que les CLI pourraient pleinement exprimer leurs désaccords et aussi faire évoluer le paysage nucléaire français.

Pour conclure, une participation active de structures telles que les CLI dans la gouvernance du risque nucléaire pourrait contribuer significativement à une meilleure sûreté, grâce à l'organisation d'un véritable dialogue entre les différentes parties prenantes. Ce processus de construction – à condition que le public soit véritablement représentatif et constitue une partie prenante active et structurée dans le suivi d'une activité donnée – est un avantage important pour les organisations à haut risque. En effet, de tels publics peuvent accroître les chances de percevoir les signaux faibles, empêchent l'organisation de s'enfermer dans une culture du secret et réduisent le risque d'une spirale bureaucratique qui pourrait entraîner sur le long terme une vigilance amoindrie.

INTRODUCTION - CONSTRUCTING THE PUBLIC IN THE FRENCH NUCLEAR SECTOR

Recent events such as the sub-prime crisis, the Fukushima nuclear accident and the SARS epidemic have provided spectacular demonstrations that today's crises can become "transboundary" in nature (Boin, 2009; Ansell, Boin and Keller, 2010). Their extraordinary scope leads to "unthinkable" consequences for millions of people (Lagadec, 2007). The scale of influence of such crises is mainly explained by the contemporary world's "time-space" compression (Young et al., 2006) characterized by the increasingly interrelated characteristics of bio-physical, technical and human systems, such that the operation of multiple life-sustaining systems, functions or infrastructures can be threatened by the ramifications of one particular event. Such transboundary crises impact large sections of the population, who are concretely affected by certain organizational and institutional decisions. Yet these people are rarely involved as significant stakeholders in the governance of high-risk activities, especially when decisions concern the orientations of technosciences (Callon and Rabeharisoa, 2008). For those decisions, the population affected should arguably play the role of a concerned public. In practice, they are often given no opportunity to express their opinion, or perhaps are not sufficiently organized to voice their opinion and make it heard.

Since Freeman's seminal 1984 book *"Strategic Management, a Stakeholder Approach"*, the idea that organizations have stakeholders has become a prominent concept in both academic and corporate communities. Stakeholder theory's central tenets hold that the activities of any given organization are performed to meet a need of society (the market), and can potentially impact a range of stakeholders, either directly or indirectly. A stakeholder can be described as "any individual or group who can affect, or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46). While stakeholders are usually considered by organizations as hindrances to their operations, some scholars have shown that good collaboration between

stakeholders and organizations can be beneficial for both sides (Waldron, Navis and Fisher, 2013; O'Mahony and Bechky, 2008; Callon and Rabearisoa, 2008; Porter and van der Linde, 1995). This is particularly the case when the public is involved in each step of the techno-scientific debates, as highlighted by Callon, Lascoumes and Barthe (2001).

Similarly, involving stakeholders in the governance of organizations by providing them with information is the general idea of the “accountability” concept, which has attracted much attention in the study of organizations these past few decades (Garfinkel, 1967; Harré, 1979; Silverman, 1975, Roberts and Scapens, 1985). One of the main purposes of accountability is to provide mechanisms through which all people and entities affected by an organization's actions can ask its managers to account for those actions. There have been numerous calls recently for greater corporate accountability: as companies grow in size, power and influence, their impact on the environment and communities also increases (Adams, 2004). The idea is that as long as corporate actions can cause, complicate or exacerbate the world's misery, they must be accompanied by greater corporate accountability (Dawkins, 2014). As a consequence, the rise in demand for corporate accountability is especially sharp for high-risk industries. It is undoubtedly legitimate for people who could potentially be impacted by serious incidents (people living near high-risk industrial sites, for instance) to want more information on the governance of the industry's safety.

This dissertation contributes to these debates by exploring the conditions in which people potentially impacted by nuclear activities can become active participants in the governance of such high-risk industries, and how they can organize themselves and build a common voice. Its chapters, each with their own focus, also shed light on changes in the roles of the nuclear stakeholders who

have dealings with this public. Finally, this dissertation analyses the potential impacts for safety governance in such organizations.

It is argued in this dissertation that the process of “constructing” the public grows even more crucial as the issues at stake concern a larger part of the population and can only be understood by people with specific skills. The field research was performed in the nuclear industry, examining a process of constructing the public through a case study of the CLIs³ in Nord-Cotentin in North-west France. This empirical framework is particularly interesting as it offers an excellent environment to study the emergence of new forms of individual and collective relations, between pro- and anti-nuclear activists, and also between specialists and “lay persons”. Also, as will be shown in the three chapters, the French nuclear sector is traditionally controlled by the government and large industrial companies. As a result the first attempts at constructing a public had many obstacles to overcome, and it is still a considerable challenge for a CLI to carve out a role as a vital partner for nuclear safety.

Beyond the ongoing political discourses, this dissertation analyses to what extent a collection of civil society actors, progressively institutionalized as an organized group (here, a CLI) can exert influence in the governance of nuclear safety. It enriches our understanding of this question by reconsidering matters generally taken for granted, and asking whether accountability is really effective in this context. Do different nuclear stakeholders actually want to arrive at a shared understanding of the situations under scrutiny? The key originality of this research lies in

³ CLIs (*Commissions Locales d'Information* or “Local Information Commissions”) are institutionalized groups of civil society actors that were set up in the early 1980s in France for civil nuclear sites. They were initially intended to involve civil society actors in the governance of nuclear safety, and have acquired more power over time, constituting an established stakeholder in the governance of nuclear safety. The 2006 Nuclear Transparency Law requires a CLI for each civil nuclear site in France and defines its mission as monitoring, informing and discussing nuclear safety.

its rich data collection, drawn from a specific context where data are quite hard to obtain. The author spent more than three years studying the Nord-Cotentin CLI, using a longitudinal case-study methodology involving observation, semi-structured interviews and documentary evidence. This resulted in in-depth empirical knowledge of what happens when civil society actors, institutionalized in a CLI, seek to participate in the governance of nuclear safety.

This research makes a novel contribution to the organizational literature, as it combines a pragmatist approach with several important management theories including stakeholder theory (in the first chapter), accountability theory (in the second chapter), and sensemaking theory (in the third chapter). The author sheds new light on these theories, refining them with Dewey's inquiry theory (Dewey, 1916; 1938). The dissertation also explores the concept of the "public" in a specific governance area, and how further knowledge of this subject could make a useful contribution to the organizational literature.

This dissertation also makes significant empirical contributions. In the coming years, the public is bound to play an increasing role in the governance of activities that may impact its interests. It is thus crucial to comprehend how the public is constructed. This question has been largely overlooked in management science, which tends to take the existence of the public for granted, as in stakeholder theory for instance – a position that is discussed further in the first chapter. The purpose of this dissertation is to deepen the understanding of the public's construction, organization and maintenance processes over time. Explaining how actors with different standpoints become sufficiently organized to voice their opinion and take part in governance of nuclear safety is one of its key objectives.

The aim of this introduction is (1) to give a definition of the public in the specific context of the nuclear industry, and provide the reader with some background to the empirical case; (2) to introduce the general research question and the three different angles used to tackle it; (3) to introduce the concepts and literatures used in this dissertation and their links with each other; (4) to present the research design and (5) to present the structure of the present document and introduce its three chapters.

I. The Nuclear Industry and its *Public*

In this section, the author will attempt to define the *public* of the nuclear industry in France, and how it differs from civil society at large. It will then be argued that it is very challenging to involve the public in the governance of nuclear safety. Finally, the existing institutions and initiatives aiming at involving the public in the governance of nuclear safety in France will be briefly presented.

I.1. A *public* consists of active stakeholders

The question of constructing the public was actually raised in the early 20th century, when famous American intellectuals explored the ability of democratic practices to address highly complex issues. Mary Parker Follett (1918), Walter Lippmann (1927), and John Dewey (1925) made particularly significant contributions to this question. Central to the debate was the question of the definition and emergence of diverse publics, that can be described as communities of actors potentially directly or indirectly impacted by certain decisions or organizational activities. These publics organize themselves into active entities to collectively limit potential harmful consequences, or to profit from potential benefits.

The concept of the *public* as adopted in this dissertation – drawn from the pragmatist authors previously cited – is very close to the concept of the *stakeholder* (Freeman, 1984; 1994)

with a slight difference: the *public* encompasses not only individuals but also larger, organized social groups. This dissertation proposes that stakeholders who have succeeded in organizing themselves into social groups (e.g. customers of a given service, inhabitants of a given area, employees or minority shareholders of a given company, etc.) form *a public*. As such, a public implies an active status for its participants: they take an interest in particular concerns that affect them, and sometimes put them at risk. To limit such a risk, they decide to take action, and such publics have the power to bring about change.

I.2. Defining the *public* of the nuclear industry

High-risk organizations such as nuclear power sites can impact a large, changing community due to the multiple interactions between organizations at national and international levels. It is in fact very difficult to predict who might be impacted by a nuclear accident, as the consequences would depend on complex internal and external factors (winds, rain, etc). The Cattenom nuclear power plant in the East of France, for instance, is very close to Luxembourg, Belgium and Germany, and all four countries could potentially be seriously affected in the event of an accident. In such cases, national borders are no longer relevant when defining the potential victims of a nuclear accident, who could be considered to make up the passive *public* of the French nuclear industry.

Yet the definition of the *public* adopted in this dissertation assumes a more active status. The public of the nuclear industry is considered as groups of people - concerned in some way by the nuclear question - who organize themselves in order to voice their opinion. Geographical proximity is not necessarily relevant, and the first chapter of this dissertation will show that in the precise case of Nord-Cotentin's nuclear industry, the public encompasses both local and national actors. This dissertation describes how, in France, these publics have been progressively organized

over time into institutionalized groups (CLIs), and how such groups can occasionally lose the link with their original public.

I.3. The French nuclear sector and its *public*

The nuclear power industry is a particularly interesting field, as it has always been subjected to strong protests worldwide with an opposition between pro- and anti-nuclear camps that has been going on since the 1970s. In France for instance, the nuclear question has always been politically important, frequently mobilizing reactions both in the street and via the ballot box (Topçu, 2013). Both sides have political, historical, economic, ideological and geopolitical claims, and anti-nuclear movements have watched helplessly as the nuclear industry has developed into France's main source of energy. Hecht (1997) showed that the decision made in the early 1970s by a small number of actors to use light-water reactor technology framed the subsequent development of the French nuclear industry and excluded other scientific and technical options. Furthermore, a policy of secrecy (Topçu, 2013), linked with the military tradition in nuclear activities, has long dominated the whole industry and was strictly applied by most organizations with a role to play in those activities. This particular context spurred emergent groups to lead investigations and explore alternative options (Callon and Rabeharisoa, 2008).

In France, several civil society actors have campaigned against the nuclear industry's tradition of secrecy since the end of the 1970s, and succeeded in their demands for information about the management of nuclear power. Some of them initially acted in relative isolation, such as people living near nuclear sites, while others were part of large NGOs such as Greenpeace. Over the years these individual actors and organizations, sometimes helped by recognized scientists, sought to collect information and question the governance of nuclear risk, and the very use of nuclear power itself.

I.4. Involving the public in the governance of nuclear safety is challenging

The first main challenge in encouraging public involvement in the governance of nuclear safety lies in the complexity of the subjects at stake: it is very difficult for external actors to acquire the skills needed to understand the different situations. In this dissertation, the author observes that without extensive understanding of the subjects under discussion, the “publics” concerned will not be able to play a significant role in the governance of nuclear safety, and would also lose their *raison d’être*. The necessary skills are hard to acquire, as long-term dedication is needed, and each public should contain a variety of complementary profiles. Another related problem is the great motivation required of people participating in these groups. In practice, it is hard to maintain public motivation for long-term involvement in those questions.

The second main challenge concerning the public’s involvement in the governance of nuclear safety concerns organization: who should be in charge? This dissertation takes the specific approach of considering that in order to exist, the public must construct itself, and thus responsibility for organization lies primarily with the different publics. Nonetheless, other nuclear stakeholders – such as the French government, national and international nuclear regulators and nuclear operators – could help the constructed public to acquire greater strength and legitimacy. It will be shown in this dissertation that their support and determination apparently facilitate the public’s integration into the governance of nuclear safety. But political support is not necessarily a prerequisite: the public is also able to force its way through and gain more influence in the governance of nuclear safety.

A third main challenge is the concrete operationalization of the public: how can its participation in the governance of nuclear safety be guaranteed? Through which institutions?

Through which tools? How can it be ensured that the bodies representing the public retain their link with the public? The danger, as will be seen in the first chapter of this dissertation, is that we could simply end up with another type of bureaucracy that gradually loses its connection with the public.

It becomes clear throughout the dissertation that the final challenge is maintaining this connection between the institution representing the public, and its public, in the long term.

I.5. Existing initiatives to involve the different types of public

A point was reached in France - especially after the authorities had provided local residents with no explanation for incidents that had occurred – when it became unacceptable to leave civil society actors uninformed of what was happening on nuclear industry sites. In 1981 the French Prime Minister Pierre Mauroy decided to support some local initiatives, and published a circular in December 1981 expressing the State's intention to improve transparency in the nuclear industry. This is how the CLIs were created. The purpose of a CLI is to participate in the safety debate, a role likely to be facilitated by its pluralistic membership with different opinions and backgrounds: members challenge each other, and lively debates ensue. This move towards greater involvement by civil society was then reinforced after the Chernobyl and Fukushima nuclear accidents. Today, CLIs are compulsory for every civil nuclear site in France and greater openness to society is a recognized objective of both the whole nuclear sector and the State. Some stakeholders argue that a well-informed population would be more resilient in the event of an accident, and can contribute to the governance of nuclear safety.

All French CLIs belong to a national association named ANCCLI (*Association Nationale des Comités et Commissions Locales d'Information*) that provides information and oversight for

nuclear installations. It also exists to address some subjects centrally and provide the different CLIs with expert advice when needed.

Relations with the CLIs are now the responsibility of both the French public authorities for nuclear activities: the Nuclear Safety Authority (ASN - *Autorité de Sûreté Nucléaire*) and the Radioprotection and Nuclear Safety Institute (IRSN - *Institut de Radioprotection et de Sûreté Nucléaire*) and of the operators. Since 2002 the IRSN has sought to develop more open relations with civil society and in 2009, it issued a charter expressing its intent to work towards greater transparency and openness. These IRSN strategy orientations were supported by the State. In 2008, the TSN law enables the creation of the HCTISN (*Haut comité pour la transparence et l'information sur la sécurité nucléaire* or High committee for transparency and information on nuclear safety). The French nuclear sector and the State, with their objective of greater openness, now aim to arrive at a shared understanding of complex stakes, hazardous situations and potential avenues to overcome these problems. This dissertation is part of this movement to be more open to civil society.

I.6. CLIs and the *public*

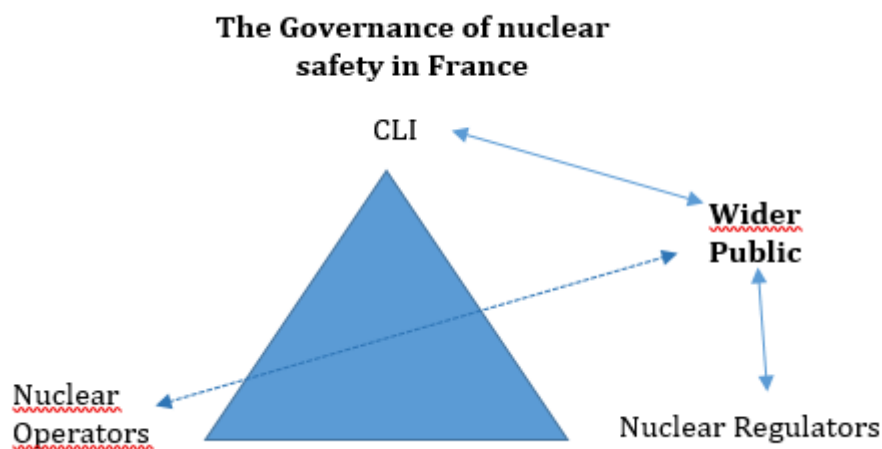
Although actors in the field tend to consider the public and CLIs as the same thing, it is important to differentiate them: a CLI is not the public; rather, it is an institutionalized representation of the public. This dissertation makes the simplifying assumption⁴ that CLIs embody the public, while acknowledging the limitations of such an assumption and the conditions for its validity. It establishes that the main danger for a CLI is a potential loss of connection with the

⁴ The link between CLIs and the Public is a potential research question in its own right, which the author decided not to address in this dissertation.

public, a point discussed further in the three chapters of this dissertation. If the CLIs lose touch with the public, they lose their legitimacy as the institution representing the voice of the public.

CLIs are generally considered as a third partner in the governance of nuclear safety, and can be seen as a stakeholder. The schema below represents the three partners and their links with the public. Nuclear operators communicate with the Public through their newsletters, websites - where they publish a number of reports -, and brochures, and organize tours of nuclear sites. Finally, CLIs keep the Public up to date through their own websites, newsletters and brochures, and they also hold public meetings. Conversely, the Public can contact their local CLI for ad hoc information or to ask it to raise specific concerns.

Figure 01 – The Governance of Nuclear Safety in France



II. Research Questions addressed in the Dissertation

The main research question of this dissertation can be expressed as follows: *What is the role of the public, via the CLIs, in the governance of nuclear safety?*

Through its three chapters, this dissertation focuses on the process of constructing the public over time, and its integration into the group of stakeholders, in the particular context of the nuclear industry. The aim is to understand to what extent the public can play a role in the governance of nuclear safety, and the main challenges and limitations of that role.

The objective of the **first chapter** is twofold. Firstly, it seeks to understand how a social group that is concerned by a given question deliberately constructs itself over time as a major actor, despite its heterogeneity, acquiring strong skills and the ability to relevantly participate in the governance of complex activities. Secondly, it explores the conditions under which, once constructed, such a public can continue its existence (be “maintained”).

The **second chapter** focuses on the incident reporting process and its role in the constitution of a community of inquiry to investigate the safety of nuclear activities. It examines in detail how accountability is practiced by one organization in charge of nuclear operations through a particular process for incident reporting to the CLI. The study also seeks to understand the role played by incident reporting in the construction of a public. Finally, it examines the willingness of other nuclear stakeholders to involve the public in the governance of nuclear safety.

The aim of the **third chapter** is to study how reinforcement of the public's participation, via the CLIs, in the governance of nuclear safety has a concrete impact on the control activity performed by regulation-based controlling institutions and the professional identity of their members. In addition to the laws and political discourses, it examines the transition from the

traditional model of nuclear safety governance (predominantly professional and regulatory control, embodied here by nuclear regulators) to the new model (a more dialogical practice of governance actively involving the public as embodied by the CLI). Finally, it explores how far these governance models are compatible.

These questions suggest other questions that will be studied in the dissertation, such as: do the other nuclear stakeholders really enable the CLIs to make a meaningful contribution to the governance of nuclear safety? What are their expectations of a CLI? Are they willing to establish a dialogical relationship with the CLIs? Is there a specific way that CLIs could make valuable inputs into the governance of nuclear safety?

Table 01 – Research Question addressed in the Dissertation

Dissertation	What is the role of the public, via the CLIs, in the governance of nuclear safety?
1 st Chapter	How does a concerned social group construct and maintain itself as a public in order to voice its opinion and play a role in the governance of nuclear safety?
2 nd Chapter	How is accountability practiced within the Nord-Cotentin CLI?
3 rd Chapter	How, in practical terms, does reinforcement of public participation, via the CLIs, in the governance of nuclear safety impact the control activity of regulation-based controlling institutions and the professional identity of their members?

III. A Pragmatist Approach to studying the Public and its Role in the Governance of Nuclear Safety

III.1. A brief historical review of pragmatism

The term “pragmatism” comes from the Greek word *pragma* meaning action, and generally evokes a practical, commonsensical way of acting (Farjoun, Ansell and Boin, 2015). But pragmatism as a philosophy has much more to offer (ibid). Pragmatist thinking is a strong opposition to Descartes’ search for absolute, universal truths, isolated from the material and social world (Simpson and Lorino, 2016). The original pragmatist thinkers were Charles Sanders Peirce, William James, John Dewey and George Herbert Mead. Their ideas have greatly influenced today’s organizational literature, with authors studying a wide range of phenomena through the pragmatist lens: the pragmatist perspective brings novelty, creativity, and emergence to the study of organizational life and is an appropriate approach to account for our increasingly complex world (Farjoun et al., 2015).

One of the pragmatist thinkers’ central tenets is that learning takes place through inquiries triggered by doubt (Dewey, 1916; 1938). Doubt arises when the everyday course of activity (Simpson and Lorino, 2016) is disrupted and actors face what Dewey calls an “indeterminate” situation: a situation that cannot be understood with their habitual ways of thinking. They then need to reconstruct the meaning of the situation through an inquiry. The pragmatist inquiry holds that all proposals, theories and principles should be treated as working hypotheses and, as such, submitted to constant investigation and experimentation. The inquiry process transforms the indeterminate situation into a problem (Journé, 2007; Lorino and Mourey, 2013), formulates a working hypothesis, defines experimental ways to test it, and, if successful, leads to a new

determinate – intelligible and actionable - situation. Thus the pragmatist approach emphasizes the link between meaning and action (Farjoun et al., 2015).

As explained by Simpson and Lorino (2016), the pragmatists' ontological position is underpinned by a processual view of situations as continuously in flux and moving. Pragmatists are opposed to reducing experience to cognitive representations, and stress the temporal and emergent aspects of social life (Farjoun et al. 2015): the world is a “work in progress” rather than a finished product (Langley and Tsoukas, 2010). Pragmatism is particularly interesting for studying the public and its role in the governance of nuclear safety, as it is assumed in this dissertation that the public is not a given, static group but rather a group that constructs and maintains itself by inquiry. It will be shown that the *public* is inherently an inquiring public, or more generally that stakeholders take and hold stakes through inquiry processes.

III.2. A specific focus on Follett, Lippman and Dewey

Several pragmatist thinkers sought to understand how individuals could organize themselves in a democratic manner despite great complexity and uncertainty (Farjoun et al., 2015). They debated this issue with other non-pragmatist thinkers. In this dissertation, the author focuses particularly on questions raised by Follett (1918), Lippmann (1927) and Dewey (1925), who focused on the construction of the public in a democracy and its dynamic organization through time and space.

Follett, Lippmann and Dewey argue that the public is in perpetual motion, and constructs itself as a social group through the active involvement of its members. The three authors identify the same contradiction: it is both necessary and difficult to involve the public in certain complex matters. They argue that the complexity of certain issues largely exceeds the knowledge of most

stakeholders. Each of them makes different (though complementary) recommendations to overcome these difficulties and anchor the public's construction in practical reality. They suggest three practical ways of solving the contradiction: the Communitarian answer (Follett), the Expertise answer (Lippmann) and the Inquiry Process answer (Dewey), all discussed further in the first chapter of this dissertation.

III.3. The pragmatist approach's theoretical contributions

The pragmatist approach firstly helps us to understand the concept of the *public* in the particular context of the nuclear industry. Secondly, it can be used to explore the processes of the public's construction through time, the way it develops and maintains itself through concrete operationalization. Thirdly, the pragmatist approach results in a theoretical contribution to such governance theories as stakeholder theory and accountability theory, and also to sensemaking theory.

III.3.1. Towards a pragmatist approach to stakeholder theory

The first chapter's theoretical framework builds on the literature about the process of constructing the public, exploring in particular the debate on this question between three famous American intellectuals: John Dewey, Walter Lippmann and Mary Parker Follett. It shows that a significant share of management research literature – especially research drawing on stakeholder theory - concerns issues of collective governance that raise the question: *how can a specific social group take part in making decisions that are likely to impact its interests, and how can it monitor their implementation and consequences* (Freeman, 1984; Hosseini and Brenner 1992; Freeman, 1994; Mitchell, Agle and Wood, 1997), particularly when the issues at stake are complex?

The first chapter highlights that stakeholder theory usually takes a stakeholder's existence for granted, without investigating its construction process. It shows that in fact, the public must construct itself in order to exist, and that the social process of the public's construction, organization and maintenance over time is underexplored in the management literature. Yet the question of how the public is constructed is essential. Contemporary governance issues concern large sections of the population and many decisions can impact society at large, particularly when they involve high-risk organizations. It is thus important not to neglect the social context of action and the contingencies of each particular situation. To take these characteristics into account, the concept of the stakeholder should be clearly considered from a non-static perspective, focusing on the various dynamics of the public's construction and transformations in real-life governance situations.

III.3.2. Towards a pragmatist approach to accountability

The second chapter uses the theory of accountability. Scholars have offered numerous definitions of accountability: in its broadest sense, accountability can be defined as the giving and demanding of reasons for conduct (Garfinkel, 1967; Harré, 1979; Silverman, 1975, Roberts and Scapens, 1985) and taking responsibility for one's actions (Fry, 1995). Accountability is about the rights of society and the relationship emerging between an accountable organization (the accountor) and the entity or person to which they are accountable (the accountee) (Gray, Bebbington and Collison, 2006). The concept of accountability as described in the literature has many different characteristics: it is external, since an account is given to somebody outside the accountor, it involves social interactions and relations of authority, and finally, it is linked with control (Uhr, 1993; Mulgan, 2000) and reporting.

The author of this dissertation argues that one major weakness of the concept is that scholars usually assume that accountability ends once the account is given. Yet accountability does not consist of static disclosures: as the second chapter shows, the account only exists once the accountees have constructed it through exploration and comprehension processes. Dewey's concept of inquiry is used as a way to overcome the shortcomings of the accountability concept. Viewing accountability as a process is only possible if stakeholders fully understand what is reported to them (the “account”), and thus if they participate in the elaboration and intelligibility of this account, as a community of inquirers.

III.3.3. Stakeholder Theory, Sensemaking and Dewey's inquiry

This thesis is based on the assumption that the governance of nuclear activities is currently under a transition process: from regulatory control (embodied by the controller/controlled relationship between nuclear regulator ASN with its technical support IRSN and operators) to a more pluralist practice of governance directly involving the public (embodied by the CLIs).”To study such a transition process, the third chapter focuses on the controllers' activity changes in response to the way they make sense of the new governance. To analyze the research materials, this chapter draws on a sensemaking approach to understand how controllers make sense of a stakeholder that represents civil society and has recently gained significant importance. As Maitlis and Christianson (2014) observe, the roots of sensemaking can be traced back to authors from the early twentieth century such as Dewey (1922). Weick's process of sensemaking is close to Dewey's inquiry concept, being triggered by similar characteristics: uncertainty and ambiguity. Its aim is transforming such an indeterminate or doubtful situation into a more meaningful situation.

The third chapter seeks to develop a processual view of stakeholder theory (Freeman, 1984; 1994) by combining it with sensemaking theory (Weick, 1995; Weick, Sutcliffe and Obstfeld, 2005). The author argues that in a constantly evolving, complex world, the concept of stakeholders should incorporate consideration of the social context of action and the contingencies of each particular situation. In other words, stakeholders should be considered not as a given, but as in an ongoing construction process. Understanding how safety inspectors make sense of a stakeholder (CLI) whose importance has increased substantially in recent years is the chapter's specific objective. It establishes that safety inspectors' role as nuclear regulators is generally difficult to articulate with the implication of CLIs as a significant stakeholder in the governance of nuclear safety.

IV. Research Design

IV.1. Research setting

IV.1.1. Governance of nuclear safety in France

Nuclear operators are responsible for the safety of their nuclear sites. They must provide public authorities with the demonstration of the relevance and effectiveness of the technical and operational resources and methods they use to control the risk.

The French Nuclear Safety Authority (ASN) is an independent French public body which regulates nuclear safety and radioprotection on behalf of the State. It consists of a central administration (top management and functional divisions) and eleven local divisions that cover the whole territory of France. The ASN is also in charge of communication with the public and management of the CLIs.

The Radioprotection and Nuclear Safety Institute (IRSN) is France's public expert body on nuclear and radiological risks, with a membership of more than 1700 experts and researchers. The IRSN conducts investigations, expert assessments and research in the field of nuclear safety. The IRSN and ASN jointly determine where expert advice is needed, and the IRSN responds to the requests made. Finally, French Local Information Commissions (CLIs) for nuclear activities have recently gained more power in nuclear safety governance. They are now allowed to conduct investigations and engage expert assistance directly - but do not have the same access to information as the ASN and IRSN.

IV.1.2. CLIs in France

France's TSN law for transparency and safety of nuclear installations⁵, enacted in 2006, introduced the requirement to have a CLI for each nuclear site. While this law institutionalized CLIs in France and gave them legislative status, the three main nuclear installations of Nord-Cotentin had set up their commissions much earlier, and in fact served as models for the new law. Each CLI in France today has four different types of members: local elected officials (president of the county, regional councilors, mayors, etc.), relevant experts (scientists with expertise in the nuclear activities or sites concerned, or local economy actors), representatives of environmental associations and trade unions. The aim of a CLI is to participate in the safety debate. The point of the pluralistic membership with a range of very different opinions and backgrounds is that they challenge each other, and this stimulates lively debates.

Each CLI is unique and the way it is run depends on its members, history, and contextual characteristics. Generally, a CLI holds three to four regular general meetings a year. The agenda is

⁵ *Loi relative à la Transparence et à la Sécurité en matière Nucléaire*

decided by the commission's board members at meetings held a few weeks before the general meeting. CLI members also attend inter-CLI meetings in Paris with members of other CLIs, discussing specific subjects (e.g. plant decommissioning, post-accident situations). If necessary, the members can also call ad-hoc and/or exceptional meetings and form work groups for specific subjects. Any subject relating to the operation and safety of nuclear installations, or protection of the local population and environment, can be considered and discussed during CLI meetings.

IV.1.3. Field research: Nord-Cotentin CLI

The context of the Nord-Cotentin area is particularly interesting. It has one of the most intense levels of nuclear activity in the world, as home to four nuclear sites including a waste reprocessing plant (NuclearCo La Hague⁶), a nuclear power plant (Flamanville), a waste storage centre (NuclearStorage⁷) and Cherbourg's Arsenal (military shipyard where nuclear submarines are constructed). Due to both the concentration and diversity of nuclear activities in the area, campaigns soon arose to protest against the nuclear industry. The national anti-nuclear debate concentrated on NuclearCo La Hague waste reprocessing site, as the anti-nuclear activists thought that if they could shut it down, that would inevitably put an end to the whole French nuclear industry. There were many protests against plans for this nuclear site. This particular social context will be explored further in the first chapter of this dissertation.

Even once the final decisions to locate the nuclear sites in Nord-Cotentin had been made, some people continued their protests against the nuclear industry, and several events in the late 1970s reinforced the anti-nuclear activists and associations. Several small incidents occurred that were never explained by the authorities, in particular a fire in a silo in January 1981, and the

⁶ Pseudonym for the company that operates the reprocessing plant.

⁷ Pseudonym for the company that operates the waste storage facility.

population kept asking questions that remained unanswered. Meanwhile, Louis Darinot, Cherbourg's MP and mayor, was worried that the incidents that had occurred on the NuclearCo site could impact the local population, and in 1981 he decided to set up a CSPI (*Commission Spéciale Permanente d'Information* or Special Standing Committee for Information) that subsequently became the CLI (*Commission Locale d'Information* or Local Information Commission) for the NuclearCo La Hague nuclear site.

This initiative was soon supported by the French Prime Minister, Pierre Mauroy and his circular of 1981 mentioned earlier. Flamanville's CLI was subsequently created in 1986 and NuclearStorage's in 2008. Due to their synergies, the three CLIs of the Nord-Cotentin (mostly referred to in this dissertation collectively as a single CLI) often work together on certain issues, and have a common administration. Each CLI has around 40 to 50 members: some of them belong to all three CLIs that make up the area's "inter-CLI".

IV.1.4. Relevance of this case to the research question

The main research question of this dissertation is: *What is the role of the public, via the CLIs, in the governance of nuclear safety?* Through three different lenses, it explores the processes of the public's construction over time and its integration into the group of stakeholders, in the particular context of the nuclear industry. The case of the Nord-Cotentin CLIs is an excellent longitudinal example – covering more than 30 years - of a public constructing itself and becoming organized into a social group over time. Its members all have strong standpoints and often disagree, which makes the CLI a valuable setting to study how far such a social group can voice an opinion and be heard. The nuclear industry is also a particularly challenging field for exploration, as it involves highly complex issues that are generally discussed in the strictest confidentiality.

IV.2. Research Process

IV.2.1. Epistemological Underpinnings

The community of inquiry is not – and should not be – a smooth, flat structure, but a hilly landscape, with assignment of formal and informal roles, various professional cultures, social positions, responsibilities and powers. This should be considered as an integral part of dialogical inquiry rather than an obstacle to it. (Lorino, Tricard, and Clot, 2011, p. 780)

In order to grasp the dynamics and mechanisms of the process of constructing a public, the author adopted a pragmatist epistemology (Peirce, 1931; Dewey, 1938). The aim was to explain the factors contributing to the emergence and maintenance of a public over time, and to describe how its members' practices evolved, and its impact on the governance of a specific sector. When investigating, the researcher moves from an epistemology of observation to an epistemology of inquiry (Lorino et al., 2011). Inquiries can concern any matter, however trivial it may seem, and they consist in making evident or demonstrating each and every fact (Garfinkel, 1967), even the most taken-for-granted (Dewey, 1925). The aim of research in this approach thus shifts from providing a scientific truth – in which reality and theory match - to providing an understanding for purposeful actions (Peirce, 1931; Lorino, 2013). Therefore, practical and theoretical dimensions are constantly intertwined.

When the researcher performs an inquiry, she does not limit herself to observations, interviews or document reviews, but endeavors to establish some human, social and cultural familiarity with the investigated topic. The investigation conducted during the three years of data collection for this dissertation thus included several sources of data: observations, but also participation in employee trainings, meetings, reviews of archival data, the study of recordings of

general meetings, and formal and informal interviews with people of very diverse profiles. During these 3 years, the author was almost considered as a member of Nord-Cotentin CLI, participating in several meetings in Nord-Cotentin and Paris, informal meetings such as lunches, and visits to nuclear sites with CLI members. She was also sent the CLI's newsletter and received all the emails from CLI members. This gave her an "insider" standpoint, and she was able to engage with the underlying processual dynamics not only by analyzing her data but also by participating directly in CLI practices and engaging with the situation (Simpson and Lorino, 2016). Thanks to this position, the author acquired extensive knowledge of the CLI's operations "from within" rather than "from the outside" (Shotter, 2006) and could step away from her analysis to immerse herself in the situated flows of action (Simpson and Lorino, 2016). This insider standpoint proved to be useful for an investigation of the CLIs' roles in the governance of nuclear safety, observing their practices and perceiving practical transformations of the situation in a period of significant change (new legislation, a crisis in the Nord-Cotentin CLI, post-Fukushima measures). In a situation of this kind, as Czarniawska (1999) highlights, the researcher becomes a detective, who must restore the intelligibility of situations (Lorino, 2013).

Despite their differences, the participants in an inquiry need to communicate continuously with each other about their experiences and impressions of situations. From the researcher's point of view, this means that the actors studied also take part in the inquiry process: they are co-researchers and co-subjects (Lorino et al., 2011). Field actors thus play a key role in the inquiry process that becomes a dialogical inquiry.

An epistemology of inquiries has several methodological implications: the process of inquiry intertwines use of narrative thought, logical reasoning and experimental action to make sense of situations and transform them (Lorino, 2013). Experimenting is in fact a key feature for

any inquiry, and the logical reasoning and experimental action used in conjunction by the researcher in turn generate new practices and new concepts (Lorino et al., 2011).

IV.2.2. Field research: opportunity and access

In the nuclear industry, access to the field is hard to obtain, but the author negotiated cooperation arrangements with ASN and IRSN, and was hosted by IRSN as a visiting researcher. The IRSN considers it crucial to allow public involvement in nuclear safety governance: a public that is more aware of the particular stakes is bound to contribute to safety enhancements. The IRSN also believes that the public can make useful contributions to nuclear safety at large: as members of the public see problems differently, they may bring valuable and novel ideas. Within the agreed cooperation framework, the author was given broad access to the field. She could investigate any question she wanted. The questions were gradually defined and oriented by interviews and document analysis. Each of the three chapters with its specific research question was developed independently, using different materials and data, in chronological order. The research questions for the second and third chapter emerged from the writing of the first chapter, and benefited from the earlier experience. Each research question evolved during the data collection and data analysis phases, along a grounded theory approach (Glaser and Strauss, 1967; Strauss and Corbin, 1998).

The IRSN co-funded this research. The author was first introduced to the Nord-Cotentin CLI where she was well received. After a first round of interviews with CLI members, she had enough contacts to organize subsequent interviews as she wished, according to her own priorities. Thanks to her partnership with the IRSN, the author also talked to IRSN actors and benefited from insider status. Many documents were easily accessible from the CLI, IRSN and ASN websites, since more and more documents have recently become public, but the author was also given access

to internal reports. The author had access to ASN, where she interviewed several actors as part of a second research partnership. In short, the IRSN and ASN were very helpful and allowed the researcher wide access to the field. Finally, the author interviewed several managers in the nuclear companies.

IV.3. Research Methods

IV.3.1. Data collection

Each chapter of this dissertation provides the reader with further details on the specific data collection and data analysis methods used. The present section presents an overview of the research methods.

As explained in the previous section, this research adopts an approach that uses the pragmatist concept of inquiry (Dewey, 1938; Lorino, Tricard and Clot, 2011), with an abductive mode of reasoning combining narratives, reasoning and action. In particular, it was attempted to set up an ongoing dialogue between actors, taking their differences into consideration to nurture the inquiry. The author moved back and forth between empirical data and theories in order to check whether theory and data supported each other.

In accordance with the pragmatist perspective described in the previous section, the author participated in the research process as a researcher but was also considered as a member of the CLI. As such, she was included in the CLI mailing list, attended all the CLI meetings, CLI lunches and specific events such as visits to nuclear sites. She was also allowed to participate in special training days and seminars with CLI members. Finally, she had several meetings with the CLI management in their premises, and discussions with the CLI's employees and members throughout the research process. The author was also considered by the IRSN as a member of its research team,

and was regularly able to meet with experts who could explain points of context and counterintuitive facts to her. She thus benefited from their experience with the CLI. To promote the process of reflexivity induced by the inquiry process, the author wrote narratives and presented her hypotheses to IRSN experts for discussion. This brought productive results when using an abductive mode of reasoning, as it helped to develop explanations for new or unusual events. Her narratives made use of counterfactual reasoning, rival plausible hypotheses, and absurd reasoning (Dumez, 2013). This was particularly useful for the study in the second chapter of this dissertation, when the working hypotheses drawn from these narratives could be tested with different actors in the field. Finally, IRSN experts read over the chapters of this dissertation, and the author obtained critical feedback from them on a regular basis.

This “immersion” in the CLI gave the author full access to the CLI’s practices over a long period of time. She was personally engaged in the research setting and could thus achieve understanding of the beliefs, values and goals of CLI members. This research also draws on observations, semi-structured interviews and documentary evidence. The study was performed using a longitudinal case study methodology: the data discussed below are derived from a 3-year field study. This process of inquiry helped the author to achieve in-depth understanding of the situation at stake.

Semi-structured interviews ($n = 36$) were conducted with people who had a role in the three different Nord-Cotentin CLIs, ASN and IRSN organizational actors, and employees of nuclear operators. The sample of interviewees was chosen to be representative of the different profiles connected to the CLI. Since each CLI consists of elected officials, environmental association representatives, trade union representatives and scientific experts, the interviewees from the Nord-Cotentin CLIs covered all those profiles. A special effort was made to interview key informants

from various backgrounds, and people with first-hand experience of past and present situations, in order to understand the process of this public's construction from its instigation in the 1970s.

Key interviewees were identified gradually as the study went along, and some of them were approached by the author, using the “snowball sampling” approach (Goodman, 1961): interviewees were asked at the end of their interview if they could recommend anyone the author should meet. This approach facilitated contact with the targeted informants and saved time. Some of the key interviewees were also identified during the meetings that took place in both Nord-Cotentin and Paris. Finally, some interviews were also facilitated by the intervention of the IRSN or ASN.

The interviews were conducted face-to-face and lasted between 40 minutes and 2.5 hours, depending on the time available. All interviews except one were digitally recorded and subsequently transcribed verbatim. One interviewee did not want to be recorded, and for that interview handwritten notes were made and reviewed immediately after the interview. Although the author had prepared a list of questions based on each research question⁸, most interviewees answered them spontaneously in the course of the conversation. The author could ask interviewees further questions by email, telephone or during meetings throughout the 3-year period of data collection. This proved to be very useful to confirm or reject hypotheses.

These interviews were complemented by field observations and reviews of documents, minutes and recordings of past meetings, documentary videos, and websites. The author attended most of the CLI meetings and colloquiums and took part in formal and informal events: lunches, meetings, informal discussions, chats while travelling by car, etc. Important things were discussed at informal events, and the author was able to observe negotiations and debates between members.

⁸ For further details, please refer to each chapter.

IV.3.2. Data analysis

Data collection and data analysis were performed at the same time and Dumez's (2013) method of empirical and theoretical memos was used to continuously relate them to each other: the author referred back and forth between data and theories, to check whether the emerging theoretical propositions were supported by the data and conversely, whether the theories were helping to make sense of the data.

A specific effort was made to gain extensive understanding of the field, context and actors in order to provide the reader with an in-depth description and understand significant dimensions of causality. As a result the data analysis was very descriptive at first (a detailed description of the situation) and became increasingly theorized as work on writing progressed. This theorization process benefited from feedback received from the author's supervisor and other scholars at internal seminars, and national and international conferences.

Before proceeding to the inquiry, the author wrote a "thick description" (Geertz, 1973; Denzin, 1989; Schwandt, 2001) of the field's past and present context. This thick description provides essential contextual elements for understanding the case. From the researcher's point of view, this description enabled her to start the inquiry with a general background, which she could then explore further in her inquiry to find out more about specific details she considered relevant for the inquiry, just as a detective starts her investigation with an understanding of the broader context, then asks questions (that may appear irrelevant) to discover more about the context. The author concentrated particularly on gaining a grasp of the specific context of nuclear power in France and locally in the Nord-Cotentin, through reading books (sociological books, but also novels), reviewing archival data, interviewing various actors, watching documentary videos,

movies, etc. Certain elements of the resulting description are included in the chapters of this dissertation.

IV.3.3. Validity and limitations

One main limitation of this dissertation derives from the uniqueness of the nuclear industry: understanding situations within such a setting is bound to carry a certain context-specificity. Also, the first two chapters of the dissertation present a weakness relating to the uniqueness of the Nord-Cotentin context and the non-standard characteristics of Nord-Cotentin CLIs: some conditions of the public's construction were specific to the local context, such as the unusually high involvement of scientists, or the concentration of several nuclear activities in a small area. However, extreme contexts arguably enable researchers to better analyze the processes, and this exceptional context of Nord-Cotentin CLIs and the public's construction and maintenance over time as a stakeholder in the governance of nuclear safety may be of interest for the organizational literature, just as AIDS (Epstein, 1996) and the AFM association (Callon and Rabeharisoa, 2008) were interesting cases despite their very specific context. The case of the Nord-Cotentin CLIs could likewise represent an extreme and therefore striking example of a wider phenomenon. The author decided to extend her knowledge of CLI in a third chapter examining clues concerning other CLIs in France. This enabled her to confirm or reject her own results and draw parallels between CLIs, bringing out context-specific factors and generalizing the Nord-Cotentin case.

Finally, the major limitation of this dissertation lies in the fact that the author could not investigate how her practical recommendations might be implemented in practice. In the second chapter, for instance, she argued that CLIs should participate in the preparation of incident reports. The results of the study on this precise point were presented to the IRSN's board of directors during

a two-hour seminar to discuss how it could be implemented in practice – but no actual experiment was conducted.

V. Dissertation Structure

Three stand-alone papers compose the three following chapters of this dissertation. The three papers explore the notion of the *public* and its role in the governance of nuclear safety in France. Each paper tackles this research question from a different angle, leading to three research questions, three theoretical frameworks and three sets of empirical material. These three different angles spotlight three different aspects of the dissertation's subject and enrich the author's comprehension, as summarized below in Table 02.

The first chapter examines the notion of *the public* in management research, and more particularly the question of how a public is constructed as a social actor in specific situations where large-scale groups may be affected by organizational or institutional policies requiring consideration of complex issues, for which relevant competence is needed.

The second chapter zooms in on a particular process for incident reporting to the CLI by one organization in charge of nuclear operations. The author examines how accountability is practiced, focusing on the role played by incident reporting in the constitution of a community of inquiry to investigate the safety of nuclear activities. The examination takes the form of a pragmatic review of this organization's accountability practices, and the debates following the presentations and reports provided. This chapter also seeks to understand the role played by incident reporting in the construction of a public.

In the third chapter, the author decided to focus on the transition⁹ from the traditional model of nuclear safety governance (exclusively professional and regulatory control, embodied here by nuclear regulators) to the new one (the democratic or public control that the CLIs are intended to embody). It investigates the relationship between the historically dominant regulation-based governance model control-based governance model for nuclear safety and an emergent multi-stakeholder governance model. The activity of safety inspectors, who are simultaneously in charge of regulatory controls and CLIs support, is a critical interface between both. That is why, to address this question, the chapter analyses the sensemaking process of safety inspectors concerning the CLI's roles in nuclear safety governance in this new governance context.

Table 02 – Summary of the three articles

Article	Research Question	Empirical focus	Theories in use	Contributions
Does the public really exist? Opening the black box of its construction process	How does a concerned social group construct and maintain itself as a public, in order to voice its opinion and play a role in the governance of nuclear safety?	The construction of the public concerned by nuclear safety in Nord-Cotentin since the 1960s.	Stakeholder Theory Pragmatism Inquiry	It is through an ongoing dialogical process that the stakeholders construct themselves as “a public”.
Accountability in action: examination of an incident reporting process	How is accountability practiced within the Nord-Cotentin CLI?	The process of incident reporting by nuclear operators to	Accountability Theory Inquiry	The incident reporting process does not enable CLI members to conduct their inquiries

⁹ This transition process was observed by the author all along her research process, among others, thanks to the analysis of new regulations that give more formal power to CLI. However, such a transition process is not stipulated formally in the law: it is thus an assumption of the present thesis.

		the Nord-Cotentin CLI.		successfully, and ultimately upholds a certain form of opacity.
Control or stakeholder governance: making sense of the CLI's roles in the governance of nuclear safety	How does reinforcement of the public's participation, through the CLIs, in the governance of nuclear safety have a concrete impact on the control activity performed by regulation-based controlling institutions and the professional identity of their members?	The sensemaking process of nuclear regulators in French local divisions.	Stakeholder Theory Sensemaking Theory Pragmatism	For safety inspectors, the harmonious relationship between their holistic mission of control and their support to CLI's involvement cannot be taken for granted.

CHAPTER 1 - DOES THE PUBLIC REALLY EXIST? OPENING THE BLACK BOX OF ITS CONSTRUCTION PROCESS

The case of “Local Information Commissions” (CLIs)
for nuclear activities in the West of France

Abstract

This chapter examines the notion of *the public* in management research, and more particularly the question of how a public is constructed as a social actor in specific situations where large-scale groups may be affected by organizational or institutional policies requiring consideration of complex issues, for which relevant competence is needed. It is argued that some management theories are critically concerned by this issue - particularly stakeholder theory, which is briefly reviewed in the first part of the chapter. In stakeholder theory, as well as in other governance theories, the existence of the public is visibly taken for granted. However, this approach fails to investigate the processes of the public's construction, organization and maintenance through time. A different approach is chosen here: this chapter considers that in order to exist, the public must be constructed, and its construction process cannot be taken for granted, particularly when the issues at stake are both complex and technical. A potential contradiction exists: the greater the technical complexity, the smaller the number of people sufficiently concerned to become involved. The construction of the public is investigated by drawing on three famous American authors who explored this very issue almost a century ago: Mary Parker Follett, Walter Lippmann and John Dewey. These authors concentrate upon the process of constructing the public and suggest three practical ways of solving the contradiction noted: the Community answer (Follett), the Expertise answer (Lippmann) and the Inquiry Process answer (Dewey). Building on the results of an empirical study of the nuclear industry's Local Information Commissions (CLIs) in the West of France, the analysis will illustrate the insights that Follett, Lippmann and Dewey's recommendations afford into the practical operationalization of the public's construction, organization and maintenance through time. This analysis finally leads to a proposed refined version of stakeholder management, and suggestions for potential further research that could be undertaken using a methodological approach based on these concepts.

Keywords

Construction of the public, sociology of risk, stakeholder theory, community, expertise, inquiry

I. Introduction

In several recent important events, decisions made with no input from the public have had a domino effect on the public at large. The Fukushima nuclear accident is an exemplary case. Fukushima's inhabitants (and the Japanese population in general) were all affected in physical ways by the consequences of this accident, some of which can be attributed to certain organizational and institutional decisions in which they never had any say as significant stakeholders. Arguably, they should have had some representation in decision-making as a concerned collective or *public*. Yet they were not even given the opportunity to express their opinion, or perhaps they were not sufficiently organized to voice it and be heard. This example illustrates a common feature of major organizational and institutional decisions: civil society is "rarely ...invited to take part in debates and decisions about the orientations of technosciences and even less are they invited in the process of knowledge production" (Callon and Rabearisoa, 2008, p 231).

A significant part of management research (for example the literature drawing on stakeholder theory or governance theory in general) concerns issues of collective governance, raising the following question: *how can a specific social group take part in making decisions that are likely to impact its interests, and how can it monitor their implementation and consequences* (Freeman, 1984; Hosseini and Brenner 1992; Freeman, 1994; Mitchell, Agle and Wood, 1997)? While such management theories implicitly use the notion of the *public*, they take the existence of that public for granted, and rarely pay attention to its construction process. Yet it cannot be assumed that the public for a specific class of decisions automatically exists. To exist as a relevant stakeholder group, the public must be constructed and governed. The social process of the construction, organization and maintenance over time of the public has largely been ignored in

management literature - and yet at a time when decision-making with no public consultation can have dramatic impacts on a very large number of people, the question of the construction of a public is essential. Investigation is necessary into how a social group that exists objectively (e.g. customers of a given service, inhabitants of a given area, patients suffering from a given pathology, investors in a given sector or a given company, etc.) organizes itself to constitute an active and structured participant with a 'real' voice.

This chapter theorizes how a social group that is *concerned* by a given question *deliberately* constructs and expresses itself with the aim becoming a relevant stakeholder. Particular emphasis is laid upon construction of a public in extreme situations, such as those involving high-risk organizations with a potentially huge impact for the public at large. Constructing the public can be even more necessary when the organization's activities have potentially dangerous consequences for the population, and when they involve complex technical skills: such complexity generally means that the relevant information is neither accessible, nor easily comprehensible. In spite of such difficulties, the public concerned should be able to voice its opinion and be taken into consideration: the public in such cases often consists of a collection of individuals who must be organized if they want to have a common voice. Construction and organization of the public are thus particularly important: whenever the actors concerned are heterogeneous, a common voice must be constructed. But although there is a need to encourage construction of the public in these complex situations, it is difficult to involve large-scale groups in the decision when, from a knowledge point of view, they are outsiders. **The objective of this research is hence twofold. Firstly, it seeks to understand how a social group that is concerned by a given question deliberately constructs itself as a major actor, despite its heterogeneity, over time acquiring strong skills and the ability to relevantly participate in the governance of complex activities.**

Secondly, it explores the conditions under which, once constructed, such a public can continue its existence (be “maintained”).

The question of constructing the public was actually raised in the early 20th century, when famous American intellectuals explored the ability of democratic practices to address highly complex issues. In particular, Mary Parker Follett (1918), Walter Lippmann (1927), and John Dewey (1925) made significant contributions to this question. Central to those discussions stood the question of the definition and emergence of diverse publics that can be described as communities of actors potentially directly or indirectly impacted by certain decisions. These publics organize themselves into active entities to collectively limit potential harmful consequences, or to profit from potential benefits.

Focusing on this process of organizing, Follett, Lippmann and Dewey gave recommendations for its practical implementation. Their reflections primarily concerned the political sciences and public management, the starting point being the public concerned by democratic regimes. In today's world of global impacts and worsening ecological catastrophes – often originating from decisions made with no public representation - these traditional domains of application could be widely extended to include management studies in general, as suggested by the corporate social responsibility literature (Jonker and Foster 2002; Simmons, 2004; Jamali, 2008; Kramer, 2011; Brower and Mahajan, 2012). Callon and Rabeharisoa (2008, p 232) argue that the development of economic markets, together with advances in science and technology, are key factors in the growing number of emergent groups concerned by technoscientific developments and applications. These emergent groups might be interested in undertaking investigations and research, both to clarify the issues at stake and to explore potential solutions (ibid). Such action is

likely to address the major aspect neglected by stakeholder theory, namely the process of constructing the public with its own meaningful and influential voice.

The case of Nord-Cotentin's¹⁰ Local Information Commission (CLI¹¹) – an association consisting of NGOs, scientists, unions and the elected officials of French public life, whose aim is to provide people living in the vicinity of nuclear industrial sites with transparent information and to discuss the day-to-day functioning of those sites - will be explored. Building on the results of this empirical study, the analysis will illustrate the insights that Follett, Lippmann and Dewey's recommendations afford into the concrete operationalization of the public's construction, organization and maintenance through time. The specific context (culture, history, geography, politics, etc.) of Nord-Cotentin's CLI will be considered in this chapter. An in-depth description (Geertz, 1973; Denzin, 1989; Schwandt, 2001) of this construction process will be provided presenting details, contexts, the actors' feelings and their interrelations with one another.

Part I aims to show that the process of constructing the public, although widely used in several theories, is rarely tackled as such in the management literature. This is an important gap in the research that highlights certain shortcomings of stakeholder theory. Part II then establishes that studying the process of constructing the public is necessary, particularly in certain extreme cases. In Part III, Follett, Lippmann and Dewey's main ideas are outlined as contributions to a theoretical framework to serve as a starting point for exploring the potential for public participation in the specific context of complex technical situations. An empirical study, the case of the Nord-Cotentin CLI, is then presented in Part IV, and the results drawn from this case study are used to foreground

¹⁰ Nord-Cotentin is a peninsula in Normandy that forms part of the North-west coast in France. Nord-Cotentin lies wholly within the county (*département*) of Manche, in the region of Lower Normandy.

¹¹ Nord-Cotentin actually has 3 CLIs, but as they share offices and certain members and are also grouped into an "inter-CLI", this article talks of "the CLI" in the singular unless it is relevant to use the plural.

what each approach has to offer, especially for understanding construction of the CLI's public, and its maintenance through time, within this theoretical framework. The conclusion and discussion explore the novel insights and implications that this processual view of "the public" offers for organization theories.

II. Theoretical Background

II.1. Classical perspectives on stakeholders...

Since Freeman's seminal 1984 book *"Strategic Management, a Stakeholder Approach"*, the idea that organizations have stakeholders has become a prominent concept in both academic and corporate communities. This view broadens management's role and responsibility, since it goes beyond the traditional economic utility function and incorporates the interests and concerns of non-stockholding groups. Stakeholder theory's central tenets hold that the activities of any given organization are performed to meet a need of society (the market), and can potentially impact a range of stakeholders, either directly or indirectly. A stakeholder can be described as "any individual or group who can affect, or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46). This relatively loose definition has been criticized for its lack of precision: alternative definitions of stakeholders have been developed and several scholars have attempted to provide a more precise outlook of who exactly stakeholders are, but with little success. These definitions include lists of stakeholders (e.g. Argenti, 1993: "Stakeholders may thus include employees, customers, shareholders, suppliers, the state, the local community, society, bankers, special interest groups, the environment and technological progress") but these lists remain mainly general, covering all the people gravitating around a given organization's activity. Clarkson (1994), however, introduced an interesting definition of stakeholder with the additional concepts of risk-

bearer and voluntary/involuntary involvement, resulting in two different categories of stakeholders: “Voluntary stakeholders bear some form of risk as a result of having invested some form of capital, human or financial, something of value, in a firm. Involuntary stakeholders are placed at risk as a result of a firm’s activities. But without the element of risk there is no stake.” (Clarkson, 1994, p. 5).

In summary, in the stakeholder framework, the term “stakeholder” designates individuals, groups or entities with stakes in a particular concern that may relate to an organization. Some of these stakeholders are not formally part of the organization, but affect or are affected by its activities, policies and behaviors: a stakeholder holds a stake if she/he bears some form of risk, voluntarily or otherwise.

II.2. ... leading to descriptive, normative views of stakeholders

Despite the relative vagueness of most stakeholder definitions, and the disagreements about the inherent characteristics of stakeholders (Donaldson and Preston, 1995; Fassin, 2009), most stakeholder scholars agree that identifying stakeholders and understanding their needs and concerns are key determinants of organizational success. They believe that strategic management of stakeholders relies primarily on the capacity to understand their expectations as a key factor of the organization’s development, and secondarily on their participation in the value creation process for the organization (Rendtorff and Bonnafous-Boucher, 2013). As a result many organizations use stakeholder mapping to identify their stakeholders and negotiate with them in accordance with their strategic priorities (ibid).

Brenner and Cochran (1991) attempt to organize information about stakeholders through a matrix containing a list of stakeholders, their corresponding influence, their value concerns and the

importance each stakeholder assigns to a certain value. Such a matrix should help an organization refine its list of stakeholders and incorporate consideration of their needs into the decision-making process. Building on this matrix, Hosseini and Brenner (1992) propose a methodology to estimate stakeholder value matrix weights intended to facilitate the decision-making process. Going a step further, Mitchell et al. (1997) build a classification of the different stakeholders, taking into account (1) their power to influence the firm; (2) the legitimacy of their relationship with the firm; and (3) the urgency in their claims on the firm. Building on this typology, Mitchell et al. (1997) make some predictions about managerial behavior with respect to each class of stakeholder.

Several stakeholder scholars advocate the idea that identifying stakeholders is a very useful tool for helping organizations to operate ethically. Brenner and Cochran (1991, p. 452) argue that they offer a "stakeholder theory of the firm" for "two purposes: to describe how organizations operate and to help predict organizational behavior." Going even further, Donaldson and Preston (1995) argue that stakeholder theory contains three different characteristics that serve different types of purposes: descriptive/empirical (describe and explain how firms behave); instrumental (forecast the implications engendered by a stakeholder approach) and normative (focus on the moral components of firm operations). On this last purpose, some scholars have argued that identifying the stakeholders and understanding their concerns not only serves the decision-making process and the firm's strategy, but also helps to create and sustain moral relationships (Freeman, 1994; Donaldson and Preston, 1995).

In summary, an important part of the stakeholder literature has extensively discussed how gathering more information about stakeholders could be beneficial for both the organization and stakeholders themselves. Scholars have attempted to establish hierarchical lists, matrixes and typologies of stakeholders and the legitimacy or relevance of their demands. However, in most

cases, these analyses remain descriptive and most articles simply draw up an inventory of existing stakeholders (e.g.: Richter, 2011). This inventory is then used to assess the voice of each class of stakeholder on questions of governance of the organization, and should improve its decision-making.

II.3. A public consists of active stakeholders

The concept of the *public* as adopted in this chapter – drawn from the pragmatic literature and particularly from Dewey, Lippmann and Follett's reflections – is very close to the concept of *stakeholder*. However, there is a slight difference: *the public* encompasses not only individuals but also larger, organized social groups. In fact stakeholders who have succeeded in organizing themselves into social groups (e.g. customers of a given service, inhabitants of a given area, employees or minority shareholders of a given company, etc.) form *a public*. This view of *publics* is very close to that of *emergent groups*. Through their case study of the AFM (French Muscular Dystrophy Association), Callon and Rabearisoa (2008) show that what they call *emergent groups* are not simply an extension of the list of stakeholders usually referred to in governance literature, but disrupt the conventional definition of social roles and highlight the limits of existing economic, political and scientific institutions: those emergent groups have the power to make things evolve. They are *publics*.

In this chapter, it is argued, firstly, that most stakeholder approaches assume that such a public exists naturally, and do not explore the process of its construction. Rendtorff and Bonnafoous-Boucher (2013) argue that stakeholder theory usually gives only a fragmented vision of the relationships between stakeholders and organizations: they are considered either to flow from the organization to the stakeholders (instrumental approach), or from the stakeholders to the

organization (normative approach). The relationship between the stakeholders themselves is hardly ever considered, and the theory would gain from paying more attention to those relationships (ibid). Greater consideration of inter-stakeholder relationships would give a more realistic grasp of the diversity of organizational situations, moving beyond the assumption that stakeholders are a single homogeneous group. It is also argued in this chapter that stakeholders only become stakeholders through active participation. Studying this social process could make an important contribution to management sciences. A public with particular demands (such as activist campaigners) and organizations could cooperatively engage with one another and mutually benefit from this collaboration (Waldron, Navis and Fisher, 2013; O'Mahony and Bechky, 2008; Callon and Rabeharisoa, 2008; Porter and van der Linde, 1995). This chapter thus follows Callon and Rabeharisoa's (2008) call to further investigate the study of the conditions under which emergent groups become legitimate stakeholders.

Secondly, it is argued that although the concept of stakeholder is extremely powerful, most stakeholder approaches are too **restrictive**: contemporary issues concern larger sections of the population and in many cases, decision-making can impact society at large, particularly when they involve high-risk organisations. These approaches are also too **technocratic** and neglect the social context of action and the various contingencies of each particular situation. Finally, these approaches are too **static** and fail to focus on the various dynamics of the public's construction: this is an obstacle to studying the public transformations often accompanying real-life governance and decision-making situations.

III. Constructing the Public, an increasingly important Question

III.1. Particularly when a large public is concerned

Recent events such as the sub-prime crisis, violence and insurgency in Syria, Fukushima's nuclear accident and the SARS epidemic have provided shocking proof that today's crises can involve many countries and have dramatic impacts for millions of people. Young et al. (2006) talk about today's global "time-space" compression to describe this phenomenon, characterized by the higher speed of operations and the more interrelated characteristics of bio-physical, technical and human systems. These characteristics can sometimes provoke a "transboundary crisis" (Boin, 2009; Ansell, Boin and Keller, 2010) that threatens a number of life-sustaining systems, functions or infrastructures. Everything is faster-paced and more interconnected, potentially leading to "unthinkable" crises (Lagadec, 2007) with an impact on larger sections of the population.

Taking the case of the Exxon Valdez oil spill as an example, Mitchell et al. (1997) show that some "dependent" stakeholders had to rely on others to do things for them, despite the legitimacy and urgency of their demands. They conclude that these dependent stakeholders were not sufficiently powerful to achieve their aims by themselves. This chapter, however, argues that it is not only a matter of power, but of organization, and that construction of the public is even more crucial for situations involving activities with potential societal consequences, such as those of high-risk organisations. These organizations' activities do not concern a clearly-defined, stable "public"; the constituents of the public groups can fluctuate through time and space: it is very much an evolving process. High-risk organisations can impact a large, changing community due to the multiple intersections between various organisations at national and international level. The Cattenom nuclear power plant in the East of France, for instance, is very close to Luxembourg,

Belgium and Germany, and all four countries could potentially be seriously affected in the event of an accident: in such cases, national borders are no longer relevant.

III.2. Constructing a common voice to be heard

Whenever a large community is impacted by certain activities, it should be given the opportunity to voice its opinion on their governance. This chapter argues that such a community will be heard if it is organized into an active, structured participant. Handy (1996) identifies several limitations to the stakeholder approach and acknowledges that knowing who the stakeholders are is no guarantee for influence:

“I don’t really know who all the stakeholders are or who would properly represent them. Financiers of various types I can see, and employees. Customers clearly have a stake but how would their interest be represented other than through the market place where, in an open market, if such a thing really exists, they can vote with their feet? And the surrounding community, the environment, society at large? Stakeholder is a nice way of talking about the balancing act that companies have to perform. (...) It is certainly difficult to see how one could give it any teeth.” (Handy, 1996, p.67)

Likewise, Hummels (1998) is skeptical towards Evan and Freeman’s (1993) “Kantian capitalism”, which grants every stakeholder the opportunity to take part in discussion of organizational practices, policies and actions. Doh and Quigley (2014) also question the practical utility for management purposes of establishing lists of stakeholders that are potentially limitless. In this chapter, it is argued that if stakeholder theory is to be useful, knowing who the stakeholders are is not sufficient: theories need to go further and study the organization of stakeholders into communities of actors. Stakeholder scholars do not usually explore in any depth the concrete operationalization of this debate and its implications for governance. Hummels thus considers how

stakeholder participation could be operational and what active participation by multiple stakeholders entails, especially when their opinions significantly differ: “We are left in the dark when it comes to the practical, and especially normative, meaning of setting up a discourse between the various perspectives” (Hummels, 1998, p. 1410). In his view, managers should give stakeholders the opportunity to tell their stories and encourage them to voice their opinion. In this chapter, a slightly different approach from Hummels’ is envisaged: it is not necessarily the responsibility of managers to encourage stakeholders to express themselves, but it is the responsibility of the stakeholders to organize themselves into a structured, active participant body.

Therefore, this chapter is close to Metcalfe’s “stakeholder society”: he recommends the utilization of “workers’ councils” of the kind found in France and Germany, to represent non-shareholders (not just workers): “the only way to ensure that stakeholder views are effectively represented is for stakeholders to *represent themselves*” (Metcalfe, 1998, p. 33; italics added). However, he realizes that practical application of these stakeholder principles is not straightforward and needs broader societal change: indeed, he concludes his chapter by stating that a stakeholder society is a prerequisite for a stakeholder economy, which implies a much wider social process. Metcalfe’s “stakeholder society” relates very much to the ideas of Dewey, Lippmann and Follett that will be presented a little later: it will be shown that their contributions could help break the impasse of the stakeholder concept.

The question arises of what happens when the sections of society affected are not (or cannot be) represented. When stakeholders do not have the opportunity to express their own voices, their spokespersons or representatives could do it for them, but consideration is rarely given to the practicalities of such situations. Driscoll and Starik (2004), for instance, strongly support the conceptual consideration of the ecological system - in which they include the atmosphere,

hydrosphere, lithosphere, ecosystem processes, and all human and nonhuman life forms - as a stakeholder of the firm. Although their claim is legitimate, they do not study how this system could organize itself into a stakeholder, for instance, through NGOs, in order to express its opinion and actively participate in decision-making.

III.3. Constructing a common voice to achieve change

In their study of the French Muscular Dystrophy association (AFM¹²), Callon and Rabeharisoa (Rabeharisoa and Callon, 2004; Callon and Rabeharisoa, 2008) show how muscular dystrophy sufferers and their families have participated actively in the production of knowledge of the condition. Over the years, thanks to numerous actions undertaken by the association, people affected by the condition gradually formed a recognized group. Their cause became legitimate and they acquired the resources and influence to mobilize researchers, the medical world, and politicians to support their actions, despite negative reactions from certain sectors of the medical professions. This motivation to achieve change came partly from the fact that in the 1950s there was a lack of official knowledge and interest in muscular dystrophy. The AFM started working with patients' parents very early to gather practical and academic information on the condition's various forms and analyze them systematically, leading to the production of a solid basis of knowledge. This unusual relationship between patients, clinicians and researchers is characterized by Callon and Rabeharisoa as mutual learning embodied in a "reflexive organization". This case study shows how groups concerned by an issue (here, muscular dystrophy sufferers and their

¹² *Association française contre les myopathies*

families) joined forces to become a structured participant able to raise funds¹³, organize colloquiums and orient research, leading in turn to major advances.

Epstein (1996) explores the case of AIDS movements that pressured the US government for more funding to be allocated to AIDS research. Thanks to their hard work, AIDS patients turned themselves into activist-experts. When they first began campaigning, they were frustrated with the lack of medical progress; they criticized scientific research for being fueled by antigay assumptions, conducted their own “underground” drug trials and finally became experts in the disease themselves. Epstein shows that the breadth, depth, and “militancy” of the AIDS movement were extraordinary in many aspects, partly because their members were particularly motivated to see speedy medical breakthroughs in AIDS treatment: this led to a durable, intense relationship between the campaigners and the research community, and ultimately to great advances.

Both the cases of the French Muscular Dystrophy association (Rabeharisoa and Callon, 2004; Callon and Rabeharisoa, 2008) and the AIDS movement (Epstein, 1996) provide conclusive evidence: thanks to their tireless commitment to their cause, these two different public groups succeeded in organizing themselves into structured participants with a common voice, able to raise funds and take action to drive the relevant research forwards. Following these two examples, this chapter argues that effective actions are conceivable only when *the public* deliberately organizes itself into a social group able to express its own voice and undertake actions.

It has been established in the first part of this chapter that stakeholder scholars consider constructing the public important, but mostly ignore the actual process of its construction and

¹³ The “Telethon” weekend charity event has been a huge success in France since 1987: more than 2,000 M€ were raised between 1988 and 2015, and millions of people throughout the country have joined in the fundraising. These funds were used to create a laboratory in 2013 called the Genethon, whose mission is to design gene therapy products for rare diseases and provide patients with innovative treatments.

organization. But can the idea of the stakeholder be any use if it remains an empty shell that is impossible to implement? The process of constructing the public investigated in this chapter could bridge the gap between the theoretical definition of stakeholder groups and practical reality.

IV. Dewey, Lippmann and Follett's Debate on constructing the *Public*

IV.1. A brief review of the main ideas

The questions raised almost a century ago by Follett (1918), Lippmann (1927) and Dewey (1925) focus on construction of public democracy and its dynamic organization through time and space. Surprisingly, the concept of stakeholder is very close to the concept introduced under the name of the *public* by Dewey, Lippmann and Follett in the first quarter of the twentieth century. While Lippmann defines the public as those people who are involved either directly or indirectly in a particular state of affairs, Dewey includes in his definition all individuals affected by the consequences of an act and who consequently organize themselves to have some control over those consequences. Dewey's vision of the public is thus rooted in both its activity and its organization as a group, which is a less passive view than in the various stakeholder definitions. Follett, too, sees society as a number of deeply interrelated groups.

For the above three authors, public or group processes are dynamic in nature. They argue that public groups are in perpetual motion, simultaneously emergent and in construction, trying to find ways to regulate the relationships within (and possibly between) their groups. Above all, there is the idea of active participation by the public as a concrete entity, and active involvement by its members in its construction as an entity with a voice.

IV.2. Three different answers for operationalization of the public's construction

In contrast to most stakeholder scholars, Dewey, Lippmann and Follett take a relatively practical view and report the concrete difficulties of involving the public in all the issues in which it could have a stake. They consider that a contradiction exists: it is necessary to involve the public in some matters, but difficult to do so. They realize that the complexity of certain issues largely exceeds the knowledge of most stakeholders. Each of them makes different (though complementary) recommendations to overcome these difficulties and anchor the public's construction in practical reality.

IV.2.1. The community answer – Follett

Follett (1918) recognizes the difficulties experienced by modern societies in setting their precise agenda(s), due to the complications engendered by an increasingly complex world. To counter this complexity, she proposes having neighborhood groups in which everybody can easily grasp the problems at stake. Through small-scale debates in these neighborhood groups, participants can arrive at an “integrated will”, as participants are able to express their different experiences and ideals, which in turn facilitates and enriches the debates. Follett believes that neighborhood groups would also enable each individual to feel responsible for the life around him, which increases and focuses a sense of responsibility. Above all, she argues that this type of united, creative citizenship involvement would reinforce democracy.

In order to help regulate the interrelations between members of a given society and to foster an essential societal debate, Lippmann (1927) and Dewey (1925) also call for a more local form of operation. All three authors recommend community-level government, partly because it will simplify the issues tackled: an issue which directly concerns somebody is easier to grasp. Yet, the

idea of community here does not necessarily involve geographical proximity. Rather, for Dewey the notion can be rooted in interacting intellectual and cultural neighborhoods with shared memberships, or in the desire to address common issues (Shields, 2003). Similarly, as depicted in Wenger's (1999) book: *Communities of Practice: Learning, Meaning and Identity*, coworkers¹⁴ can constitute a community that shows solidarity: they resolve ambiguous situations through informal interactions, common languages and routines and small transgressions. These situations in turn develop greater solidarity among coworkers. Coworkers and neighborhood groups develop similar features, and Follett's concept of the community (or "neighborhood") can be extended to other small-scale groups who share common values or practices (e.g. professional communities, sailors on the same ship, minority shareholders in the same company, etc.).

This concept of the community is still very vivid, and recently scholars have considered its main strengths: De Rynk and Voets (2006), for instance, build on Habermas (1985) to describe the learning curve generated by the group process: "Because people are involved in processes of communicative reality, people and groups can learn from one another, construct and adjust their perceptions of issues, and come to compromises or look for agreements that eventually can lead to certain decisions." (De Rynk and Voets, 2006, p. 61) This learning curve in turn leads to new patterns of communication, authority, and resource exchanges, and new attitudes and patterns of behaviors among participants (Musso et al. 2006).

IV.2.2. The expertise answer - Lippmann

Lippmann (1927) considers the difficulties of engaging with public opinion on every subject, especially in an increasingly complex world. He argues that some individuals do not take

¹⁴ Coworkers are not necessarily workers in the same team (as the term is used by Wenger): they can also be members of the same profession such as auditors, dentists or management professors for example.

part in such dialogues because the issues raised may be too complicated. The state's task thus seems impossible to Lippmann, since in the theory of democracy, it should be possible to know exactly what is happening at a given time and to have an opinion on everything.

“The random collections of bystanders who constitute a public could not, even if they had a mind to, intervene in all the problems of the day” (Lippmann, 1927, p.115).

However, the general public is neither aware of everything, nor even continuously interested. Lippmann therefore recommends calling on experts for their valuable judgment on specific issues. He argues that using experts will provide a more professional approach to problems, and help make the important issues accessible to the public when considered necessary. In Lippmann's view, experts will also help to prioritize the issues and give 'objective' opinions on questions that need to be publicly discussed. This prioritization would avoid tiring the population with numerous, unimportant debates. The government in such a case would consist of a body of officials to handle problems that are submitted to public opinion from time to time as appropriate.

IV.2.3. The Inquiry Process answer - Dewey

Dewey (1925) agrees that public affairs are mostly complicated, and that technical issues should be dealt with by experts in order to be professionally handled, though from his perspective, the key question is not whether experts are necessary, but rather what role they play in the community of inquiry (Shields, 2003). He goes further than Lippmann regarding the role of expertise, recommending that experts should base their investigations on specialized inquiries, continuously reconsidering their past experiences and establishing facts based on these investigations. This inquiry process is the most important feature of public governance in Dewey's view and concerns not only expert assessment, but all political measures, which should be experimental and never “set in stone”.

“When we say that thinking and beliefs should be experimental, not absolutist, we have in mind then a certain logic of method, not, primarily, the carrying on of experimentation like that of laboratories. Such a logic involves the following factors: First, that those concepts, general principles, theories and dialectical developments which are indispensable to any systematic knowledge be shaped and tested as tools of inquiry. Secondly, that policies and proposals for social action be treated as working hypotheses, not as programs to be rigidly adhered to and executed.” (Dewey, 1925, pp. 202-203)

For Dewey (1925), this inquiry process forces society to reconsider most of its taken-for-granted devices, submitting them to constant experimentation. Such a process becomes a global method that needs to be widely applied as a major knowledge principle, leading to *communities of inquiry*. Shields (2003; 2004) illustrates this community of inquiry with the Buddhist parable of the three blind men and the elephant. In this parable, three blind men touch an elephant to learn what it is like: but each blind man feels a different part of the elephant and draws different conclusions. Shields argues that the community of inquiry and its three main principles - namely problematic situation, scientific attitude and participatory democracy – would be mutually reinforcing and enable the three blind men to talk to each other and move around the elephant, to get a sense of what it ‘really’ is. Without activation of the community, the three blind men all end up with a completely different sense of what an elephant is, depending on which part of the elephant they touched (it is a rope – tail; it is a fan – ear; it is a tree – leg).

Every inquiry starts¹⁵ with an uncertain situation: it is indeterminate, imprecise and incoherent: the course of activity is disrupted (Lorino, Tricard and Clot, 2011) and through the process of inquiry, the aim is to arrive at a situation that is determinate, precise and coherent

¹⁵ For clarity, the concept of inquiry will be presented here as a sequence of events, but its main strength lies in the fact that those events intermingle with one another, leading to a powerful process.

(Dewey, 1938). The inquiry process will transform this unstable situation into a problematic situation (Journé, 2007; Lorino and Mourey, 2013) and this problematic situation is the inquiry process's first - and nonetheless crucial – step. The problematic situation is a catalyst that helps the community to form, and motivates it to launch inquiries (Shields, 2003). The inquiry is triggered by a disruption of habits: when customary patterns fail to generate expected outcomes and the situation appears to be neither intelligible, nor actionable (Lorino and Mourey, 2013; Lorino, forthcoming).

The scientific attitude and logical reasoning (Shields, 2003, 2004; Lorino and Mourey, 2013) are other key components of the inquiry: once the problem is formulated, the inquirers develop working hypotheses – i.e. possible explanations for the problematic situations, and test those hypotheses, inducing more working hypotheses and more action. This scientific attitude reflects the willingness to tackle the problematic situation, using working hypotheses that guide the collection of data and facts and their interpretation (Shields, 2003). This logico-scientific thought not only involves theory and methods, it also involves imagination: testing propositions cannot be reduced to a purely mental act (Lorino and Mourey, 2013) as it induces a type of reasoning that is neither inductive, nor deductive, but abductive: combining intuition and reasoning to create a plausible account of the situation (Lorino, Tricard and Clot, 2011).

Finally, the community is linked through participatory democracy (Shields, 2003, 2004): this means that the inquiry process is shaped by interaction between the community and the facts: as in the Buddhist parable, cooperative discussion between the three blind men gives them a better chance of understanding what an elephant is, and prevents them from being trapped inside their limited selves. This idea of community does not necessarily mean that inquirers all have the same views; on the contrary, it is important for pluralism to exist, even though inquirers need common

conceptual horizons in order to collaborate on an inquiry (Lorino and Mourey, 2013). Pluralistic and sometimes contradictory opinions thus expose actors to other ways of thinking and may lead them to modify their own mental schemes, which can be an essential source of learning and innovation (Lorino, forthcoming).

IV.3. Summary

Although the three approaches recommended by Follett, Lippmann and Dewey are quite distinct, the contention of this chapter is that they share certain common assumptions and are in fact complementary. As a result these approaches can and should be used together to shed light on the process of constructing the public. For example, all three authors agree that a smaller section of the population should manage technical issues (be it neighborhood groups, expert groups or inquiry groups), resulting in creation of a strong, efficient community. Meanwhile each individual approach illuminates different ways of organizing actors into a public.

The following section presents the empirical results of a case study examining a public's construction, organization and maintenance through time, in the context of nuclear activities. The multiple theoretical "lenses" of Follett, Lippmann and Dewey will be mobilized in order to develop new insights into the process of constructing the public. The empirical data will finally demonstrate that when used in combination, these theories can produce a greater level of understanding about that process than any one of them could probably achieve when used in isolation.

V. Empirical Setting: The Nord-Cotentin CLI

V.1. Background: nuclear power in France and creation of CLIs

V.1.1. Contextual elements

Nuclear power is one of the only “techno-scientific” debates that has aroused such long-term protests worldwide. The opposition between pro- and anti-nuclear camps has been going on since the 1970s, and in France the nuclear question has the ability to mobilize reactions that are visible in both the street and the ballot box (Topçu, 2013). Both sides have political, historical, economic, ideological and geopolitical claims, and the anti-nuclear movements have watched helplessly as the nuclear industry has progressively developed, especially in the Nord-Cotentin area, to become France’s main source of energy. Hecht (1997) showed that the decision made in the early 1970s by a small number of actors to use light-water reactor technology framed the subsequent development of the French nuclear industry and excluded other scientific and technical options. This in turn spurred emergent groups to lead investigations and explore alternative options (Callon and Rabeharisoa, 2008).

Furthermore, a policy of secrecy (Topçu, 2013) has long dominated the whole industry: the inhabitants of Nord-Cotentin were initially told that the NuclearCo¹⁶ nuclear waste processing site was a potato masher factory, and many other things besides. This policy of secrecy is linked with the military tradition in nuclear activities, and was strictly applied by most organisations with a role to play in those activities. As a former CEA (French Atomic Energy Commission) engineer

¹⁶ NuclearCo is a pseudonym for a large French nuclear company, operating in La Hague and elsewhere to reprocess nuclear waste.

told us, he and his colleagues were asked in the early 1970s not to answer any questions from outsiders that could stir up controversy.

“I was part of the CEA school at the time of the great electro-nuclear programme in 1971: we were asked not to respond to allegations that were made outside the CEA and could potentially lead to arguments.” (CLI member)¹⁷

The context of the Nord-Cotentin area is particularly interesting. It has one of the most intense levels of nuclear activity in the world, as home to four nuclear sites including a waste reprocessing plant (NuclearCo la Hague), a nuclear power plant (Flamanville), a waste storage center (NuclearStorage¹⁸) and Cherbourg’s Arsenal (military shipyard where nuclear submarines are constructed). Due to both the concentration and diversity of nuclear activities in the area, campaigns soon arose to protest against the nuclear industry. The national anti-nuclear debate concentrated on NuclearCo La Hague waste reprocessing site, as the anti-nuclear activists thought that if they could shut it down, that would inevitably put an end to the whole nuclear industry in France.

“Antinuclear activists thought that if they managed to plug the outlet pipe (i.e. for reprocessing of nuclear waste), they would manage to shut down the reactors. So their strategy was to focus their actions around La Hague.” (CLI member)

The rise in action by environmental associations occurred simultaneously with a rise in action by other activists in the area, including several scientists such as Monique Sené¹⁹. Nord-Cotentin became one of the bastions of the anti-nuclear struggle, and local activists were soon

¹⁷ The interviews were conducted in French; all extracts presented are based on the original transcripts and translated by the author.

¹⁸ Pseudonym for the company that operates the waste storage facility.

¹⁹ Monique Sené is a nuclear physicist, and although she is not an opponent of nuclear power *per se*, she is a high-profile critic of the French nuclear power programme.

helped by a group of 400 scientists that in 1975 became the association GSIEN²⁰. Also in the early 1970s, a group of teachers and farmers gathered to demonstrate near the town of Cherbourg, where trains were bringing nuclear waste for treatment at the NuclearCo La Hague reprocessing plant, and these same groups later funded the CCPAH²¹ in 1973.

“The CCPAH was created by people from La Hague, Cherbourg and Flamanville. Then people from everywhere joined it: carpenters, some storekeepers... People also came from Cherbourg Arsenal, in particular members of the CFDT²² trade union – that used to be very critical of nuclear activities. There was strong opposition at the Arsenal at that time: they weren’t against submarines, just against nuclear submarines.” (CLI member)

Although there was strong anti-nuclear mobilization in Nord-Cotentin, some of the local population were in favor of the nuclear sites. Farmers, fishermen and a few second home owners joined the protests, but on the whole storekeepers, elected officials and workers –particularly former miners – were favorable to the project. Part of the reason Nord-Cotentin was chosen as the location for those nuclear sites was because the population was supposed to be amenable (Zonabend, 1989). Moreover, it was an isolated area, unfit for agricultural or maritime development due to the strong sea currents, and likely to suffer depopulation: in terms of the economy, the nuclear sites could be considered good news for the region (ibid). Cherbourg’s military shipyard had been established in 1960 and soon became the major source of employment in the area. The local people were proud of this, and it paved the way for further nuclear developments in the region. The CEA also offered farmers high prices to buy their land, and well-paid jobs in the nuclear sites for them and their sons, which reduced protests.

²⁰ GSIEN is a French association of scientists for information on nuclear energy.

²¹ CCPAH was a committee against atomic pollution: it closed down in 1983 and some of its members joined Greenpeace.

²² *Confédération Française Démocratique du Travail*

“The population had mixed feelings at first, but they [CEA] bought the land and gave people a job, then their children started to work at La Hague site.” (CLI member)

The CEA also gave mayors, public figures and parish priests tours of Marcoule, another French nuclear site. Ultimately all these personalities were convinced that the waste reprocessing plant would be a good thing for the region, and the population finally came to accept this (Zonabend, 1989). And so, the referendum organized in La Hague decided in favor of the project.

The antinuclear protesters experienced their second wind when plans were proposed to build a nuclear power plant in Flamanville around 1975: this project mobilized more people than the waste processing plant at La Hague, since the decision had not yet been made and they felt they had more chances of influencing matters. In 1975 the CRILAN²³ was set up, together with 30 local committees made up mainly of farmers. The activists were also particularly annoyed by proposals in the mid-1970s to extend the La Hague site in order to reprocess foreign nuclear waste, which many considered an unacceptable idea.

“In 1977, Greenpeace opened its French branch. At the time, Greenpeace thought that Cherbourg would become an extremely important place for it, in particular because it was going to take in Japan’s nuclear waste. That’s why they wanted people in Cherbourg.” (CLI member)

“When the first ship (the Pacific Fisher) arrived with spent fuel from Japan for reprocessing at La Hague, people heard about it in the morning, and there were 7,000 in the streets of Cherbourg, and things got rather rough.” (CLI member)

Even once the final decisions to locate the nuclear sites in Nord-Cotentin had been made, some people kept up their protests against the nuclear industry, and several events in the late 1970s

²³ CRILAN is a committee for reflection, information and action against the nuclear industry in Lower Normandy.

reinforced the anti-nuclear activists and associations. Several small incidents occurred that were never explained by the authorities, in particular a fire in a silo in January 1981, and the population kept asking questions that remained unanswered. The trade union CFDT decided to organize an information meeting in Cherbourg to explain what had happened.

“The CFDT organized a meeting in Cherbourg and invited people who wanted to get information about what had happened. To make up for the management blackout, their idea was to provide people with a different approach. The room was packed: people came because they needed to understand, and hear the union’s version of events.” (CLI member)

Simultaneously, Greenpeace occupied a crane on Cherbourg harbor, demanding the creation of an independent monitoring and information commission.

“We organized a poster campaign with loudspeakers to announce that we would occupy a crane on Cherbourg harbor in order to stop Japanese fuel coming in. We only had one demand: the creation of an independent commission for information and monitoring. Our main priority was to get information.” (CLI member)

Meanwhile, Louis Darinot (Cherbourg’s MP and mayor) was worried that the incidents that had occurred on the NuclearCo site could impact the population, and in 1981 decided to set up a CSPI (*Commission Spéciale Permanente d’Information* or Special Standing Committee for Information) that subsequently became the CLI (*Commission Locale d’Information* or Local Information Commission) for the NuclearCo La Hague nuclear site. This initiative was soon supported by the French Prime Minister, Pierre Mauroy, who published a circular in December 1981 expressing the State’s intention to improve transparency in the nuclear industry. Flamanville’s CLI was subsequently created in 1986 and NuclearStorage’s in 2008. Due to their

synergies, these three CLIs (mostly referred to in this article collectively as a single CLI) often work together on certain issues, and have a common administration.

V.1.2 The mission and operation of Nord-Cotentin CLI

France's TSN²⁴ law for transparency and safety of nuclear installations, enacted in 2006, introduced a requirement to have a CLI for each nuclear site. The law institutes CLIs with a general mission of monitoring, information and dialogue²⁵ on nuclear safety, radioprotection and nuclear activities' impact on people and the environment. What is particularly interesting in this law is that the simple mission of informing the public is potentially enlarged to an active mission of *concertation* on nuclear safety. Also, CLIs are responsible for spreading the results of their studies to the population. While this law institutionalized CLIs in France and gave them legislative status, the three main nuclear installations of Nord-Cotentin had set up their commissions much earlier, and in fact served as models for the new law. Each CLI in France today has four different types of members: local elected officials (president of the county, regional councilors, mayors, etc.), relevant experts (scientists with expertise in the nuclear activities or sites concerned, or local economy actors), and representatives of environmental associations and trade unions. In Nord-Cotentin, each commission has around 40 to 50 members: some of them belong to all three CLIs that make up the "inter-CLI". The aim of a CLI is to participate in the safety debate. The point of the pluralistic membership with a range of very different opinions and backgrounds is that they challenge each other, and this stimulates lively debates.

²⁴ The TSN law concerns transparency and security of nuclear installations: it reasserts the role of ASN - the Nuclear Safety Authority, an independent authority whose task is to regulate nuclear safety (on behalf of the State). The TSN law also makes a CLI compulsory for each nuclear site and contributes to reinforcing existing CLIs.

²⁵ In French, the term used in the law is "concertation" and it can be translated in several manners.

Each CLI holds three to four regular general meetings a year. The agenda is decided by the commission's board members at meetings that take place a few weeks before the general meeting. CLI members also attend inter-CLI meetings in Paris with members of other CLIs, discussing specific subjects (e.g. plant decommissioning, post-accident situations). If necessary, the members can also call ad-hoc and/or exceptional meetings and form work groups for specific subjects. Any subject relating to the operation and safety of the nuclear installation, or protection of the local population and environment, can be considered and discussed during CLI meetings.

During the period concerned by this study, the CLI had offices in Cherbourg accessible to all members, where archival data were stored. They also had a part-time secretary who attended all the meetings and was based in the county council offices in Saint-Lô: her mission was to communicate information from all stakeholders to the CLI members; to organize meetings, general meetings or travel such as the trip to Japan; to publish the CLI newsletter and send it out to Nord-Cotentin inhabitants, and to maintain the website (with the CLI members' help). Moreover, from the outset the CLI employed a full-time expert: first a doctor, and then a former nuclear submariner.

Since the TSN law came into force in 2006, CLIs have gained some power in France: the nuclear safety authority consults them for their opinion on public inquiries. CLIs can also put forward their opinion on specific subjects, and head inquiries involving experts or laboratories.

“Since the TSN law of 2006 came in, the CLI has had the resources to obtain expert assessments and they're consulted by the ASN²⁶ and other organisations. [...] At Brennilis [a power plant in a different part of France] for instance, a public inquiry was aborted because of the CLI: the CLI asked ACRO²⁷ to perform an expert assessment which led to

²⁶ Autorité de Sureté Nucléaire – Nuclear Safety Authority

²⁷ Association pour le Contrôle de la Radioactivité, an association for control of radioactivity levels

some questions for EnergyCo²⁸. EnergyCo didn't answer those questions and so the inquiry commission refused the public inquiry. That's quite unprecedented!" (CLI member)

While the CLI officially has only advisory power, it can also negotiate for certain things, by putting pressure on the ASN for instance:

"When the CLI is concerned by a specific subject that the ASN hasn't studied, the ASN must look at it and take decisions. Also, it will be easier for the ASN to take a stricter position if they see that people are very critical about operators. I think the CLI plays a big role in this game of power, and that it's getting more important." (CLI member)

Finally, over time the CLI has succeeded in achieving change on certain subjects:

Since their creation, I think we've made some progress on the environmental aspect: in the past, only the operators could take measurements and they would say: "it's not dangerous, don't worry". Then suddenly they lost that monopoly: people took their own measurements and found different figures. The operators had to provide explanations, and that lead to a decrease in authorized emission levels. (CLI member)

V.1.3. The CLI and the public

CLI meetings are open to the public and anyone interested can attend, although in practice non-members rarely come. The rule is simple: anyone can attend a CLI general meeting and ask questions about items on the agenda. However, if non-members want to ask other questions, they must send their questions to the president a few days before the general meeting. The public rarely comes to CLI general meetings, but the media – particularly the regional press – are always present.

²⁸ EnergyCo is a pseudonym for an energy company in France.

V.2. Research Methods

V.2.1. Data Collection

This research adopts an approach using the pragmatist concept of inquiry (Peirce, 1931; Dewey, 1938; Lorino, Tricard and Clot, 2011, Dumez, 2013) with an abductive mode of reasoning combining narratives, intuition and action. The idea was to set up an ongoing dialogue between actors, taking their differences into consideration to nurture the inquiry. The research methods borrow Dumez's perspective on research dynamics, which consists in defining and refining simultaneously and in interrelation the research question, the unit of analysis, the empirical investigation field, and the theoretical propositions, through successive loops of deduction/induction/abduction (Dumez, 2013). Building on these pragmatist approaches, significant weight was given to descriptions and narratives. The author referred back and forth between empirical data and theories in order to check whether theory and data supported each other, using an exploratory research question.

This research draws on semi-structured interviews, audio recordings of general meetings, archival data and documentary evidence (minutes of meetings, press articles, books and videos, CLI brochures, emails from the CLI, etc.). The study was performed using a longitudinal case study methodology: the data discussed below are derived from a 3-year study focused on construction of the public within the particular context of Nord-Cotentin's Local Information Commission.

Semi-structured interviews were conducted to allow interviewees to express themselves according to their own interpretative schemes: this was especially important on the subject concerned, since very diverse views coexist. Given the subject's sensitivity and the associated confidentiality issues, interviewees were fully informed of the objectives of the study from the

start. They were asked for permission to record the interview, and the vast majority agreed: it was emphasized that complete anonymity would be guaranteed. Also, in most cases, interviewees could individually verify any extracts from their interview used in this chapter, and that they could make changes if they felt the quotations did not correspond to what they meant.

The interviewees were people with a role in the three different Nord-Cotentin CLIs, people from the ANCCLI²⁹ association, people working for the regulatory authorities (mainly the ASN and IRSN), and finally people working for NuclearCo and EnergyCo. For the CLI members' interviews, the idea was that the sample of interviewees should, as far as possible, be representative of the different profiles found in the CLI. The author thus sought to conduct interviews with scientists, members of environmental associations, elected officials and union members for a well-balanced reflection of all the participants in the CLI. A special effort was made to interview key informants from various backgrounds, and people with first-hand experience of the past and present situations, in order to comprehend the process of this public's construction since its beginning in the 1970s.

Key interviewees were identified gradually as the study progressed, and some of them were approached by the author, using "snowball sampling" (Goodman, 1961): interviewees were asked at the end of their interview if they knew of someone else to recommend for a meeting with the author. This approach facilitated contact with the targeted informants, and saved time. Some of the key interviewees were also identified during meetings that took place in both Nord-Cotentin and Paris. Semi-structured interviews were conducted face-to-face and their length ranged between 40 and 150 minutes. All interviews were digitally recorded and subsequently transcribed verbatim. In

²⁹ The *Association Nationale des Comités et Commissions Locales d'Information* (ANCCLI) is a national French association of all French CLIs, formed to provide information and oversight regarding nuclear installations.

most cases, participants continued to discuss issues related to the questions asked during the interview after recording had stopped, and recollection notes were then written. All interviewees were asked: (1) what their concrete role was in the CLI and what actions they had undertaken or performed; (2) what motivated them to take part in the CLI debates; (3) how they rated the CLI's role and organization; (4) whether they considered that effective dialogue existed in the CLI; and (5) what, in their view, were the potential areas for improvement to enhance the CLI's role and mission.

These interviews were supplemented by field observations (especially CLI general meetings and inter-CLI meetings in Paris) and reviews of documents, minutes and recordings of past meetings, documentary videos, and different websites and correspondence. The objective was to have the best possible grasp of the process of constructing the public. The author also personally attended most of the CLI meetings and colloquiums and took part in other formal/informal events: lunches, meetings, informal discussions, etc. This methodology provided a deeper study of behaviors and their meanings, for the clearest possible understanding of the organizational context.

V.2.2. Data Analysis

This chapter draws on Yanow and Schwartz-Shea's (2006) approach to interpretation: they note that interpretation - or sense-making - of a specific event is done through "retroactive reflection" on that specific event, informed by their own knowledge and experience. Sense-making is thus contextualized by prior knowledge, history and surrounding events: it is therefore very important to obtain extensive comprehension of the field, context and actors in order to provide the reader with an in-depth description.

Data collection and data analysis were performed at the same time and Dumez's (2013) method of empirical and theoretical memos was used to continuously relate them to each other: the author referred back and forth between data and theories, to check whether the emerging theoretical propositions were supported by the data and conversely, whether the theories were helping to make sense of the data (Yanow and Schwartz-Shea, 2006).

VI. Empirical Results

In this part, the first section will explore the initial conditions for the process of constructing the public. A detailed description of the context of the Nord-Cotentin CLI will be provided: what could have been a sterile accumulation of irritated neighbors acting in isolation became a community with a strong identity, that has continued to exist over time thanks to the CLI members' motivation and skills. The second section will then show that despite the CLI's achievements at a certain point in time, maintaining such an entity is not automatically guaranteed: it is an ongoing effort, and when a CLI loses its capacity to be the public's voice, then it also loses its reason to exist.

VI.1. The Nord-Cotentin CLI: a successful process of constructing a public

VI.1.1. Organization around an actively committed community

Several factors played a significant role in the creation of a community that actively committed itself to investigating nuclear site safety issues: first, the specific context of Nord-Cotentin meant there was already great public awareness of nuclear matters, and this gave the first attempts at constructing a public pioneering status, generating great energy and passion in the debates: the actors' motivation was a significant driver, and they made important achievements on

various issues. Other factors such as the pooling of resources between the area's three CLIs and the financial resources poured into their operation made common action possible, and helped to establish good relationships with the nuclear operators.

“People from Nord-Cotentin are much more aware of nuclear issues than people from Brittany for instance [...]. Here, because it's all so close by and because of the CLI's work, people are much better informed.” (CLI member)

Awareness-raising: The particular context of Nord-Cotentin resulted in the creation of a committed community concerned about safety issues on nuclear sites. As noted earlier, the area has four nuclear sites and a very intense level of industrial nuclear activity. This geographical proximity is a great awareness-raiser for the surrounding population, which has been living close to the nuclear industry for the past few decades. This is reflected in the following interview extracts.

“I'm a native of Cherbourg, and have been going to antinuclear demonstrations since I was 15 years old.” (CLI member)

“[As] residents and ordinary citizens of Nord-Cotentin and the Manche county [...] we've necessarily been interested in those questions [...] for a long time. I remember when I was in High School in the late 1970s, we were already following those debates: there were demonstrations against the plant's extension, against the arrival of foreign fuels. For sure, in this region, it's almost a daily topic of conversation.” (CLI member)

Moreover, most residents of the areas near the nuclear sites know at least one person who works in the nuclear installations, and they consider it legitimate to have a say in decisions concerning the nuclear sites located in their neighborhood. As explained in the description of the empirical study setting, geographical proximity is not a requirement for showing a concern: activists from all over France were very much involved in the debates focusing on the presence of NuclearCo's waste reprocessing plant.

Pioneer Status: Due to the geographical proximity of the four nuclear sites, and because some people took an active interest in safety issues very early on, the Nord-Cotentin CLI acquired pioneer status, which enhanced cohesion in the community and partly explains its success:

“La Hague’s CLI was historically the model CLI: Monique Sené gave it a great impetus.”

(CLI member)

This pioneer status also gives the current CLI members a sense of responsibility in view of the admirable work of the last 30 years. Starting in the early 1980s the actors began to join forces to address safety issues, and managed to make achievements and develop specific skills. Today, most members feel grateful for the work done by previous and current members, and want to perpetuate it:

“In the CLI, everyone feels they owe a lot to the work done in the past. For instance,

Monique Sené was very much involved.” (CLI member)

Affective aspects - Great energy and passion: From the outset, all the different actors were very much involved in the debates, because they felt passionately about the issues; this sometimes led to disagreements and small arguments within the group, as shown in the following interview extract:

“My motivation for getting involved in the CLI is, for one thing, for the public interest nature of nuclear questions in Nord-Cotentin and Manche. [For another,] as an employee of the operator, I have [...] more information than ordinary citizens, and particularly as a trade union representative [...], I know what goes on in the installations.” (CLI member)

“The CLI in Nord-Cotentin works well because its members – who are volunteers – produce reports, documents... [...] There’s great dedication and hard work, because they feel passionately about the problems, the site, their personal story...” (County councilor)

Such energy and passion often originates in a strong sense of belonging to a territory:

“Cherbourg is a kind of village of indomitable Gauls resisting occupation: the townspeople are really very insular in their behavior. Everybody wants to imprint themselves on this territory.” (CLI member)

Most members still have the same fervor today. Given their specific skills, they are able to grasp the issues at stake and they feel responsible as representatives of the population. Members usually fight to voice their opinion, so that it is taken into account in the debates: as they are very diverse, the debates are sometimes quite heated.

Pooling of resources: The nuclear sites’ geographical proximity has also enabled each CLI to tackle common issues and undertake common actions: the aims of the three different CLIs in Nord-Cotentin are in fact quite similar, since all three exist to discuss nuclear installation safety. The work done in one CLI can thus sometimes benefit another CLI, even though the nuclear sites all have very specific characteristics. One example of this is the work done on the risk of terrorist action:

“Everyone gets working together, not just for one site and one problem: for instance the risk of terrorist attacks concerns each site, and we should pool our efforts.” (County councilor)

Also, some members belong to two or three CLIs at a time, and the work they do for one CLI and the resources available thus help other CLIs, developing a positive dynamic and a broader community where everyone can share their experience and compare the issues. This pooling was particularly effective when working on lessons learned from the Fukushima accident: the CLI decided to publish a “white paper” with all questions triggered by the event:

“The work done on the white paper is innovative; ... it was the trade union members who launched the idea, a month after Fukushima, to get the 3 CLIs together to investigate whether anything should be examined in the light of what happened in Fukushima.” (CLI member)

Financial resources: From the start, the Nord-Cotentin population attached great importance to nuclear questions, and as a result their elected officials have never hesitated to release funds for the CLI’s operation: funding has never been a problem in Nord-Cotentin, in contrast to CLIs elsewhere in France.

“The CLI’s success in Nord-Cotentin is a product of (1) its history, and (2) a willingness at the local authority level – by any political party – to release funds for its operation.” (County councilor)

These funds enable the CLI to undertake projects such as the trip to Japan or publication of its white paper, or to hire an expert in order to grasp the issues at stake, which stimulates motivation in CLI members and gives them legitimacy and room to maneuver: they can accomplish greater work thanks to this financial backing and are able to take steps such as hiring laboratories for certain missions. Moreover, allocating funding to the CLI signals to its members that their work is valued, which reinforces their feeling that they are a part of a community.

Trustful relationships: The NuclearCo La Hague CLI has succeeded in establishing rather good relationships with the operator NuclearCo, and most members report that the collaboration works quite well compared to other partnerships, because it has been going on a long time and NuclearCo respects the CLI’s work. Some members of this CLI have the impression that NuclearCo trusts them: the CLI has become a partner for safety, and guarantor of the operator’s activities. These good relationships lead in turn to new potential action for the CLI:

“In the last few years, we’ve had more power. Today, we even take our own samples on the operator’s site: that would have been impossible 20 years ago. But the operator can see the advantage: we become guarantors. A relationship of trust is established.” (County councilor)

Although some members recently felt that EnergyCo and NuclearStorage were on occasion less than transparent towards CLI members, relationships between the CLI, operators and regulators (ASN and IRSN) have also been working quite well:

“I get the feeling that operators are taking the CLI more and more seriously - that’s also the case for the ASN – for instance Mme Sené [a CLI member]: her opinion is really listened to.” (CLI member)

Also, CLI members often come from the same neighborhood and know each other well: despite their differences of opinion, they usually get on well with one another:

“In the CLI, I’m on first-name terms with MPs, trade unionists and members of associations: usually, I’ve known them since they were kids. I used to bounce some of them on my knees when they were babies.” (CLI member)

These good relationships give the CLI even more power and legitimacy, and reinforce the members’ impression that they are contributing to an understanding of the issues at stake that is shared with the operator.

Variety of debates: During general meetings, each member can ask his own questions: there is a general desire to have debates in which everyone can voice his opinions and be heard. This consideration of everyone’s opinion means the decisions made can be justified to the population:

“We need first to talk to people and hear each opinion in order to take a decision. When the decision is very orthogonal to the discussion, we need to talk it over with people to explain the reasons. [...] We should make citizens understand that when they complain, that isn’t enough: you have to try to construct something.” (CLI member).

This particular strength of the CLI needs to be continuously reinforced, since these debates that give everyone a chance to voice their opinion are key for the construction of an actively committed community that speaks the same language while being as pluralistic as possible. It is quite a complex exercise, as it is almost impossible for most decisions to satisfy everyone: the aim is at least to ensure that everyone has been heard, and that the decisions will achieve some sort of consensus. However, controversy and turbulent debates are undoubtedly important, as they enable the members to look deeper into the issues and take into account new and sometimes creative elements, which in turn contribute to the construction of a community of inquiry, as will be shown later.

“The CLI can’t have ONE voice: its main richness lies in its plurality. When working on the white paper, there was sometimes a consensus, but different views were also expressed.” (CLI member)

In conclusion, all these factors resulted in the creation of a committed community, able to launch a range of debates in which each member’s opinion can be represented and heard. This community was very much strengthened by the expertise of the CLI members, as we shall now see.

VI.1.2. The legitimization role of expertise

The inclusion of experts in the CLI from its inception, partly due to the area’s exceptional intellectual and scientific population in the area, gave a great impulse to the process of constructing the public.

“We’re doing rather well compared to other CLIs: ... that’s because of the scientific experts: not all CLIs have scientific experts at their disposal, who help a lot whenever there’s a question. [...] If you don’t have scientific experts who are able to scrutinize files, it’s terrible: there are usually files one or two meters thick.” (CLI member)

In particular, it will be shown that CLI members acquired extensive skills throughout the years, mostly thanks to a few key, highly skilled individuals who had both national authority and professional legitimacy. With their help, the other less specialized or “lay” CLI members - nuclear site employees, or retired citizens – gradually built up another, highly valuable form of expertise through experience, as shown in the following interview extract:

“I have no background in nuclear physics, but in 1974/1975 we were given a lot of help by the ‘400 scientists’ collective that later became the GSIEN. And one day they told me: ‘now you know more than we do about La Hague, so you can manage by yourself.’” (CLI member)

“I have a scientific background but when they used very technical terms, I had to ask questions, look at the maps, and so on. I used that approach to grasp each subject at stake.” (CLI member)

Also, some CLI members have “insider” standpoints since most of them have worked on the nuclear sites at some point. Each type of individual expertise contributes to a greater collective expertise, which has enabled the CLI to gain legitimacy and challenge other stakeholders. CLI members were able to participate effectively in debates, as they could count on important input from leading scientific experts, and help from experienced lay citizens able to process hundreds of reports and form an opinion on most of the questions examined. Moreover, they could explain the subjects investigated, to provide citizens with a pertinent standpoint and take well-informed decisions: CLI members’ expertise reinforces their inquiries, and their ability to challenge other

stakeholders. This in turn leads to legitimization of the CLI in the eyes of the local population, the nuclear operator and the State, and has contributed to the feeling that CLI members belong to a credible committed community. Experts helped to make the important issues at stake accessible for the population, which is undeniably important in making local people feel both acquainted with and involved in the issues at stake.

Intellectual and Scientific population: Nord-Cotentin has a high concentration of engineers, due to the presence of big industrial companies and military installations. These engineers usually retire quite early (around the age of 55) and often stay in the region. This is the reason why they then become involved in local councils, or organisations such as CLIs.

“The CLI’s success is also attributable to the intellectual and scientific population found in the area: in Nord-Cotentin, there are a lot of engineers per square meter, with big industrial companies, NuclearCo, EnergyCo... Those engineers reach retirement pretty young (around 55) and so all those people then get themselves elected to the local authorities in the region. All the town councils have lots of engineers, and many military officers, admirals: they’re all extremely highly-educated former executives.” (CLI member)

These people have great energy and are interested in the issues at stake: they feel that they are serving the population.

Mobilization of National Scientists and Experts: Because Nord-Cotentin is one of the most nuclear-intensive areas in the world, scientists and experts also became greatly involved in its nuclear sites and the French anti-nuclear debate, which soon focused partly on this region. They joined the discussions at the end of the 1970s, and the CLI later. The instigator of this mobilization was Monique Sené, who created GSIEN, a group of scientists modelled on the “Union of Concerned Scientists” existing in the United States at that time. GSIEN has raised the alarm over

nuclear industry hazards several times. Monique Sené participated in the first meetings of the Nord-Cotentin CLI in 1981. She was not an opponent of nuclear power *per se* but she was the leading voice of a critical view of the French nuclear programme, and in that capacity raised several pertinent questions that stimulated various debates. Moreover, her great dedication created a dynamic to be reckoned with, and several scientists and experts also became involved in the CLI, leading to high-level debates on precise topics. This scientifically-oriented tradition of the CLI and the technical debates launched still remains today, and members recognize the utility of input from scientists and experts, who are able to analyse files and reports and provide an informed and pertinent standpoint, as shown in the following interview extract.

“We had a scientific council, which no other CLI had: they could scrutinize the scientific literature, epidemiological studies, and so on. If you want to get information independently of the site operator, you have to have an expert on hand” (CLI member)

Insider’s standpoint: Also, some non-scientist members have specific skills gained through their previous backgrounds, for instance concerning nuclear physics, the environment, the Nord-Cotentin installations, etc. This means they are able to have a pertinent standpoint.

“I keep a careful and critical eye on the role and operation of the CLI. I’m an expert on reactors and reprocessing, and as such I have my own opinion [...].” (CLI member)

The questions raised by the scientific experts during CLI meetings sometimes relate to issues they had faced during their careers:

“I know the installations quite well since I’ve worked here, so they can’t spin me a yarn, and honestly, they don’t.” (CLI member)

These particular skills give them an “insider’s” standpoint, which once again raises the level of debates and sharpens their ability to grasp the issues involved. As a consequence, the questions

asked in meetings are generally very detailed and technical, and CLI members are able to challenge other stakeholders:

“Our experts have a relevant viewpoint, and sometimes even know the installation better than the operator himself: they’re fearsome opponents. They can’t be fooled.” (County councilor)

Legitimization process of the CLI’s “second opinion” function: The highly technical and pertinent debates emerging from the CLI have increasingly legitimized its work. The political authorities have also come to realize that second opinions in the field of nuclear power are legitimate and unavoidable:

“After the Chernobyl accident, people started to ask for explanations and two laboratories were created simultaneously: ACRO and CRIRAD. The scientific association still continued, and we acquired great institutional influence thanks to our expertise.” (CLI member)

The CLI acquired institutionalized status in 1981 when France’s Prime Minister Pierre Mauroy issued a circular officialising its role. This made the CLI’s work more legitimate in the eyes of local authorities and the operator: for instance, NuclearCo sometimes relies on their expertise today. Their role as providers of a second opinion is fundamental:

“Providing a second opinion is the CLI’s most important role but it’s also an ongoing struggle.” (CLI member)

Making the issues accessible: For the local population, the major advantage of having scientific experts in the CLI is that they can help present the issues at stake in an accessible way: the CLI regularly publishes information brochures for Nord-Cotentin residents.

“When I arrived, the difficulty we faced was that the experts – who were passionate about NuclearCo’s industrial site and about the area – weren’t very good at presenting their work simply and yet the goal was to inform the public.” (County councilor)

The aim of those brochures is to simplify relevant information so that the main message is understandable by ordinary citizens.

“I think the CLI has a very tough mission, consisting in translating technical and highly complex ideas for local residents, and to achieve that, you must act in good faith, with a good technical background, make things accessible to ordinary citizens.” (CLI member)

For anyone wanting additional information, the CLI websites go into more detail on specific issues. Even if ordinary citizens are unaware of or uninterested in the situation, they know that they have representatives in the CLI who have precise views and debate them.

It has been argued here that expertise reinforced the community: what is interesting to highlight is that this specific case involves two types of expertise: traditional expertise (held by scientific experts, the doctor, etc.), and expertise acquired more informally in the field (by union representatives, or simply interested local residents). Ultimately, both the creation of a committed community and the mobilization of scientists and experts paved the way for several inquiries in the CLI.

VI.1.3. A community of inquiry

The involved community soon became a community of inquiry in which not only experts, but also other CLI members – who acquired specific skills over the years - became involved in several investigations. This inquiry dynamic was strongly supported by other entities linked with the CLI, such as the association ACRO, or the creation of a register of all cancers in Nord-Cotentin for instance.

“All the radioactive waste in France was concentrated in La Hague nuclear site and it was quite risky. We created a register for Nord-Cotentin cancers in 1997. [...] Having such a register means that there are sick people, and it was worrying for the public. But we argued that, on the contrary, with this register the cancers would be well monitored.” (Former technical expert of the CLI)

Although the inquiries were sometimes inconclusive, there was generally a desire to submit each debate, each decision, and each action in the CLI to a process of inquiry. Most members consider that they have a duty to investigate all the procedures, activities and projects of nuclear sites as thoroughly as possible. In typical meetings, the experts are asked to give their opinion, then a discussion follows – sometimes lasting several months - with the aim of reaching a well-thought-out consensus. The following interview extracts illustrates the CLI inquiry dynamic well:

“The CLI won the case of NuclearStorage’s storage center and its measurements of groundwater tables: it was a 6-year fight but it was successful in the end. [...] NuclearStorage finally adopted ACRO’s methodology for measurements after we had shown that their methodology was wrong. [...] And now they have to present a new monitoring plan to the ASN.” (CLI member)

One of the founding values of the CLI was the desire to access information at a time when secrecy was the rule in the nuclear industry. Once access to information was granted, CLI members wanted to inquire and ask questions to examine several subjects in more depth, and sometimes request further information. Thanks to these inquiries, they were able to alert people to potential risks. The CLI thus conducted its own inquiries: for instance, after Fukushima, several members travelled to Japan to investigate the circumstances of the accident and learn from this experience. Upon their return to France, after several months of inquiry, they published a white paper on the

lessons of Fukushima, raising several questions for the nuclear operator, the state, and legal authorities in France.

Access to information: as shown earlier in the chapter, one of the main reasons CLIs were created was because people lacked information: they were generally met with a wall of silence when they wanted specific information from the operators or legal authorities. In the late 1970s and early 1980s, activists all demanded more access to information. The creation of the first CLI was an answer to these demands.

“The CLI’s first role is to be a place for information that we can’t find anywhere else, and where we can debate. Whenever the debates lead us to seek further information, it gets very interesting.” (CLI member)

Access to information is crucial for the community of inquiry because the data obtained are often the starting point of inquiries.

Communities of inquiry: As CLIs need to be pluralistic, whenever there is a decision to take, their members make real endeavors to invite experts to take part in the debate. This helps them to arrive at well-thought-out decisions:

“My role is to involve various specialists to enrich the debate, so that we take the most relevant position.” (County councilor)

“Today, I take part in the 3 CLIs, and I look at environmental issues and I react when certain people make assertions and I try to prove that what’s said is often problematic.” (CLI member)

For example, at a general meeting a few years ago, the operator mentioned the option of switching from fuel oil to a wood-burning furnace as the principal source of energy for one of the nuclear installations. At first, there were some members in favor of this option and others against

– plus a few members with no clear preference. By dint of discussions and debates, and thanks to input from various specialists, the CLI members realized that there were additional issues at stake which they had not thought of before those discussions: the environmental associations, for instance, realized that the switch would mean disrupting Normandy's entire wood industry. Finally, a consensus was reached and the members decided to reject the wood-burning option.

The community of inquiry's aim is also to consider all scenarios that could affect site safety, even the most unlikely, and see how to cope with them, which requires an ability in CLI members to contemplate various situations. This ability requires more than a purely scientific approach; a creative approach is also necessary. Creativity can be fostered by the various views contributed by the different profiles co-existing in the CLI, as shown in the creative use of kites to measure radioactive concentration of tritium in the air:

“We've been using kites to go and measure the radioactive concentration of tritium in the air and we showed that NuclearCo wasn't fully respecting the law. Everybody made fun of our kites but nobody knew how to measure it. [...] Yet when we came to present our work at the next General meeting, a huge number of journalists were there! (CLI member)

Japan inquiry: Soon after Fukushima, consistent with their investigation approach, the Nord-Cotentin CLI members decided to visit Japan to conduct an inquiry. During their trip, they were able to meet elected officials, mayors, economic actors, doctors, pharmacists, etc. This enabled them to explore questions they felt were important but had remained unexplained – such as the accident's impact on agriculture and human activities. The CLI members had identified a list of people they wanted to meet. This investigation was subsequently materialized in a white paper they published a few months after their return: it laid out all the questions that could be asked in France based on the lessons of Fukushima, and investigated potential answers:

“The white paper’s aim was to identify all the issues that had been raised [...] and to ask various stakeholders for answers. We showed the difference between what the operator says, what the ASN says, what civil defense says, etc. Our goal was then to reduce the gap.”

(County councilor)

This white paper was a huge undertaking which reinforced the community of inquiry and created a substantial dynamic within the group: each participant was very proud when it was published at the end of 2013:

“The white paper was a huge undertaking, involving several steps: the first step was when we interviewed people using more than 150 prepared questions. We kept all the questions: we even mentioned the possibility of a meteorite falling right on the Flamanville plant.”

(CLI member)

Whistleblowers: With this dynamic of inquiry in the CLI, members became whistleblowers: no issue was left out of the discussions, and even the most “unthinkable” scenarios were envisaged. Having such commissions is thus very valuable for the French nuclear industry:

“Providing information is the chief aim of CLIs: if they’d had a CLI in Fukushima, it would certainly have pinpointed the fact that the embankments weren’t high enough, and the electrical generators were too low.” (CLI member)

Thanks to in-depth knowledge of their environment, CLI members can offer expert opinions that may help to improve safety. For instance, after Fukushima specific steps were taken to place emergency diesel generators higher up to avoid flooding, at the urging of some members. Members are also able to draw comparisons with situations and solutions they have come across abroad. In general, they are able to ask questions:

“In the Japanese cities with nuclear installations, they have “rear bases” the essential services such as firemen can retreat to. In the Manche region, we can’t even do emergency

tests. They keep telling us: ‘in case of emergency, don’t worry, the prefecture will manage...’ We wonder [!].” (CLI member)

Finally, the CLI has become a place where people can doubt, investigate and question. This is particularly well illustrated in the following interview extract:

“The elected officials were thinking about what they would do if [a similar accident to Fukushima] happened in La Hague: Cherbourg would have to be evacuated, just think! It’s unimaginable. They wondered how they would do it. Who would pay: the State? the operator?” (CLI member)

To conclude: in this first section, the process of constructing the public was explored and important characteristics leading the public to successfully organize itself were presented. It was shown that a desire to obtain information and inquire is in the CLI’s DNA: the CLI becomes a community of inquiry to serve nuclear safety. In the next section, it will be shown that this construction process is neither set in stone nor definitive. If today’s CLIs lose their capacity to instigate several inquiries, they will also lose their link with the public and their reason for existing.

VI.2. The Nord-Cotentin CLI: failures and limits of constructing a public

It was demonstrated in the last part that the process of constructing the public was relatively successful and the Nord-Cotentin CLI managed to “embody” the public at a certain point in time. This part will show that despite these achievements, maintaining this public’s motivation requires ongoing efforts involving various challenges. Firstly, it will be shown that it is far from easy to keep a strong link between complex questions and people who have cohabited with nuclear sites for more than 60 years. Also, the CLI’s progressive institutionalization has transformed initially informal organisations into formal entities, with some loss of room for maneuver. Finally, although when first formed the Nord-Cotentin CLI attracted several members with an interest in nuclear

safety who were keen to investigate related issues, keeping such a community of inquiry as actively involved over time is a real challenge.

VI.2.1. Keeping the link with the public as time passes: a difficult task

Although the nuclear debate is still very vivid in France and some activists are continuing their struggle, the people of Nord-Cotentin who have been living alongside nuclear installations for the past 60 years seem to have gradually lost interest. Nuclear activities constitute the region's major source of employment and have progressively become part of the landscape for most residents. Also, taking part in complex discussions about nuclear safety can be difficult for ordinary citizens.

Nuclear activities are considered normal today in Nord-Cotentin: Over the years, nuclear energy has become an established part of life in the area and most people have learned to live with it, as shown in the following interview extract.

“We live near those sites as if they were chocolate factories. [...] The nuclear power culture is just normal for everyone here nowadays. There won't be any complaints in small towns near the sites. [...] If you're anti-nuclear, then you should leave the region: that's only logical. We're part of the system today.” (CLI member)

It is true that nuclear power has long been a major source of employment for the area, and most families have at least one member working for the nuclear sites, which undoubtedly makes them less daunting places. Moreover, the villages near the nuclear sites receive financial benefits from the nuclear industry: local taxes are practically zero and there are impressive local infrastructures. This makes it difficult for most people to take a stand against the nuclear industry.

“It [the money from NuclearCo La Hague nuclear site] accounted for 93 to 95% of La Hague district council’s budget: the locals weren’t paying any taxes although they benefited from outstanding infrastructures.” (CLI member)

Logistics issues of involving the public in CLI debates: CLI general meetings are generally held on working days and although they are open to the public, “outsiders” rarely come. Apart from a growing lack of interest, logistics issues also prevent people from attending these meetings, as shown below:

“General meetings are public but who can attend them on a Thursday morning, unless they’re retired? It’s rather limited.” (CLI member)

Moreover, there is a general impression that the questions discussed at CLI meetings are too complex and technical. Despite endeavors to involve ordinary citizens, the public seems to be increasingly losing interest:

“The CLI’s role is to debate, and it’s open to ordinary people: a newsletter is published on a regular basis and there’s a website. We realized that when we organize lectures to attract the public, we get 20 to 30 people at most, and they’re all members of associations, or other stakeholders.” (Former technical expert of the CLI)

Those logistical difficulties coupled with the local population’s growing lack of interest in nuclear issues have weakened the CLI’s link with the people around them, and as the next part will show, this process was partly reinforced by the institutionalization of French CLIs after enactment of the TSN law in 2006.

VI.2.2. The CLIs’ institutionalization process and its drawbacks

Once the TSN law was implemented in 2006, CLIs progressively became more formally organized, with articles of association, elections and rules: CLIs are now compulsory by law and

overseen by county councils. This institutionalization process has made the work of CLIs more formally administrative and less personal than it was initially. Moreover, putting county councils in charge of CLI administration and organization generated new problems: this task is not a priority for councils, and CLI members feel that sometimes the organizers are not interested. A conflict of interests also exists, as the county council receives huge amounts of money from the nuclear industry: it is hard for them to challenge nuclear operators.

“When the CLIs were just beginning, we managed to debate technical subjects with everybody, while today I get the impression that we’re going backwards. As I see it, there’s been a takeover by the county council: it’s dumbing down.” (CLI member)

“Since the TSN law came in in 2006, I have the impression that it hasn’t worked quite as well: we’ve become part of the government. Before, people were volunteers and there was a real enthusiasm, and that’s not so true today.” (CLI member)

Lack of support from certain county councilors: running the CLI is sometimes perceived as a chore, and interviewees who were members of the first CLI in the early 1980s noted that general meetings are much shorter and less frequent today.

“In the 1980s, the agenda was always full to bursting and meetings never finished before 5pm. Ever since the county council has been in charge of the CLI, they keep refusing certain subjects and want to get it over with as quickly as possible. Today, they have 2 (or sometimes 3) meetings a year, lasting half a day, compared to 4 full-day meetings back then.” (Former technical expert of the CLI)

Although there is a person in charge of the CLI at the County Council, the CLI’s vitality depends very much on its president’s motivation - the president is appointed after the county council elections every six years.

“At each CLI meeting, Mr X, (a former NuclearStorage employee) says exactly the same thing [i.e. talks about NuclearStorage’s waste storage problem] and the CLI’s president says: “Well, it’s noon already, let’s go and eat.” That’s the response from the CLI’s president...” (CLI member)

Rotation of the president is beneficial for the CLI but also has drawbacks: presidents generally need a long adaptation period to fully grasp their mission, and they have other commitments elsewhere.

Conflict of interests: There is the same problem as with Nord-Cotentin’s population: the county council currently receives a lot of tax income from nuclear organisations in France.

“The economic effects of nuclear activities are taken into consideration in priority, instead of their negative aspects.” (CLI member)

For local elected officials, it is difficult to take a political stance that is critical of nuclear activities, as the following interview extract shows:

“Business taxes represent 25% of the county’s budget on average, so... we don’t bite the hands that feed us! To pay for schools, roads and so on, we needed NuclearCo’s money. [...] How could the county council president let anti-nuclear associations intervene in the CLI after that?” (CLI member)

“We’re in a microcosm: the CLI’s president is a former NuclearCo employee, its vice-president works for EnergyCo: what they want is to keep a local industry, not open up a dialogue.” (CLI member)

There is mostly a genuine desire to understand the situations at stake, but the existing financial links give rise to complex power games between pro- and anti-nuclear actors.

“What we felt is that at some point in time, the CLI’s organizers thought the environmentalists were progressively gaining more power and that the CLIs were becoming too powerful: they wanted to take over control.” (CLI member)

Complex power games: During the field observations, most CLI members representing environmental associations decided to boycott the CLI for 18 months, for several reasons. They felt that their opinion was no longer respected, since statements on behalf of the CLI were sometimes made to the media or in meetings without mentioning their associations’ standpoints on specific issues. Also, they felt that other CLI members were determined to neutralize their power by replacing them with pro-nuclear associations.

“The CLI’s former president has just joined the expert group, and he wants to get rid of the associations: it’s obvious that he wants to carry on what he’s been doing for months against the associations.” (CLI member)

After the boycott, it was very difficult for the CLI to persuade these associations to return as full members, because they were convinced that nothing had changed. While the boycott lasted, the CLI did not operate normally: in particular, there were fewer debates and questions.

“There’s a lot less argument when the associations aren’t there: I remember that we talked about authorized emissions for NuclearCo’s nuclear site and it was passed without any difficulty.” (IRSN expert)

“It’s clear that things happen at the CLI whenever there’s a conflict. [...] Things move when there are arguments, when we [the associations] contribute information: whenever we’re not there, nothing gets done.” (CLI member)

VI.2.3. CLIs sometimes lose their capacity to constitute a community of inquiry

Due to both their loose links with the public and the drawbacks of the CLI's institutionalization process, the CLI has been gradually losing its capacity to be an instigator of communities of inquiry. A CLI can be described as a "hybridizing organization": there is a unifying dimension when various members decide to join the same organization to perform inquiries, but there is also a hybrid dimension through the maintenance of a plurality that is open to change. This hybrid dimension is crucial if the CLI is to "embody" the public. CLIs sometimes lose their capacity to inquire, for reasons such as the following.

Operators do not act as co-inquirers: The nuclear operators do not usually act as co-inquirers and are not fully transparent, and due to conflicts of interests (see previous parts), inquiries are sometimes biased. In Nord-Cotentin, they sometimes fear what is a difficult communication exercise for them. For incident feedback for example, operators are often on the defensive as they feel that CLI members are accusing them, and this is unproductive for the inquiry dynamic.

"As time went by, the operators would be more and more apprehensive when they came: they didn't look forward to what was an unpleasant duty. Meetings were public, there were journalists there, and if we asked the ASN for anything, we always got it." (Former technical expert of the CLI)

For a successful inquiry, the inquirers should all be on the same level, with a common desire to move the inquiry forward. Reward or punishment is always meted out by reference to a certain standard, and when such a situation exists, that means the inquiry has already taken place. Also, it often happens that CLI members lack some of the information needed to grasp the situations at stake.

The inquiry logic gradually disappears: the inquiry dynamic fuels construction of the public. When CLIs lose this inquiry dynamic, they lose their reason for existing. The Nord-Cotentin CLI emerged as an embodiment of the public for questions of nuclear safety in the region at a certain point in time. However, maintaining this public over time depends on the CLI's capacity to maintain a community of inquiry that will actively inquire into nuclear safety. If the inquiry logic gradually disappears in the CLI, other processes are bound to arise to replace them, constructing and embodying the public differently.

“20 years ago, CLIs were the only places where associations could debate and obtain information. Things have changed a lot today: now we have the internet, with all the grey literature. CLIs no longer have the monopoly: the CLI organizers [the county council] still don't realize that if they don't take things further, a CLI becomes useless.” (CLI member)

VII. Discussion

The first part of this chapter examined the process of constructing a public through three different theoretical lenses proposed by Follett, Lippmann and Dewey. The analysis then examined the limits of such a construction process, especially the difficulties of maintaining the public over time. In this section, the chapter shows that the approaches recommended by these pragmatist thinkers can be beneficially used together because they share some common assumptions - such as the strength of collectives, and the dynamic dimension of such processes. For Weick (1979), management should create a context in which employees, managers, customers, suppliers, etc. can interact and create meaning together. Here, rather than the responsibility of management, an alternative and supplementary view has been contemplated: the analysis points to the responsibility of the actors to become structured participants in debates. This analysis also identifies a need to create such a context of interactions and highlights the importance of Follett, Lippmann and

Dewey's contributions towards its organization. Follett's neighborhood groups, Lippmann's involvement of experts and Dewey's inquiry logic are complementary solutions in constructing the public as a strong entity, and ultimately those three dimensions enable us to understand *how a social group that is concerned by a given question becomes a social group that is formally organized and able to express itself*.

In different ways, the three authors question the commonly held notion that any process of constructing the public requires some form of collective activity, organized into small-scale groups. Mainardes, Alves and Raposo's (2011) call for further research on how different actors with divergent views reconcile their interests is proof that Follett's contribution is still relevant for addressing current concerns in the organizational literature. Her conception of community-level management (neighborhood groups) can integrate various voices, and she emphasizes the importance of organizing small-scale groups of individuals sharing a common interest that they value highly, through dialogue and frequent interactions. In a similar vein, Waxenberger and Spence (2003) propose a cultural shift in the way organisations ought to handle public relations: their objective should be not only to circulate information, but also to set up a two-way dialogue and exchange. As seen in the previous section, collaborative dialogue within a given public can give rise to a mutual understanding which in turn produces creative solutions enriched by multiple voices. A "transnational civil society" that brings people together then emerges: "Deliberative processes among stakeholders thus can create the basis of solidarity beyond national boundaries: through a cooperative search for the best policy practice, engaging in (functional) political participation and sharing expertise" (Nanz and Steffek, 2004, p. 323).

In such collective activities, as shown in this chapter, expert knowledge and advice also plays a necessary role, since experts become the information gate-keepers for a given public. In

today's increasingly complex world, it would be unrealistic to expect everyone directly or indirectly concerned by an issue to know all its ins and outs, even within the boundaries of a given community. Calling on experts - who become collaborators for safety, forming a strong network – is therefore an interesting recommendation for the governance of organisations, especially when complex issues are involved. This use of experts could bring a large[r] section of the population into public debates, raising their familiarity with the issues at stake. Also, accessible presentations of complex problems by experts could reduce the various stakeholders' feelings of powerlessness, potentially stimulating greater involvement and the perception of a fairer playing field. Lippmann's recommendation gives rise to new questions regarding such experts, calling in turn for more research in this area. Which techniques could these experts use to translate complex issues into more accessible terms for the general public? And how can the public monitor their experts? This question could be a very interesting direction for future research.

Last but not least, Dewey's concept of the community of inquiry has much to offer to management sciences in general. In practice, the community of inquiry is an organizing principle that organisations should strive to apply when addressing a public: the measures implemented should be treated as working hypotheses, never set in stone, but open to adjustment and public scrutiny. As seen through the example of the Nord-Cotentin CLI, all measures should be constantly questioned, and kept in a state of perpetual evolution through dialogue with the different stakeholders so that, as advised by Follett, they can grow as needed. As this chapter highlights, it is through this ongoing dialogical process that the stakeholders construct themselves as "a public": it is a powerful tool, and a necessary condition for the existence of the public. Dewey's community of inquiry is thus a catalyst for the vital debate that should occur between all stakeholders. It enables

these stakeholders to make sense of a situation together through constant interactions and the use of common languages and artefacts.

The case study presented in this chapter shows that all three conditions were fulfilled, which resulted in the creation of a committed community, able to express itself and become a relevant participant in a highly complex debate. The Nord-Cotentin CLI members are not just the nuclear sites' "angry neighbors": over several decades and in response to major events (Chernobyl, institutionalization of the CLIs, Fukushima, etc.) they have succeeded in building a strong community with real skills, able to play an important role in the governance of nuclear activities. It has also been shown that this construction process loses its power whenever it loses its capacity to engender communities of inquiry. The CLI in Nord-Cotentin is currently facing a major crisis, but maybe this is simply another step in their maintenance process, and they will emerge reinforced after this crisis.

The expected contributions of this chapter are both theoretical and practical. From a theoretical perspective, this chapter helps to clarify the notion of "the public", and its construction, consolidation and maintenance phases. In so doing it fills some of the gaps in the organizational literature, as most scholars have not really addressed this process of constructing the public. The analysis emphasizes the associated processual characteristics: it is established that when this construction process is not nourished by continuous progress in the public's active understanding of issues – which greatly depends on its capacity to conduct inquiries - it comes to a halt. Moreover, the author followed the call made by Callon and Rabeharisoa (2008) for further theoretical and empirical research in order to gain a better understanding of how emergent concerned groups impact and redefine relations between technoscience, politics, and markets. From a practical perspective, this chapter sheds more light on the process through which such a concerned public

can organize itself and impact other stakeholders and their activities. Also, it gives some insight into how the general public is informed about nuclear risks, which is undeniably useful for organisations governing nuclear activities.

The chapter's main limitation relates to the highly specific characteristics of the Nord-Cotentin CLI: some conditions for constructing the public are specific to the context studied, such as the unusual degree of participation by scientists, and the high concentration of nuclear activities in a small area. However, the exceptional nature of the context of the Nord-Cotentin CLI might be interesting in itself for the organizational literature, just as AIDS (Epstein, 1996) and the AFM association (Callon and Rabeharisoa, 2008) provided interesting cases despite their very specific context. The case of the Nord-Cotentin CLI could similarly represent an extreme and therefore striking example of a wider phenomenon. For further research, it would then be interesting to study another case of construction of a public to see if similar conditions were fulfilled. Doh and Quigley (2014) note that, probably due to major world events, an increasingly visible stream of literature has tried to incorporate stakeholder considerations into the conceptualization of responsible leadership. More generally, it would appear increasingly important to have empirical studies of stakeholders' claims and impacts, and the ways they can organize themselves into more formal and more powerful bodies.

VIII. Conclusion

Lozano (2005) proposes that corporations today should be more relational, in the sense that they should see themselves not only as managers but as builders of stakeholder relations. It is argued in this chapter that while organisations have a responsibility to foster productive discussions between their various stakeholders, and thus to “build” stakeholder relations, the stakeholders also

have a responsibility to organize themselves into active participants, able to lead felicitous inquiries. Such communities of inquiry might benefit both sides. Firstly, since greater public involvement and awareness is bound to raise expectations of the organization, that in turn forces the organization to be more effective. This is especially true for high-risk organisations. Secondly, when various stakeholders organize themselves into a structured public, their voices have more chance of being heard and taken into consideration.

To conclude, effective public participation in the governance of high-risk activities – which is part of the process of constructing the public - can lead to higher levels of safety, through the organizing of a dialogical, reflexive performativity in which the high-risk organization's professionals and experts are committed to continuous dialogue with the public. This construction process – provided the public constructed is truly representative and constitutes an active, structured stakeholder in the social monitoring of the activity – is a great advantage for high-risk organisations. Such collectives increase the chances of perceiving weak signals, prevent the organization from becoming enclosed in a culture of secrecy, and reduce the risk of downward bureaucratic spirals that could in turn lead to lower vigilance.

CHAPTER 2 - ACCOUNTABILITY IN ACTION: EXAMINATION OF AN INCIDENT REPORTING PROCESS

The case of “Local Information Commissions” (CLIs)
for nuclear activities in the West of France

Abstract

The accountability literature has grown significantly in recent decades, specifically on the question of the role played by accounting and reporting practices. It is argued in this chapter that although quite powerful, the concept of accountability still has several weaknesses. Dewey's concept of inquiry will be studied as a way to alleviate some of those weaknesses. Building on the results of an empirical study performed within the nuclear industry's "Local Information Commissions" (CLIs) in the West of France, this chapter explores an accountability process in action, focusing on the role played by incident reporting in the constitution of a community of inquiry to investigate the safety of nuclear activities. The chapter argues that despite recent claims of transparency and greater openness in the whole nuclear sector, there has been no significant shift in accountability practices in the case studied, and that the incident reporting process does not enable CLI members to fully understand the situations concerned. One key finding is that such an accountability process triggers inquiries, but does not then enable CLI members to conduct their inquiries successfully, and ultimately helps to uphold a certain form of opacity.

Keywords

Accountability, Incident Feedback, Inquiry, Pragmatism, Reporting process

I. Introduction

The idea that organizations should provide their stakeholders with accounts of their activities has been studied by a number of authors under the name of “accountability”, a concept that has attracted much attention in the study of organizations (Garfinkel, 1967; Harré, 1979; Silverman, 1975, Roberts and Scapens, 1985). Recently, there have been numerous recommendations of greater corporate accountability: as companies grow in size, power and influence, their impact on the environment and communities also increases (Adams, 2004). As long as corporate actions can cause, complicate or exacerbate the world’s misery, they must be accompanied by greater corporate accountability (Dawkins, 2014). The rise in demand for corporate accountability is especially sharp for high-risk industries. One of the main purposes of accountability is to provide mechanisms through which all people and entities affected by an organization’s actions can ask its managers to account for those actions. It also holds managers responsible for the social, environmental and economic outcomes (or impacts) arising from the actions of their organization (Unerman and O’Dwyer, 2006). Accountability can take several forms. It can be seen as giving explanations through a “credible story of what happened, and a calculation and balancing of competing obligations, including moral ones” (Boland and Schultze, 1996, p. 62). Particularly interestingly for the purposes of this chapter, accountability encompasses both the “account” itself and the process followed in providing this account to stakeholders (Adams, 2004). Also, a growing amount of accountability literature concerns the role played by accounting and reporting in organizations (Yaacob et al., 2013).

Nuclear power is one of the only “techno-scientific” debates that has aroused such long-term protests worldwide (Topçu, 2013), and the nuclear industry is often targeted by activists due

to serious concerns about its environmental impact, its safety and the handling of radioactive waste (Banerjee and Bonnefous, 2011). The situation in Nord-Cotentin³⁰, in Normandy in the West of France, is particularly interesting as it has one of the most intense levels of diverse nuclear activity in the world. In the late 1960s the construction of a radioactive waste reprocessing plant, in addition to the area's existing concentration of nuclear activities, sparked an upsurge of activist campaigns against the entire French nuclear industry. Several events that occurred in Nord-Cotentin at the end of the 1970s reinforced the campaigning, and the first Local Information Commission (or CLI, standing for *Commission Locale d'Information*) was created in 1981 to provide a bridge between nuclear industries and the public. Those CLIs are still active today in France and are progressively gaining more power. Banerjee and Bonnefous (2011) have shown that external stakeholders – including civil society – have the ability to both constrain and enable the growth of the industry. After the Fukushima accident, German civil society exercised its power and brought about a decision to halt the country's whole nuclear industry. In the past few years, several stakeholders in the nuclear field in France - in particular the IRSN³¹ - insisted on the fact that a well-informed public, educated about nuclear issues, was a key element for improving nuclear sites' global safety³². This confirmed the importance of having bodies such as CLIs.

This chapter explores the case of Nord-Cotentin's CLI. A CLI's main goal is to obtain and communicate information, discuss the day-to-day operation of nuclear power plants, and ensure that operators run their nuclear operations with maximum safety. CLIs are composed of local elected officials, scientists, environmental association representatives, trade union representatives

³⁰ Nord-Cotentin is a peninsula in Normandy that forms part of the North-west coast of France. Nord-Cotentin lies wholly within the department of Manche, in the region of Normandy.

³¹ The IRSN (*Institut de radioprotection et de sûreté nucléaire* or Radioprotection and Nuclear Safety Institute) is the French public expert in nuclear and radiological risks.

³² In 2009, the IRSN published a charter advocating greater openness to civil society.

and local economy actors. During CLI meetings, various subjects are discussed using reports, presentations and instruments such as the incident reporting process.

Incidents and accidents are sensitive subjects for the nuclear community in general, as incidents often stir memories of the Chernobyl and Fukushima nuclear catastrophes, and rapidly hits the headlines. Nuclear operators are required by law to communicate a summary of each incident to the ASN³³ as soon as possible, with a copy to the IRSN and the relevant CLI. Later, during CLI general meetings, the operators give a presentation of each significant incident (level 1 and above on the INES scale³⁴), after which questions and debates ensue. It is important to understand that the stakes may vary: radioprotection incidents can result in health issues for certain populations, while safety incidents can result in a major accident. These two main risks also differ in the expertise needed to cope with them. Overall, feedback on incidents is vitally important as it establishes a link between past, present and future, constituting a learning curve if the process is successful.

This study examines in detail how accountability is practised by one organization in charge of nuclear operations through a particular process for incident reporting to the CLI. The examination takes the form of a pragmatic review of this organization's accountability practices, and the debates following the presentations and reports provided. The study also seeks to understand the role played by incident reporting in the constitution of a public.

The concept and theory of accountability will be referred to in this chapter to position this research, as it explains several governance issues within the nuclear industry: in particular, it

³³ The ASN (*Autorité de Sûreté Nucléaire*) is the French Nuclear Safety Authority.

³⁴ For the INES scale, please refer to the appendixes.

enables us to understand the major claims of stakeholders. A critical view of accountability will then be adopted, presenting some of the major weaknesses of the associated stream of research. In a second section, pragmatism and Dewey's concept of inquiry will be used to introduce the chapter's theoretical framework and offer potential answers to such weaknesses. In the third section, the empirical setting will be presented: the specific context (culture, history, geography, politics, etc) of Nord-Cotentin's CLI, and the characteristics of the incident reporting system will be considered in this chapter, and a thick description (Geertz, 1973; Schwandt, 2001) will be provided to present details, contexts, the emotions of actors and their interrelations with one another. Then, using a few narratives, this chapter will review the reporting practices of nuclear operators: the incident reporting process will be considered in its context, and its role in the constitution of a community of inquiry among CLI members will also be discussed. As such, this chapter picks on the call of Boudes and Laroche (2009) to further question the way in which the incident reports account for the event. In the fourth section, the findings will be presented and discussed: it will be shown that although incident reporting apparently indicates greater accountability and transparency, it is paradoxically rather counterproductive as regards the understanding of incident feedback, and helps to uphold a certain form of opacity regarding such incidents. It will also be shown that this type of reporting process is not the only reason why CLI members' inquiries are generally infelicitous³⁵ (Lorino, 2013).

³⁵ According to Lorino (2013, p. 11), "[the felicity conditions of an inquiry] must include language conditions (inquirers must have some common language to be able to dialog), tooling conditions (they must have access to methods and tools required by a specific type of inquiry), roles conditions (the roles of the distinct inquirers must be more or less clearly defined, accepted by participants, and coherent with their actual aptitudes), political conditions (some freedom of expression, no dominant voice silencing others), ethical conditions (no deliberate manipulation which would impede inquirers to ensure a minimum mutual trust), performance conditions (in their inquiring efforts, inquirers must not make such fundamental mistakes that there would be no more possible development of the inquiry) and circumstantial conditions (adequate temporal and spatial frames)."

The theoretical contribution of this chapter is its proposal of a new understanding of the concept of accountability, thanks to the pragmatist concept of inquiry: the account to be given cannot be assumed to exist “naturally”, and needs to be constructed through an inquiry. Through Dewey’s concept of inquiry we can adopt a processual, dynamic and dialogical view of accountability – which is traditionally considered in the literature as static, and often limited to financial subjects. The instrument studied in this chapter – i.e. the incident reporting process – is an illustration of this processual accountability and helps to conceptualize the concept of inquiry.

II. Theoretical Background

II.1. Classical perspectives on accountability

Scholars have offered numerous definitions of accountability: in its broadest sense, accountability can be defined as the giving and demanding of reasons for conduct (Garfinkel, 1967; Harré, 1979; Silverman, 1975, Roberts and Scapens, 1985) and taking responsibility for one’s actions (Fry, 1995). Accountability is about the rights of society and the relationship emerging between an accountable organization (the accountor) and the entity or person to which they are accountable (the accountee) (Gray et al. 2006). Ramanna’s (2013) definition of corporate accountability, “the obligation of a corporation entrusted with a duty to others to explain its performance of that duty”, is adopted as a general definition for studying accountability in the empirical context of this chapter. Thus, the core of accountability includes an ethical- or value-based dimension (Umerman and O’Dwyer, 2006): “accountability is a social acknowledgement and an insistence that one’s actions make a difference both to self and others” (Roberts, 1991, p. 365). Accountability assumes that the moral agent is capable of accounting for her action or omission and accepting its consequences, including unforeseen consequences (Argandona and

Hoivik, 2009). Furthermore, the moral agent must be capable of accounting not only for what she does, but also for the moral reasons justifying the action (ibid).

Systems of accountability embody a moral order and can be described as a complex system of reciprocal obligations (Roberts and Scapens, 1985; Dixon et al., 2006). As such, accountability has both an external dimension - characterized by the obligation to meet certain standards of behaviour - and an internal one - characterized by a feeling of responsibility expressed through individual action and an organizational mission (Fry, 1995; Ebrahim, 2003). Therefore, the accountor has duties of disclosure and transparency and must accept the observations of the accountee. Dhanani and Connolly (2012) similarly stress that transparency is an important feature of accountability and it is crucial that disclosures to the public should be complete, truthful and objective. Ramanna (2013) emphasizes that corporate accountability is accomplished (at least partially) through the production of “accountability reports”, thus accountability involves reporting - both formal and informal, including press releases and presentations – or what may be called ‘disclosures’ in the accounting literature. Saxton and Guo (2011) map the different means of accountability according to their different purposes: accountability for finances, which uses financial tools; accountability for performance, which focuses on performance targets and their achievement, and so on. Yet accountability reports can include several non-financial indicators such as carbon units, water units and solid-waste units (Ramanna, 2013).

Attempts by organizations to report on their social, environmental and economic impacts have become much more common recently: the idea is to find a way to exercise and manage organizational activities without harming ecological, social or economic situations (Bebbington, Unerman and O’Dwyer, 2014). Consistent with the demand for more accountability in organizations and society, numerous scholars have studied accountability in the context of NGOs

(Dhanani and Connolly, 2012, 2014; Unerman and O'Dwyer, 2006; O'Dwyer and Unerman, 2007, 2008) and some of them have divided the concept of accountability into several different sub-sections depending on the main objective. Three of these sub-sections are particularly interesting for the research presented here. First, *social accountability* has been described as "accountability for broader societal impacts" (O'Dwyer and Unerman, 2007). Social accountability focuses on accountability for socially-oriented outcomes and impacts, including the impacts that organizations have on other organizations, individuals and the wider environment (Edwards and Hulme, 2002; Najam, 1996; Unerman and O'Dwyer, 2006). Second, *holistic accountability* has been described (O'Dwyer and Unerman, 2008) as accountability to a much broader range of stakeholders, embracing mechanisms concerned with the long-term accomplishment of the organizational mission. Along with the stakeholder theory literature, advocates of holistic forms of accountability argue that every individual should have a say in decisions on matters which might affect them, irrespective of the power that individual holds in relation to others (Unerman and Bennett, 2004). They also argue that the more individuals are impacted by those kinds of decisions, the more they should be allowed to participate in them (Unerman and O'Dwyer, 2006). Finally, what some authors call *procedural accountability* is also particularly interesting to explore the object of study in this empirical research (i.e. the incident reporting process). Procedural accountability relates to internal organizational operations, and studies whether those processes and procedures are designed in accordance with societal norms and beliefs (Dhanani and Connolly, 2012).

In this chapter, the focus will be on holistic accountability, the only type of accountability that can embrace all stakeholders gravitating around the nuclear sector: large communities potentially impacted by nuclear activities in the long term, and the public institutions that regulate those activities. The concept of holistic accountability can be seen as "strategic" in that

organizations are expected to be accountable for the impact they have on their environment over the long term (O'Dwyer and Unerman, 2007, 2008; Cordery et al., 2010). Furthermore, organizations may increase their legitimacy when they deploy accountability mechanisms to show that their values and activities match stakeholders' expectations (Gray et al., 1995). An organization that is accountable to its stakeholders can thus draw some benefits from its accountability, in particular when its activities are potentially harmful, as is the case in the high-risk sectors. The opposite approach of refusing all accountability practices can prove to be detrimental, since external stakeholders can have great power as regards high-risk organizations: certain countries such as Germany, Belgium and Sweden have implemented policies to phase out nuclear power, mainly in response to safety concerns expressed by their citizens (Banerjee and Bonnefous, 2011). Although much of the literature on holistic accountability has focused on specific NGO contexts, this chapter shows that NGOs are not the only contexts where holistic accountability applies. Along with Gray et al. (2006), it argues that the essential nature of accountability is remarkably similar in both for-profit and not-for-profit organizations (NFPOs). Indeed, any entity may be held responsible and accountable to stakeholders for the impacts caused directly or indirectly by their activities.

Generally, the literature differentiates between the need for accountability on financial matters (for-profit organizations) and the need for accountability on "civil society" matters (NGOs, NFPOs). This chapter argues that some for-profit organizations – including, but not limited to, entities in the nuclear sector - may be accountable for matters other than financial subjects, such as the safety of their operations, or the use of resources. Relationships between companies in the nuclear sector and their stakeholders are not purely economic, and as such they reflect more complex attitudes and interactions (Gray, et al., 2006). Complex organizations are bound to face

challenges of accountability (Ebrahim, 2005), and accountability mechanisms can help organizations regain legitimacy in the event of major crises, but also when a series of minor episodes progressively erodes trust and confidence (Dhanani and Connolly, 2012). Finally, attention to transparency has intensified recently as a result of the growing recognition of diverse stakeholder interests and values (Ebrahim, 2005). This is particularly true in the French nuclear sector: transparency in relations with the public is a major objective of both the regulating agencies and the state, with the idea that involving a broader range of actors in questions concerning governance of nuclear safety could improve site safety in general.

The concept of holistic accountability can be widened to all types of organization, and this should be especially useful in the context of highly complex organizations that can potentially impact large communities through their activities, such as companies in the nuclear sector. Given these potential impacts, those organizations are required to report on their activities to broad ranges of stakeholders. This chapter follows the call of Unerman and O'Dwyer (2006) for studies of accountability in forms of entities other than NGOs. There is mounting public, governmental and corporate interest in issues of NGO accountability, but firstly, that interest can be extended to other forms of accountability, and secondly, there are few empirical studies of accountability mechanisms in non-NGO settings – for instance, high-risk organizations. This study helps to fill this empirical gap by extending the analysis of accountability mechanisms to the nuclear sector in France, covering organizations that are required to report on their activities to the regulating authorities, and increasingly to broader stakeholders such as civil society.

II.2. Towards a pragmatist approach to accountability

To summarize what has been discussed in this section, the concept of accountability as described in the literature has numerous different characteristics: it is external, as an account is given to somebody outside the accountor, it implies social interactions and relations of authority, and finally, it is linked with control (Uhr, 1993; Mulgan, 2000) and reporting. In this chapter, it is argued that all these characteristics of accountability contribute to a static view of the concept, and that a more dynamic - or processual - view of accountability would be beneficial. A number of authors have described accountability as a dialectical activity: accountees require accountors to answer, explain and justify while they question, assess and criticize (Mulgan, 2000). This dialectical characteristic of accountability is also highlighted by Day and Klein (1987), who stress that accountability is a social activity that requires shared expectations and common languages of justification. They emphasize that dialogue between the different actors involved lies at the heart of accountability. Similarly, other authors have described accountability as a process: Argandona and Hoivik (2009) argue that in a dynamic and highly interdependent world, accountability is not fixed and pre-determined, but fluid and constantly changing. Accountability arises within a community and accordingly relates to its inherent norms: accountability, in this view, is both conditional and relative: it evolves through time and changes from one community to another, and even within the same community. From this perspective, accountability is all about being attentive to stakeholders' demands and interests (Painter-Morland, 2006). In the same vein, Baker and Schaltegger (2015) regret that the existing accountability literature offers a rather restricted one-way view of this concept, whereby managers try to influence the way stakeholders understand and make sense of the organization's activities. They consider that using pragmatism and giving more

consideration to stakeholders' use and sense-making of such accounts would be beneficial for the concept.

This chapter argues that despite the ambitions of some scholars to discuss the processual characteristics of accountability, one major weakness of the concept is that scholars usually take for granted that the object of accountability – i.e. the account given – exists naturally. Yet accountability does not consist of static disclosures alone: it will be shown in this chapter that the account only exists once the accountees have constructed it through exploration and comprehension processes. Perhaps the accountability concept is not suitable for studying situations in which the object is indeterminate and unexpected, such as when dealing with incident reporting. As the next section will show, Dewey's concept of inquiry offers an apt approach to such situations and hence a way to alleviate the major weaknesses of the concept of accountability. Indeed, it is argued in this chapter that viewing accountability as a process is only possible if stakeholders fully understand what is reported to them (the “account”), and thus if they participate in the elaboration of this account, as a community of inquirers. Finally, this chapter argues that this dialectical characteristic of accountability would be better understood with a different vocabulary: "accountability" may be too static, and terms such as "account-giving" could help to enhance the dynamic and dialectical dimension of this concept. The processual characteristic of accountability is crucial and could usefully be associated with the opening of a dialogue between the different stakeholders on a given subject, rather than with giving accounts on an already-fixed result.

Taking into account these processual characteristics of accountability, a process for reporting on incidents will be studied as a dialogical tool - a process to integrate the voices of the different stakeholders into a dialogue and to co-construct the account dialectically - rather than a one-way reporting tool. When an incident occurs at a nuclear site, the situation is uncertain and

indeterminate. To understand what is at stake - and in order to pursue action - the actors need to perform an exploration. Yet traditional views of accountability and reporting propose static frameworks, in which the emphasis is laid upon observed results, instead of the comprehension process – sometimes involving contradictory understandings - and on past commitments, rather than on the exploration of an unpredictable future. Another weakness of the concept of accountability lies in the fact that generally, accountability implies a dichotomic organization of time: for instance, there is an action, then an assessment of results, and finally a report to potential stakeholders. Dewey's concept of inquiry mitigates this dichotomic view of time: the inquiry starts with a doubtful situation and focuses on exploratory processes, including experimentation phases, resulting in a more processual view of time.

The next section provides a brief overview of Dewey's concept of inquiry, which makes it possible to adopt a processual, dynamic and dialogical view of accountability that can compensate for the main weaknesses of the concept. It will be shown that the “account” to be given does not exist naturally and cannot be taken for granted, but must be constructed through an inquiry.

II.3. Dewey's Concept of inquiry

In this chapter, the pragmatist concept of inquiry (Dewey, 1916; 1938) will be adopted as an overall framework and methodological lens. This concept of inquiry does not correspond to an epistemology of scientific truth, but an epistemology of comprehension for some purposeful action (Kern and Lorino, forthcoming). It implies that all proposals, theories and principles should be treated as working hypotheses, and as such submitted to constant investigation and experimentation.

“When we say that thinking and beliefs should be experimental, not absolutist, we have in mind then a certain logic of method, not, primarily, the carrying on of experimentation like that of laboratories. Such a logic involves the following factors: First, that those concepts, general principles, theories and dialectical developments which are indispensable to any systematic knowledge be shaped and tested as tools of inquiry. Secondly, that policies and proposals for social action be treated as working hypotheses, not as programs to be rigidly adhered to and executed.” (Dewey, 1925, pp. 202-203)

For clarity, the concept of inquiry will be presented here as a sequence of events, but its main strength lies in the fact that those events intermingle with one another, leading to a powerful dialogical process. The inquiry starts with a doubtful situation: something indeterminate, imprecise and incoherent: the normal course of activity is disrupted (Lorino, Tricard and Clot, 2011) as the situation does not correspond to habitual schemes of meaning. The inquiry is triggered by the disruption of habits: when customary patterns fail to generate expected outcomes and the situation appears to be neither intelligible, nor actionable (Lorino and Mourey, 2013). Through the process of inquiry, the aim is to arrive at a situation that is determinate, precise and coherent (Dewey, 1938). It is the inquiry process that will transform this unstable situation into a “problematic” situation (Journé, 2007; Lorino and Mourey, 2013), which is the first - and nonetheless crucial – step in the inquiry process. The problematic situation is a catalyst that helps the community to form and motivates it to launch inquiries (Shields, 2003).

In a second step, the inquiry must construct a problem, as it is not a given. The problem can be reconstructed during the course of the inquiry (Dewey, 1938; Kern and Lorino, forthcoming). The definition of the inquiry’s problem is a determinant dialogical process: when a problem is defined, actors turn their inquiry to solving it, which triggers new problem definitions, and so on.

This process is therefore crucial for the success of the inquiry: if the actors define the wrong problem the inquiry can fail, as it will put actors on the wrong track and they could miss important clues.

The third step involves “working hypotheses” – i.e. possible explanations for the problematic situations - in order to construct a possible narrative account of the situation using an abductive mode of reasoning. Here, abductive reasoning can be seen as a form of logical inference that tries to create a plausible narrative account of a situation (Lorino, Tricard and Clot, 2011), mixing intuition and reasoning, creative and logical thinking (ibid). Hence, scientific attitude and logical reasoning (Shields, 2003, 2004; Lorino and Mourey, 2013) are other key components of the inquiry: once the problem is formulated, the inquirers make working hypotheses and test those hypotheses, which induces more working hypotheses and more action. This experimental attitude reflects a willingness to tackle the problematic situation, using working hypotheses that guide the collection of data and facts and their interpretation (Shields, 2003). However, this logical-scientific approach not only involves theory and methods, it also involves imagination: producing new hypotheses - after testing some propositions - cannot be reduced to a purely mental act (Lorino and Mourey, 2013) as it involves a type of reasoning that is neither inductive, nor deductive, but abductive. The abductive reasoning approach is fostered by the plurality of the community of inquiry: pluralistic, sometimes contradictory dialogues lead actors to contemplate other ways of thinking and to de-centre their own mental schemes.

This process becomes an overall method that, if widely applied as a major knowledge principle, results in communities of inquiry. Shields (2003; 2004) illustrates the community of inquiry with the Buddhist parable of the three blind men and the elephant. In this parable, three blind men touch an elephant to learn what it is like: each blind man feels a different part of the

elephant. For Shields, the community of inquiry and its three main principles - namely a problematic situation, a scientific attitude and participatory democracy – reinforce each other and enable the three blind men to talk to each other and move around the elephant, to get a sense of what it ‘really’ is. Without the community of inquiry, the three blind men all end up with a completely different sense of what an elephant is, depending on which part of the elephant they touched (it is a rope – tail; it is a fan – ear; it is a tree – leg). Nonetheless, in order to collaborate on an inquiry, the inquirers need to have common conceptual horizons (Lorino and Mourey, 2013) even though the heterological dimension of the inquiry can also prove an essential source of learning about an innovation (Lorino, forthcoming).

Finally, the community of inquiry is linked through participatory democracy (Shields, 2003, 2004): this means that the inquiry process is shaped by interaction between the community and the facts as in the Buddhist parable, where the cooperative discussion between the three blind men increases their chances of getting a sense of what an elephant is, and prevents them from being trapped inside their limited selves. The membership of the community of inquiry can widen during the course of the inquiry (Kern and Lorino, forthcoming) and progressively involve actors who once seemed distant from the inquiry. For Lorino (forthcoming), the definition of a community involves a group of actors connected by relatively durable social relations: they are linked to each other by some common purpose and frame of references.

III. Empirical Setting: The Nord-Cotentin CLI

III.1. Context of nuclear power in France and creation of the CLI

Nuclear power is one of the only “techno-scientific” debates that has aroused such long-term protests worldwide. The opposition between pro- and anti-nuclear camps has been going on since the 1970s, and in France the nuclear question has the ability to mobilize reactions that are visible in both the street and the ballot box (Topçu, 2013). Both sides have political, historical, economic, ideological and geopolitical claims, and the anti-nuclear movements have watched helplessly as the nuclear industry has progressively developed, especially in the Nord-Cotentin area, to become France’s main source of energy. Hecht (1997) showed that the decision made in the early 1970s by a small number of actors to use light-water reactor technology framed the subsequent development of the French nuclear industry and excluded other scientific and technical options. This in turn spurred emergent groups to lead investigations and explore alternative options (Callon and Rabeharisoa, 2008).

Furthermore, a policy of secrecy (Topçu, 2013) has long dominated the whole industry: the inhabitants of Nord-Cotentin were initially told that the NuclearCo³⁶ nuclear waste processing site was a potato masher factory, and many other things besides. This policy of secrecy is linked with the military tradition in nuclear activities, and was strictly applied by most organizations with a role to play in those activities. As a former CEA (French Atomic Energy Commission) engineer told us, he and his colleagues were asked in the early 1970s not to answer any questions from outsiders that could stir up controversy.

³⁶ NuclearCo is a pseudonym for the largest French nuclear company, operating in La Hague and elsewhere to reprocess nuclear waste.

“I was part of the CEA school at the time of the great electro-nuclear programme in 1971: we were asked not to respond to allegations that were made outside the CEA and could potentially lead to arguments.” (CLI member)³⁷

The context of the Nord-Cotentin area is particularly interesting. As mentioned earlier, it has one of the most intense levels of nuclear activity in the world, as home to four nuclear sites including a waste reprocessing plant (NuclearCo), a nuclear power plant (Flamanville), a waste storage centre (NuclearStorage³⁸) and Cherbourg’s Arsenal (military shipyard where nuclear submarines are constructed). Due to both the concentration and diversity of nuclear activities in the area, campaigns soon arose to protest against the nuclear industry. The national anti-nuclear debate concentrated on NuclearCo’s La Hague waste reprocessing site, as the anti-nuclear activists thought that if they could shut it down, that would inevitably put an end to the whole nuclear industry in France.

“Antinuclear activists thought that if they managed to plug the outlet pipe (i.e. for reprocessing of nuclear waste), they would manage to shut down the reactors. So their strategy was to focus their actions around La Hague.” (CLI member)

Although there was strong anti-nuclear mobilization in Nord-Cotentin, some of the local population were in favour of the nuclear sites. Farmers, fishermen and a few second home owners joined the protests, but on the whole storekeepers, elected officials and workers –particularly former miners – were favourable to the project. Part of the reason Nord-Cotentin was chosen as the location for those nuclear sites was because the population was supposed to be amenable

³⁷ The interviews were conducted in French; all extracts presented are based on the original transcripts and translated by the author.

³⁸ Pseudonym for the company that operates the waste storage facility.

(Zonabend, 1989). Moreover, it was an isolated area, unfit for agricultural or maritime development due to the strong sea currents, and likely to suffer depopulation: in terms of the economy, the nuclear sites could be considered good news for the region (ibid). Cherbourg's military shipyard had been established in 1960 and soon became the major source of employment in the area. The local people were proud of this, and it paved the way for further nuclear developments in the region. The CEA also offered farmers high prices to buy their land, and well-paid jobs in the nuclear sites for them and their sons, which reduced protests.

“The population had mixed feelings at first, but they [CEA] bought the land and gave people a job, then their children started to work at La Hague site.” (CLI member)

The CEA also gave mayors, public figures and parish priests tours of Marcoule, another French nuclear site. Ultimately all these personalities were convinced that the waste reprocessing plant would be a good thing for the region, and the population finally came to accept this (Zonabend, 1989).

Although the final decision to locate nuclear sites in Nord-Cotentin had been made, some people continued campaigning against the nuclear industry and several events at the end of the 1970s encouraged those activists and associations. Several minor incidents remained unexplained by the competent authorities, and Louis Darinot (Cherbourg's MP and mayor) was worried that those incidents could impact the population. He showed his determination with the creation in 1981 of the CSPI (*Commission Spéciale Permanente d'Information*) that subsequently became the *Commission Locale d'Information* or CLI. The French Prime Minister, Pierre Mauroy, soon

supported this initiative and published a circular in December 1981 presenting the State's intention to improve transparency in the nuclear industry.

III.2. Mission and operation of Nord-Cotentin CLI

Since 2002 the IRSN has aimed to be more open in relations with civil society and in 2009, it decided to publish a charter expressing its ambition to work to improve transparency and openness. These orientations of IRSN strategy were supported by the state. Moreover, the TSN law in 2008 institutes a High committee for transparency and information on nuclear safety, the HCTISN³⁹. Thus, being more open to society is a recognized objective of both the whole nuclear sector and the State: the aim is to arrive at a shared understanding with civil society of complex stakes and hazardous situations, and potential avenues to overcome these problems. The “TSN”⁴⁰ law of 2006 introduced a requirement that a CLI must be implemented next to each nuclear site. While this law institutionalized CLIs in France and gave them a legislative status, the three main nuclear installations of Nord-Cotentin had set up such commissions much earlier, and in fact served as models for designing the law. Each CLI in France today comprises four different groups of members: local elected officials (president of the department (or county), regional councillors, mayors, etc.), highly-skilled representatives (scientists with expertise in the relevant nuclear activities or sites, or local economy actors), environmental association representatives and trade union representatives. In Nord-Cotentin, each commission has around 40 to 50 members: some of them belong to all three CLIs. The aim of the CLI is to participate in the safety debate, which

³⁹ *Haut comité pour la transparence et l'information sur la sécurité nucléaire*

⁴⁰ The TSN law concerns the transparency and security of nuclear installations: it reasserted the role of ASN - the Nuclear Safety Authority, an independent authority whose task is to regulate nuclear safety (on behalf of the State). The TSN law's requirement for a CLI next to each nuclear site helped to reinforce the CLIs that were already in existence.

should be facilitated by its pluralistic membership holding very different opinions and backgrounds: members challenge each other and lively debates are launched. One of the CLI's founding values is a willingness by members to gather information and inquire.

There are three to four regular general meetings of each CLI a year. The agenda is decided by the commission's members during preparatory board meetings a few weeks before each general meeting. CLI members also attend inter-CLI meetings in Paris to discuss specific subjects (plant dismantling, post-accident situations, etc) with members of other CLIs. If deemed necessary, the members can also call ad-hoc and/or exceptional meetings and form work groups on specific subjects. Any subject relating to the operation and safety of the installation, protection of the population or the environment can be considered and discussed during the meetings. The general meetings are open to the public and anyone interested can attend. The CLI's rule concerning non-members is simple: anyone can attend a meeting and ask questions related to the agenda. If non-members want to ask other questions, however, they must send their questions to the president a few days before the meeting. Although members of the public rarely come to general meetings, the media – in particular the regional press - always attend.

The CLI has premises in Cherbourg accessible to all members, in which archival data are stored. They also have a part-time secretary who comes to all the meetings and is based in the county council offices in Saint-Lô: her mission is to communicate information from all stakeholders to CLI members; to organize meetings or travel such as a trip to Japan; to publish and distribute the CLI newsletter for Nord-Cotentin inhabitants and to maintain the website (with the CLI members' help). Moreover, a full-time expert has worked for the CLI since its beginning: first a doctor, then during the time of this study, a former nuclear submariner.

III.3. Incident reporting

Feedback on incidents is vitally important, as it establishes a link between past, present and future, constituting a learning curve if the process is successful. The classification of incidents and accidents is also a sensitive subject for the whole nuclear community, as incidents often stir thoughts of major accidents such as Fukushima and Chernobyl: during the general meetings, members of the CLI generally ask a lot of questions on these subjects.

In France, the operators of all nuclear sites and installations must report each incident to the French nuclear authorities, with a copy to the CLI president within a short period of time⁴¹ (usually 48 hours), using the INES event classification scale. The ASN remains responsible for the final classification of the incident, which will be presented to CLI members at the next general meeting. The operators then have to answer CLI members' questions. CLI members are thus informed whenever an incident occurs, and can ask questions about the handling of the incident and its ranking: either by fax before incidents are presented by the operator, or after the presentation during CLI meetings.

In practice, the reporting process consists of a summary of the incident by the operator a few days after the incident (by fax or email), a written briefing on the incident by the ASN and preparation of the materials for the operator's oral presentation (with diagrams and pictures). It is primarily a communicational procedure, but has evolved through time into the starting point of inquiries, as will be shown a little later in the chapter. CLI members could just listen passively to the operators' accounts, but in practice they try to analyse most incidents further. There is an initial

⁴¹ For the full process of incident classification, please refer to the appendixes.

willingness to inquire, but several mechanisms are involved and inquiries are generally aborted or turn out to be infelicitous.

III.4. Research methods

This chapter studies a reporting process used for accountability in the French nuclear sector: this process provides a mechanism for communication of incident feedback to the CLI. As a management scholar, the author of this chapter was interested in whether CLI members are fully able to understand the incident feedback provided by the operator; what instruments and techniques are used to provide this feedback; and what conditions are necessary to establish genuine dialogue in order for CLI members to grasp the situations at stake. To address these questions, the author adopted a longitudinal case study methodology, and the data discussed below are drawn from a three-year field study⁴² in the Nord-Cotentin CLI. This particular geographical area was chosen because Nord-Cotentin has one of the most intense levels of diverse nuclear activity in the world, and its CLIs are supposed to be among France's most active. It thus offered a very rich research setting.

The empirical research period covered four years of incident reviews (between 2011 and 2014) and used archival data (minutes of meetings, incident feedback materials, audio recordings of general meetings, etc), observations and in-depth interviews. All CLI general meetings between June 2011 and December 2014 were transcribed and analysed. The methodology for this chapter includes a review of all INES level 1 incidents that have occurred at the NuclearCo La Hague site in the past few years, and a thorough investigation of some of them.

⁴² This field study was performed during the data collection stage of the author's dissertation.

During this period, some CLI general meetings were also observed by the author and recent documents were reviewed. This was specifically useful to understand CLI members' expectations regarding accountability practices and their ability to understand the incident feedback at their disposal at a given moment. Most of the documents studied are public and available from the ASN and CLI websites, but for each incident the operator also issues a declaration for restricted circulation (CLI board members only). The author was also given access to internal reports (CRES: "*Compte-Rendu d'Evenements Significatifs*") on the three incidents that are analysed in this chapter. These documents were particularly valuable as they enabled the author to understand what was really communicated to CLI members and what was not, as well as the reason why.

This research also benefited from the author's broader dissertation involving around 36 semi-structured interviews conducted between 2012 and 2016. The interviewees were allowed to express themselves according to their own interpretative schemes: this was especially important on such a subject, since very diverse views coexist. Given the sensitivity and confidentiality of the subject, measures were taken from the start of the interview to inform interviewees of the objectives of the study. They were asked for permission to record the interview and the vast majority agreed: it was emphasised that complete anonymity would be guaranteed. In most cases, the interviewees could individually verify any extracts from interviews used in this chapter, and make changes if they felt the quotations did not correspond to what they meant. In the case of ASN, ASN organizational and human factors department played this validation role. The people interviewed held roles in the three different Nord-Cotentin CLIs or the ANCCLI⁴³ association, or worked for the regulatory authorities (mainly the ASN and IRSN) or NuclearCo and EnergyCo⁴⁴. For the CLI

⁴³ The *Association Nationale des Comités et Commissions Locales d'Information* (ANCCLI) is a national association of all French CLIs, formed to provide information and oversight of nuclear installation.

⁴⁴ EnergyCo is an energy company in France.

members' interviews, the idea was that the sample of interviewees should be as representative as possible of the different profiles found in the CLI. Interviews were therefore conducted with scientists, members of environmental associations, elected officials and union members, aiming for a well-balanced reflection of all the participants in the CLI. The author made a special effort to interview key informants from various backgrounds, and people with first-hand experience of past and present situations.

Key interviewees were identified gradually as the study went along, and some of them were approached by the author, using the "snowball sampling" approach (Goodman, 1961): the interviewees were asked at the end of their interview if they could recommend anyone the author should meet. This approach facilitated contact with the targeted informants and saved time. Some of the key interviewees were also identified during the meetings that took place in both Nord-Cotentin and Paris. Semi-structured interviews lasting between 40 minutes and 150 minutes were conducted face-to-face. All interviews were digitally recorded and subsequently transcribed verbatim. In most cases, participants continued to discuss issues related to the interview questions after recording had stopped, and recollection notes were then written. All interviewees were asked: (1) what their concrete role was in the CLI and what actions they undertook or performed; (2) what motivated them to take part in the CLI debates; (3) how they rated the CLI's role and organization; (4) whether they considered that effective dialogue existed in the CLI and (5) what, in their view, were the potential areas for improvement to enhance the CLI's role and mission.

Although some of these interviews were not specifically related to the incident reporting process, they still cast a very interesting light on the context and were ultimately very useful for this research. Also, information on incident feedback and on the reporting tools was often collected during those interviews.

This chapter uses the approach of the pragmatist concept of inquiry (Peirce, 1931; Dewey, 1938; Lorino et al., 2011) mobilizing an abductive mode of reasoning combining narratives, logic and action. The idea was to set up an ongoing dialogue between actors, taking into consideration their differences to nurture the investigation.

III.5. Data Analysis

This chapter draws on Yanow and Schwartz-Shea's (2006) approach to interpretative research: they note that interpretation - or sense-making - of a specific event takes place through "retroactive reflection" on that specific event, informed by their own knowledge and experience. Sense-making is thus contextualised by prior knowledge, history and surrounding events: it is therefore very important to obtain extensive comprehension of the field, context and actors in order to provide the reader with an in-depth description.

Data collection and data analysis were performed at the same time and Dumez's (2013) method of empirical and theoretical memos was used to continuously relate them to each other: the author referred back and forth between data and theories, to check whether the emerging theoretical propositions were supported by the data and conversely, whether the theories were helping to make sense of the data (Yanow and Schwartz-Shea, 2006).

During the period studied in this chapter, 14 level 1 incidents occurred at NuclearCo's La Hague site, and three of them were studied in depth. Those three incidents were selected specifically because their presentation to the CLI gave rise to debates between CLI members. The author's aim was to understand what happened exactly, how the incident was handled by the nuclear site operators, how it was investigated by the different stakeholders, what ensuing recommendations were made to prevent reoccurrence of the incident, how it was classified by both

the operators and the ASN, how it was reported to the CLI, etc. Although particular emphasis was laid on the three selected incidents, all level 1 incidents during the 2011-2014 period were reviewed⁴⁵.

For each incident, the reporting process was analysed in depth and the debate between CLI members, nuclear regulators and the operator NuclearCo was transcribed and analysed. The object of this analysis was to understand the initial directions of the inquiry, alternative potential directions, how the inquiry evolved and (when relevant) the main reasons for its failure. Categories thus emerged from this analysis.

Regarding the three incidents that were studied in depth and are reported below in narratives, the same analysis was performed, but confidential documents were also obtained and scrutinized to understand the causes of the incidents, and how the inquiry was performed by both the nuclear operator and regulators. The inquiry was also strengthened by interviews with experts to understand what the incident was really about, and what was and was not communicated to CLI members. The author's aim was the same as for the other incidents: to understand how the inquiry started and evolved, and to what extent it was blocked and why. Categories emerged and were analysed and confirmed by interviews and observations. The author also addressed the question of whether CLI members had the necessary abilities and resources to participate in a collective inquiry and to grasp in depth the issues raised in connection with those incidents.

⁴⁵ A summary of all incidents is presented in the results part.

IV. Empirical Results

In a nutshell, the results of this chapter show that while under certain conditions the incident reporting process can constitute a trigger for the inquiry process, it actually obstructs the community of inquiry for several reasons. Although there are numerous signs that accountability is increasing, the following narratives will show that despite most actors' declared intention to involve the public in the incident reporting process, such accountability practices sometimes hinder the dynamic of inquiries and may even help to uphold a certain form of opacity. First, the process does not give CLI members sufficient information to launch their inquiries, as it often omits certain major elements. Secondly, it does not oblige members to take organizational factors into account, with the result that some inquiries are confined to technical subjects far removed from the main issue. Finally, the process does not inform CLI members of what really happened, mainly because of internal censorship. In practice, when the inquiry concerns technical issues related to members' skills, the operator and the CLI conduct detailed inquiries. But when managerial issues are concerned, the inquiries do not come to successful conclusions. It will also be shown that the incident reporting process is not the only reason why inquiries are inconclusive, and that several other factors contribute to such failures.

As the inquiry process is narrative in nature (Kern and Lorino, forthcoming), it is relevant to present a few narratives from the field to illustrate the dynamics of the process under study and its role in the inquiry process. The narratives presented here were selected because they represent various types of situation: different incidents on different sites, different members of the community of inquiry, and so on. The three narratives concern incidents that occurred at

NuclearCo's La Hague reprocessing plant, reporting of that incident to CLI members by NuclearCo and the ASN, and the ensuing inquiry.

Incident 1: Bridge crane overload

The bridge crane incident occurred in NuclearCo's T1 workshop where shearing and dissolution operations are conducted. A system exists to evacuate nuclear waste from difficult-access zones to conditioning workshops using a forklift truck and a bridge crane. The bridge crane has a maximum lifting capacity of 3.2t. On May 24, 2011, it was observed that the bridge crane had been used on two occasions (March 30 and May 16) to lift CBFK containers weighing up to 5.2t, which is above the maximum weight for both the bridge crane facility and the floor. It was also noted that using the bridge crane to lift these CBFK containers – which resulted from a recent modification in the organization of waste transport in the shearing and dissolution workshop – was itself non-compliant, as the containers weigh 4.2t even when empty. Although there were no consequences for employees, the environment or the machines, these two operations jeopardized the sites' overall safety. NuclearCo decided to rank this incident as level 1 on the INES scale, and this ranking was later confirmed by the ASN.

Chronologically, after the bridge crane incident was noted on May 24, 2011, this is how it was reported to CLI members:

1. NuclearCo informed the CLI's President soon afterwards (within 48 hours).
2. On May 31, the ASN published an incident report on its website, giving a few further details of the incident.
3. The day before the general meeting, NuclearCo sent CLI members its presentation of significant events for the period that formed the basis of their oral presentation (this should normally have been done a few days earlier).

During the CLI's general meeting, NuclearCo presented the incident from a technical angle, going into considerable detail on the testing threshold of lifting facilities without giving much information about the incident itself. It failed to mention that there had been a change to the organization of waste transportation in the shearing and dissolution workshop, which was one of the main causes of this incident. It was the ASN representative who brought up this factor during the discussion - it was also mentioned in the ASN's report on its website.

After NuclearCo's presentation, the inquiry started with a series of technical questions, reconsidering some of NuclearCo's assertions, in order to understand why the maximum weight was exceeded twice. Expert 1 was very familiar with the equipment concerned.

Expert 1: I'm amazed, for two main reasons. Firstly, you said that the bridge crane was tested at 1.5 times its maximum lifting capacity. But I must remind you that this threshold is for static exercises, yet you were working in dynamic conditions and that means the threshold is 1.2 times, not 1.5 times. Secondly, I'm wondering how a CBFK container can exceed its normal weight: it's generally very precise and there are no errors.

Member 1: Aren't there security systems on these kinds of bridge crane that will warn the operator of an overload?

NuclearCo provided technical clarifications concerning the thresholds and alarm systems, and other questions on those subjects followed, especially on the threshold that triggers alarm systems, and the maintenance system for alarms. On technical subjects, NuclearCo fulfilled its role and the members' inquiry worked properly.

Expert 1: I want to highlight the fact that the alarm system went off the second time at 17% above maximum net weight. 17%, that's noteworthy. So, as Member 1 asked, is this a problem of letting standards slide: the system wasn't checked sufficiently? Or, on the other hand, is it because people

considered the system could be altered: as is often the case in workshops, the security thresholds were shifted a bit for the automatic systems, so that didn't bother the people handling the loads?

NuclearCo: The bridge crane and its security system were checked in July 2010, during its annual regulatory inspection. The system wasn't modified or tampered with in the way you said. That's not at all the way people use equipment in the workshops.

[...]

Member 1: The people who used the bridge crane have certainly had training, but isn't there a problem with their training?

NuclearCo: The people who use the bridge crane have the right skills for it, just like all people who use bridges: you can't use bridge cranes without the proper skills and authorizations.

Expert 1 tried to suggest a working hypothesis (voluntary modification of the security threshold) to explain the problematic situation and continue the inquiry. Member 1 then questioned the operator training. NuclearCo responded in both cases by blocking any attempt to interfere with managerial subjects, and the inquiry came to a halt.

Expert 1: I'm still amazed that there's such a difference in the figures: the bridge crane and the CBFK containers have both been used on a regular basis for the past 20 years.

NuclearCo: No, the bridge crane doesn't usually lift CBFK containers: they're handled by forklift trucks: this was the first time we had used the bridge crane for this type of operation.

Expert 1: If the method was changed, how could you be sure that everything was checked? That's an important point when you're handling heavy loads!

NuclearCo: And that's the reason why the incident was ranked as level 1 on the INES scale.

Member 2: I've used these CBFK containers and I remember that their net weight is clearly indicated on them, as is the weight of the waste packages. So it would have been easy to see that the overall weight exceeded the lifting capacity.

NuclearCo: Once again, we used the bridge crane in a non-standard way, and that's why the incident was ranked at level 1 on the INES scale.

Expert 1 and Member 2 attempted to pursue the inquiry with new elements drawn from their expertise and experience, asking further questions. NuclearCo twice blocked this process with the argument of the incident ranking, indicating that this classification was seen as a punishment. Eventually the ASN intervened.

ASN: The problem comes from the use of the CBFK container itself, as it has a net weight of 4.2t. [...] There was a change in the organization of waste transportation, with the aim of improving the organization, but it turned out that using CBFK containers wasn't compatible with the workshop constraints. [...] We need to pay closer attention to the fact that when practices are modified, there should be a preliminary risk analysis on all potential risks. [...] Level 1 on the INES scale is justified because there was a failure in the risk assessment.

At this point, the community of inquiry should have turned its attention to this new information – yet nobody picked up on it. The inquiry was inconclusive.

Concretely, NuclearCo came to the general meeting with very limited communicational materials: a brief description of the incident, a few pictures, and the ranking of the incident on the INES scale. The incident analysis performed by NuclearCo was not communicated to the CLI, even in an abridged version. At the beginning of NuclearCo's presentation, CLI members thus had very little information that might help to understand the causes of the incident. Some hints were given during the course of the discussion, but this initial situation was detrimental to the inquiry because it took up time and the CLI members did not pursue more interesting avenues of investigation. They started their inquiry on technical points thanks to their expertise⁴⁶ and knowledge of the field. When questions concerned technical issues, NuclearCo answered in a certain amount of detail, and members were able to advance their inquiry, considering new possible explanations for the incident. On these points, an inquiry dynamic developed: CLI members reconsidered each fact stated by NuclearCo, questioning technical elements and suggesting working hypotheses that might explain the situation. Nonetheless, the members who spoke after NuclearCo's presentation stuck strictly to their own field of expertise, which is a shame, since the inquiry can only advance if major points are uncovered by combining different members' expertise.

Whenever questions concerned managerial issues (operator training, the voluntary modification of security thresholds or the change of organization), NuclearCo blocked the inquiry process by using authoritarian statements referring to the skills and authorizations necessary to handle bridge cranes, or the incident's ranking at level 1 on the INES scale. This ranking was seen here as a suitable punishment, and the inquiry was halted: some CLI members tried to take matters further and pursue new tracks of inquiry, but without success. It would appear that asking questions

⁴⁶ Some members participate in the CLI precisely because of their specific expertise in nuclear activities or nuclear sites.

on certain subjects that are systematically rebuffed is not an easy experience: informal chats with CLI members confirmed that some of them get tired of this, and as a result no longer ask questions on some subjects. Indeed, NuclearCo does not seem to consider CLI members as co-inquirers: this was confirmed by some interviews with NuclearCo employees. As shown in the following interview extract, discussing incidents with the CLI can be viewed very negatively by NuclearCo employees:

Communication on incident feedback to the CLI is generally sanitized. [...] That can be explained by the fact that all nuclear industry employees can suffer from permanent attacks on their work by the anti-nuclear brigade. We're always the baddies, and as a result we create tribal systems of defence. (NuclearCo expert)

As a consequence, NuclearCo employees generally want to get incident reporting over with as fast as possible, and try not to give out any information that could reflect badly on them. Both blaming and defensive registers of language are obstacles for the inquiry, as they prevent people from mentioning important details. Moreover, when people use those kinds of registers, it means the inquiry is already considered completed, and that attitude is detrimental to progress by the ongoing inquiry. In informal talks with ASN and NuclearCo employees, the author realized that contributing to the CLI's inquiry was not their main concern: they saw providing incident feedback as a communication exercise, and did not expect to learn anything new from it. In their view, the inquiry into the incident had already been conducted by NuclearCo's teams and ASN and IRSN experts. Thus, involving the public in the knowledge and understanding of significant events through the involvement of CLI in the inquiry did not appear as an important, maybe not even as a legitimate, task. Some CLI members themselves may have shared this view, which might question

the effectiveness of CLI as a public representative. Forming a community of inquiry with the CLI was thus impossible, as they had different expectations about the inquiry itself.

Incidentally, one particularly interesting factor in the narrative is the role played by the ASN: its representative says at one point: “Level 1 on the INES scale is justified because there was a failure in the risk assessment.” This clearly highlights a serious failure in procedures. Risk assessment is crucial for nuclear activities in general: operators must perform risk assessments before undertaking any modification in their organization. It is a vital process that guarantees that all important risks have been reviewed before any modification, to ensure maximum safety in the performance of nuclear operations. However, the CLI members do not react to this key point – although it is crucial for the inquiry – and the ASN representative does not stress it either, as if no one considers it essential. The ASN’s representative does not appear to have considered it essential that the CLI members should grasp its importance. Yet one of the ASN’s missions is to inform the public, and in this instance, they only partially fulfilled their role. This observation was confirmed by an interview with an IRSN expert: in his view, the ASN will give information to the CLI, but does not necessarily want them to explore matters further in their questioning:

The ASN stays in its role of 100% reliable information: their position isn’t one of trying to advance the dialogue, but of responding and giving information. (IRSN expert)

Even more surprisingly, in NuclearCo’s internal analysis (summarized in the CRES document), the inquiry was limited and did not explain why the event occurred. More specifically, it did not discuss the failure on risk assessment. This was explained by several interviewees: it is politically very problematic to disclose certain information in a CRES. If everything is put into the

CRES, actors could be laying themselves open to blame, and this is risky because next time they might seek to conceal details of their actions.

You can't say everything in the CRES, from a union point of view it's just impossible, for a start you'd have to deal with all the internal stakeholders. You have to write them in an acceptable way, in a progress dynamic. As soon as you highlight a human error, that involves a person, and when does the sanction process begin? If you live in a culture of terror, with systematic sanctions, you stop getting access to information and dysfunctions, and that's contrary to the safety policy and the improvement loop. (NuclearCo expert)

We need internal transparency with a level of internal trust: it takes courage for someone to say "I made a mistake" and then 40 people pore over his mistake. (EnergyCo communication expert)

The CRES thus omitted some details of the incidents, which as a result were not communicated to the CLI. From observation and analysis of documents, the author had confirmation that keeping some information secret is unsurprisingly common practice in this sector – even when transparency is considered a priority by both nuclear regulators and operators. As the following interview extracts indicate, if the operator's internal inquiry was for public release, the result would be very different:

It's not an innate part of an industrial operator's culture to tell all in public. On the whole, nuclear operators tell the public quite a lot – partly because they have no choice – about what goes on in their plants. But of course, they don't tell everything,

and there are things they could say and don't say, that's obvious too. All the same we mustn't go to the opposite extreme: as they say, too much information makes information meaningless. (ASN Expert)

So of course you have different levels of information in the system, because quite simply people don't all have the same concerns. I'd rather have a very comprehensive CRES, but I can't make it public because I'd have to create something that goes against my main objective. That would undermine the very reason I need to do this. (NuclearCo expert)

To conclude, the discussion following the presentation of this first incident highlights the fact that CLI members do not have all the information they need to fully grasp the situation, such as details on the changes in the organization of waste transportation in the shearing and dissolution workshop. The main question put by the inquiry should have been: ***why was there such poor risk assessment?*** But the inquiry lost sight of its main objective because it got stuck in a specific sort of expertise. This is an example of CLI members not playing their role as an “informed” public, as they did not raise one of the most important points of the incident. The ASN and NuclearCo also failed to play their role, as shown in Table 3 below. This inquiry completed its very early stages successfully; but was ultimately infelicitous.

Table 03 - Characteristics of the inquiry's failure – Incident 1

<i>Actor</i>	<i>Main reasons for the failure</i>
Nuclear Co	Not acting as a co-inquirer Limited communicational materials

	<p>Did not mention the main point of the incident (failure in risk assessment)</p> <p>Blocked discussion of managerial subjects</p> <p>Used the INES scale as a way to block the inquiry</p> <p>Defensive register</p>
ASN	<p>Not acting as a co-inquirer</p> <p>Did not help CLI members to grasp the major point</p>
CLI members	<p>Remained in their own field of expertise</p> <p>Lacked certain information</p> <p>Lacked some expertise</p> <p>Lacked some methodology</p> <p>Blaming register of language with regard to NuclearCo</p> <p>Tired of NuclearCo's attitude</p>

Incident 2: Humidity content in plutonium containers

On September 9, 2013 an incident occurred in the R4 workshop where purification and packaging of plutonium takes place. The authorized humidity content within a safety enclosure was exceeded.

NuclearCo provided the CLI with numerous technical details on the plutonium purification and packaging processes in this R4 workshop.

NuclearCo: Plutonium oxide powder is packaged in big boxes that are placed in containers. To test the quality of the product, we perform analyses and throughout the conditioning process, we take samples that are analysed to check quality and compliance with standards. To guarantee good product quality, as well as safety, we have to respect a humidity level, as these operations must be performed in very dry air. On this particular day, there was a flaw in this process and some air from the room got into the container and we exceeded the humidity threshold. These criteria are monitored by specific alarms but on this day, we misinterpreted the alarm. However, although the humidity content was above the threshold for 3 to 4 hours, we analysed the samples and the results were fine.

Member 1: I'd like to have a little more information on what you call "misinterpretation of the alarm". If I understand rightly, the alarm was detected late and when it was detected, it was misinterpreted and I'd like to understand why. What did you do to rectify this?

The inquiry thus began: the situation was indeterminate and imprecise: Member 1 asked for further details in order to discover the reason why the alarm was detected late and misinterpreted.

NuclearCo: I was probably a bit too brief on that point. (...) On this particular day, there were a lot of fire alarms showing on the same control station, and in fact this alarm was set off in the midst of those fire alarms. We were doing fire tests in this workshop that day, and so this humidity content alarm went unnoticed. And we noticed it a few hours later, when the next shift arrived.

NuclearCo now gave some new information on the incident: the humidity content alarm went unnoticed because a fire test was running that day, and numerous fire alarms were going off on the same control station. This information was absolutely necessary for a proper understanding of the situation and became the new track for the inquiry.

Member 1: Does this raise questions about running fire tests during operating phases? We might well imagine that one day a more important alarm could go unnoticed.

Member 1 continued the inquiry, trying to reconstruct the problem with the new information in mind: he formulated a hypothesis: "what if the alarm had been for some problem that's more crucial for safety?" This new information also led to questioning of the management of fire tests during operating phases. The inquiry continued.

NuclearCo: Actually that could always happen, but you should know that measures that are crucial for safety have specific alarms that go to the main security board: those alarms are detected as a priority. There's no need for any change to the architecture of the alarms in control stations, nor to the way they are managed.

NuclearCo blocked all attempts by CLI members to discuss managerial subjects. The inquiry was halted.

Member 1: Fukushima - and all major accidents – have highlighted the fact that when accidents happen there are a great many factors of damage: misinterpretations are easy in such situations. I would like to hear the recommendation of the ASN: shouldn't we modify the fire tests? Aren't we taking an unnecessary risk?

Based on past events, Member 1 continued the inquiry based on the argument that accidents happen in heavily unpredictable situations. He asked for the ASN's recommendation, using the ASN as an expert in this case.

ASN: As always, the operator has conducted a detailed analysis, which we have just received. We will soon conduct our own analysis and once it's done, we'll see if we need to ask for specific applications.

The ASN representative halted the inquiry and any attempt to intervene in managerial matters.

NuclearCo: After the incident, one of the measures we took was to raise awareness among workers: in unusual circumstances, such things can happen and we need to make sure that standard operations are well under control when we do special operations.

This narrative illustrates that there is a desire on the part of the CLI – or at least one of its members in this case - to inquire, and to understand the situation at stake. This member's interest in pursuing the inquiry may have been reduced when he realized that he was the only person participating. The incident as presented to the CLI raises a major initial question: ***why was the alarm detected so late and misinterpreted?*** This is the triggering point of the inquiry. The objective of the inquiry is then to answer this question, and the inquiry is driven by the CLI's desire to ensure that the operator conducts nuclear operations as safely as possible. With the new hint given by NuclearCo, CLI members realize that on the day of the event, fire tests were in progress and several alarms were being notified to control stations. The inquiry restarts with this new information, and questioning the management of fire tests when normal operations are taking place. However, the inquiry dynamic is halted by both NuclearCo and the ASN: in this case it is clear that they are both reluctant to let the CLI contribute to managerial subjects. As a result, the inquiry is aborted.

Before the presentation, the information available to CLI members consisted of NuclearCo's presentation material and the ASN's incident declaration on its website. What is surprising is that NuclearCo initially mentioned neither the fire tests, nor the main risk of high humidity content in plutonium (it can lead to water radiolysis and therefore explosions). Yet this main risk - as well as the fire tests - was mentioned in the ASN's report, which clearly had not been read by the CLI members: otherwise they would certainly have asked further questions on water radiolysis. In this case as in the first, the incident reporting process is not sufficient, as it does not give members sufficient details to conduct their inquiries. Once again, neither the nuclear regulators nor the operators considered CLI members as co-inquirers, and both only performed a communication exercise. But this meant they failed to help CLI members to grasp the situations, making their communication exercise relatively useless.

Table 04 - Characteristics of the inquiry's failure – Incident 2

<i>Actor</i>	<i>Main reasons for the failure</i>
Nuclear Co	No desire to act as a co-inquirer Limited communicational materials Did not mention the main circumstance of the incident (fire tests) Blocked discussion of managerial subjects
ASN	Not acting as co-inquirer
CLI members	Only one member participated in the inquiry Lacked certain information (radiolysis risk, how alarms operate, etc) Lacked some expertise

Incident 3: Falling vitrification kiln

This incident occurred in NuclearCo's T7 workshop where vitrification operations take place. To obtain a stable compound that is suitable for final disposal, radioactive waste is subjected to vitrification processes that embed the waste in a glassy matrix which is easier to store. In the vitrification workshops, there are three vitrification chains: two are in operation while one is always under long-term maintenance. This incident concerned the vitrification chain under maintenance. On the day it happened, the operators were performing a test to verify the operation and readjustment of sensors on a piece of lifting equipment. This equipment is used to lift containers up to the storage cell, and several sensors are used to arrive at the correct position and stop the machine moving too far.

The vitrification kiln fell into the cell on May 10, and this was reported to CLI members as follows:

1. NuclearCo informed the CLI's President soon afterwards (within 48 hours).
2. On May 18, the ASN published an incident report on its website, giving a few further details of the incident.
3. The day before the general meeting, NuclearCo sent CLI members its presentation of significant events for the period that formed the basis for their oral presentation (this should normally have been done a few days earlier).

NuclearCo started its presentation with general facts about the operation of the vitrification process, with a brief description of the incident including two pictures of the equipment. Although there was no consequence for the installation's safety, NuclearCo acknowledged that such an incident should not have happened and that it was due to an inadequate operating mode: a chassis on the lifting platform came into contact with the kiln, and the procedure did not cover this specific case. For this reason, NuclearCo proposed to rank the incident at level 1 on the INES scale.

NuclearCo: To perform the test on the sensors, the operators made a few adjustments, then in order to check that those adjustments were working properly, they raised the lifting platform, on which there was a chassis that went further than the maximum position and came into contact with the kiln. The lifting platform pushed the kiln out of its hinges and when it came down, the kiln fell into the cell. This kind of preheating kiln weighs approximately 350 kilogrammes and it fell about 5 metres.

After NuclearCo's presentation, the inquiry began directly with a question about the inadequate operating mode.

Expert 1: There's something I don't understand: this workshop started in 1994, that's 17 years ago. You're telling us that the procedure was inadequate, so was it modified at some point? Or maybe this kind of operation had never been done before? How come we have an inadequate procedure in 2011 for a workshop that's been in operation since 1994?

NuclearCo: We've performed this kind of operation twice or 3 times before, so it doesn't mean that the operational mode was completely obsolete or inadequate, but under certain circumstances, such problems could happen. And sure enough on that day, we were testing a sensor and it wasn't working properly: that was exactly the point of the study. Since this incident we've reviewed the procedure to incorporate this specific case. [...]

Expert 1: I still have a comment: usually, when we perform those tests, it's in automatic mode, and in this precise case you used manual mode. In manual mode, you can modify certain security settings precisely to conduct these kinds of delicate operations. I don't understand why in this case this precise problem wasn't anticipated.

The inquiry continued when expert 1 contributed an important new element thanks to his expertise: operations were conducted in manual mode, which led him to highlight that the procedure may not be the most crucial problem. He stressed that in manual mode, operators should be wary and rely on more than procedures alone. NuclearCo answered this point by providing the inquirers with a new fact.

NuclearCo: Yes, on that day, we were testing the sensors and you know the workshops, in a vitrification cell, it isn't all that easy to have an unobstructed view of operations. As we said before, it was the conjunction of the operating mode, the presence of the chassis and the circumstances of the test on this particular day that induced the incident. [...]

NuclearCo introduced a new element for the inquiry: there are visibility problems for operators in the vitrification cells. Apparently expert 1 was aware of this problem, but that was probably not the case for the rest of the CLI. However, this visibility problem was potentially of particular interest for the inquiry, since it could raise new questions.

Expert 1: Thank you for those clarifications but that means the operators either lacked information or training, at least that's my opinion.

NuclearCo: The operators were skilled T7 operators and they applied the procedure, and that's the reason why we modified it: in certain circumstances, it could lead to this kind of incident. [...]

The inquiry continued as expert 1 stressed that despite the visibility problem, when working in manual mode operators should consider potential problems that are outside the procedures. He thus formulated a working hypothesis: maybe the operators lacked experience or training. But NuclearCo blocked the inquiry on this point: the fault lay not with the operators but with the procedure. This response did not answer Expert 1's main question on why the operators did not anticipate that the kiln would fall.

Member 1: What makes this incident striking is that it's primarily due to a design problem: it's surprising that even in manual mode, the lifting platform won't stop before the kiln is unhooked. But the major problem for me is the procedure: this situation reveals that it was never tried out during test phases, otherwise this problem would have been observed. Maybe the ASN could check in its coming audit that all operating modes have been tested. In this case, there were almost no consequences, but in other cases it could significantly affect the safety of installations.

NuclearCo: I can assure you that all operating modes are tested during trial phases. [...]

Member 1 intervened here with a new working hypothesis: "What if the major point was that the operating modes hadn't been tested before?" The inquiry continued, taking up this point that is crucial for the safety of operations. NuclearCo insisted that all operating modes had been tested. But this did not achieve any progress in the inquiry.

Member 1: Wasn't it a modification to the lifting equipment that made the operating mode obsolete?

NuclearCo: No, there was no modification to the lifting equipment.

Member 1 now brought up another working hypothesis: "So if the procedure was tested, maybe the reason was a change in the lifting equipment." NuclearCo rejected this hypothesis and the inquiry came to a halt.

This narrative illustrates once again that there is an initial ambition on the part of the CLI to inquire, and understand what happened. The inquiry process starts with Expert 1 wanting to understand why the procedure was inadequate. This seems at this point to be the main cause of the incident: the ASN report states that this risk of the kiln falling was not specified in the operating procedure for sensor adjustment. The objective of the inquiry is twofold: *members want to understand firstly, why the kiln fell on that day, and secondly why the procedure was inadequate.* Expert 1 continues the inquiry and challenges NuclearCo: in his view, despite the lack of an adequate procedure, the operators should have anticipated what would happen, as they were working in manual mode. This becomes the new track of the inquiry. Expert 1 uses his experience to argue that when working in manual mode, operators cannot rely on procedures alone. This new track gives CLI members a new hint for the inquiry: NuclearCo reminds CLI members that the operators have limited visibility in the vitrification workshop. Expert 1 rejects this argument and offers a working hypothesis: “what if there was a problem with the training or skills of the operators?”. As in the two other narratives, when members of the CLI try to question managerial issues (the competence of the operators), NuclearCo blocks the inquiry.

As in the first incident studied, the ranking on the INES scale is again used as a punishment: “Since we had an inadequate procedure, we decided to rank the incident at level 1.” However, in this case the level 1 ranking is not used to stop the inquiry: it is only mentioned once.

The inquiry rebounds when Member 1 challenges the testing of procedures, with an appeal to the authority of the ASN: “Maybe the ASN could check this point in the coming audit.” NuclearCo is definite on this point and assures the commission that all procedures had been tested during trial phases. In this case, the inquiry does not succeed because members of the CLI lack information: for instance, it could have been useful for the incident reporting process to include the

old and new (modified) version of the operating procedure. Also, it could have been interesting to include feedback from the operators themselves, to have their reactions to the fact that the kiln fell down. Finally, it could have been interesting to have the feedback of ASN on the incident. Once again, the inquiry is aborted and the nuclear regulators and operators fail to consider CLI members as members of a community of inquiry: they merely perform a communication exercise which cannot give CLI members a full comprehension of what happened.

Table 05 - Characteristics of the inquiry's failure – Incident 3

<i>Actor</i>	<i>Main reasons for the failure</i>
Nuclear Co	No desire to act as a co-inquirer Limited communicational materials Did not mention some contextual characteristics: visibility in the cell Blocked discussion of managerial subjects (operator training) Used the INES scale ranking as a punishment
ASN	Did not provide CLI members with their feedback
CLI members	Only a few members participated in the inquiry Lacked some clues (visibility problem) Lacked certain information (past and present versions of the procedure)

Table 6 shows, for each incident that occurred during the period studied, the main characteristics of the inquiry and the role of the incident feedback report.

Table 06 - Summary of the different incidents between 2011 and 2014

ASN date	Event	Reactions by CLI members	ASN site report	Observations on the CLI's inquiry	Potential inquiry by the CLI (common sense)
Oct 3, 2011	Non-compliance with a technical operating specification – blocked pipes	Several questions	Little additional information	Questions about the checking of similar devices and a question about the level 1 classification. Clear answers from the operator. Common sense inquiry that makes good progress.	Common-sense questions are asked and the inquiry makes good progress.
Dec 8, 2011	A reinforced door of a storage cell was blocked.	No questions from the CLI	Additional information: an incident of this type had already occurred in 2008.		The members could have asked how the door would be adapted to prevent this from happening again.
Feb 3, 2012	Fall by a FS47 package	A few questions	No additional information	Not enough information about the incident Lack of competence? Lack of methodology? No help from the ASN for a better understanding of the problem.	No question concerning why procedures were not respected in this specific case.
June 8, 2012	Unjustified inhibition of an automatic fire detection system	No questions from the CLI		Not enough information about the incident Lack of competence? Lack of methodology? No help from the ASN for a better understanding of the problem.	No questions, although the members could have asked questions about procedures following inhibition of a fire detection system after a period of work
Oct 26, 2012	Discharge of low-activity liquid effluents into the sea	No questions from the CLI	One piece of additional information: before the discharge, the operator knew that not all of the volume has been properly analysed	Not enough information about the incident Lack of competence? Lack of methodology? No help from the ASN for a better understanding of the problem.	No questions, although the members could have asked questions about management practices: why was there no comparison of the weight of the volume analysed and the volume due to be discharged before the effluent was discharged into the sea?
Oct 30, 2012	Non-compliance with the maximum mass of plutonium per waste barrel	A few general questions on waste management	One piece of additional information: a transcription error concerning the mass of these barrels at the time	The debate concentrates on a different subject: management of waste, and French vs. foreign waste	Difficult to blame Areva for a small-scale error that happened in 1970.
May 30, 2013	Above-authorized temperature for a	No questions from the CLI	One piece of additional information: the	Not enough information about the incident Lack of competence?	No questions, although the members could have asked whether a

	solution of nuclear fission products		pre-alarm had been triggered after the threshold of 52° was exceeded.	Lack of methodology? No help from the ASN for a better understanding of the problem.	procedure existed for the threshold above which a two-stage procedure is triggered.
Sep 18, 2013	Contamination of premises	Only one member of the CLI		Human error: internal censorship?	Only one question, whereas the members could have asked about the procedures existing at the security exit from the contamination area.
Oct 17, 2013	Loss of confinement of an extensively contaminated part	No questions from the CLI	One piece of additional information: a calculation and sizing error concerning the locking and securing of the container, which had not been applied.	Lack of competence? Lack of methodology? No help from the ASN for a better understanding of the problem	No questions, although the members could have asked about the measures now taken to immobilize containers being relocated.
May 30, 2014	Non-compliance with the general operating rules: one solution had a slightly excessive solvent content	No questions from the CLI about the event itself, only about why it had not been reported to the CLI	One piece of additional information: the main risk is that an explosion could be caused if the temperature reaches around 130°.	Human error: internal censorship? The causes of the incident and the consideration given to the feedback appear to be clear for the CLI.	Fairly clear explanation from AREVA: the distinction between barrels existed but was not visible enough. They now use different colour codes: this seems to be a satisfactory response
Oct 24, 2014	A solution containing uranium was sent to the MAU (Intermediate level uranium) workshop that was being dismantled	Only one question about a technical threshold	Shutdown of circuits into the workshop being dismantled could have been more effective	No further explanation from the ASN. No questions about a shutdown mechanism if a workshop is being dismantled: lack of methodology? Fairly technical subject: lack of expertise?	Due to the stage of dismantling in the workshop concerned, the tanks could still take this solution, but at a later stage of dismantling that would not necessarily have been possible.

V. Discussion

The different narratives presented illustrate that the incident reporting process is a trigger for members to launch their inquiries: they have some information at their disposal, and the inquiry process starts. A few CLI members are genuinely keen to start an inquiry dynamic and thus to discover, develop and maintain the CLI's identity as a community of inquiry that exists to serve civil society on matters of nuclear safety. Those members reassert that inquiries are part of their mission: close examination of some incidents - when deemed necessary - and a clear interest in understanding the circumstances and ensuing measures generally leads to better skills for the entire community. Inquiries often involve the co-existence of divergent views, and as the different narratives have shown, the dialogue between the different stakeholders is sometimes productive thanks to a communicational frame with common languages, common horizons and common worlds.

However, successfully conducting a Dewey-type inquiry in this context would require a complete reconsideration of the process and the act of incident reporting itself: incident inquiries as studied in this research do not involve civil society, and the results section shows that post-incident inquiries conducted by CLI members tend to be infelicitous. There are several possible explanations for such failures:

1. CLI members frequently lack important information. The operators omit details from their reports, maybe assuming that CLI members are aware of them, or on the contrary deliberately withholding information. NuclearCo often comes to CLI meetings with very limited materials and fails to respond to major hints. The reports released on ASN websites

are also quite limited, and do not appear to be read before the general meeting. Nuclear authorities often provide some additional information to CLI members, but they rarely help CLI members to grasp them, to enable them to act as co-inquirers. This reluctance to go further in empowering CLI may result from confidentiality duties. Nuclear authorities may also consider that it is not CLI's role to lead their proper inquiry on incidents.

2. CLI members' expertise – which is generally very technical - confines inquiries to technical aspects. Most members seem to focus their attention on specific matters with which they are familiar, thus missing essential questions in domains where they are less knowledgeable. Maybe they feel they should not discuss subjects on which they are less confident. Also, technical questions tend to be well received by NuclearCo, which willingly answers them with numerous technical details: for both CLI members and operators, focusing on technical matters is a way of staying in their “comfort zone”.
3. The INES ranking is often wrongly applied, and is used as a shield by NuclearCo to block inquiries. The ranking could instead be used as an instrumental element, a heuristic tool that would be useful to develop the inquiry dynamic.
4. CLI members rarely broach managerial subjects, to avoid challenging NuclearCo's management and maybe also because they suspect that NuclearCo will not cooperate - because when questions on management are asked, NuclearCo blocks them immediately. Managerial issues may represent the implicit boundaries of the inquiry.
5. CLI members may also lack the necessary managerial skills to address these subjects: the CLI has no expert on managerial matters, even though human and organizational factors are very complex and difficult to understand. Maybe the CLI is not "fit" to tackle managerial subjects, due to its membership and its members' culture. Yet dealing with safety issues without questioning their management is impossible.

6. CLI members may have major methodological shortcomings: they should be in a state of "constant vigilance", ensuring that all pertinent questions are covered, and spotting any important clue that could potentially trigger new avenues of inquiry. This could be achieved through good use of the incident reporting process, and a precise methodology for incident analysis. For instance, CLI members could identify the skills they would need to pursue their inquiry for each major incident - just like a crime investigation. Maybe the CLI members lack abductive reasoning skills.
7. CLI members often complain that they lack practical resources to conduct their inquiries. One solution would be for the CLI's technical experts to take part in the initial incident inquiry with the operator, and report back to CLI members before the general meeting. This would enable the CLI to have a meaningful role in the inquiry undertaken by operators and regulators.
8. Some members of the CLI may also consider that the ASN is there to keep everything under control, and as a result they do not find it necessary to intervene or participate in the community of inquiry.
9. NuclearCo's representative often appears to be on the defensive, and some CLI members seem to blame him. An inquiry often arouses the expression of different views that are essential for the inquiry, providing that there is no blaming: a good inquiry should focus on practices rather than on actors. Blaming is counterproductive for the inquiry dynamic: to be successful, the inquirers should all be on the same level and share a desire to advance the inquiry. Any reward or punishment should always be applied by reference to a certain standard, and when such a standard exists, then the inquiry is already over. For instance, when members try to investigate managerial subjects, a blaming register of language is used and a reference to the INES scale ranking is used to stop the inquiry.

10. Neither NuclearCo nor ASN seem to recognize CLI as active co-inquirers. In order to conduct successful inquiries, all participants of the CLI should consider themselves as co-inquirers, exactly as in the Buddhist parable of the three blind men and the elephant (Shields, 2003, 2000). This means that the CLI members, and representatives of NuclearCo and the ASN, should all be in an inquiry approach, with the aim of making progress in the inquiry. Yet as the three narratives show, NuclearCo clearly does not want to share a certain level of information with CLI members, especially on managerial and organizational subjects. This makes an inquiry on those subjects practically impossible. The operator is a company and is surely concerned about preserving its managerial autonomy: it may be worried that interference from the inquiry dynamic could affect managerial autonomy. Another surprising observation is that ASN representatives sometimes provide CLI members with valuable information, but also sometimes tend to follow NuclearCo's lead and do not boost CLI's inquiries. The author is convinced that the incident reporting to CLI members is all the more useful for both NuclearCo and the ASN if it enables them and the CLI members to improve the collective understanding of what happened and the potential learning for the future. This was not the case for the three incidents studied.

It is important to remember that the incident reporting process is not neutral, as it gives structure to the dialogue. It could therefore be very useful for members to conduct detailed inquiries on incidents as if they were boundary objects (Star and Griesemer, 1989) i.e. a mediating artefact able to promote the sharing of common referents across different parties with different views, and thus create and maintain coherence (Briers and Chua, 2001; Barrett and Oborn, 2010) among CLI members. The incident reporting process could act as a heuristic tool, enabling CLI members to communicate and cooperate despite their differences in order to construct a co-comprehension of

situations, in complex situations involving several views (Weick's sense-making). The incident reporting process does not generally help members to successfully hold their inquiries and even contributes to a certain form of opacity. It does not fulfil its mission of providing members with information enabling them to grasp the situation: yet it could contribute to "constant vigilance" if it made members cover all potential questions - possibly using a checklist. It could also specify to operators what type of analysis they should report to CLI members. For instance, the question of risk assessment is not mentioned at all in the process. In the case of the first incident, if it had been made clear through the process that the incident arose from the change in organization and the lack of risk assessment following this change, CLI members would perhaps have discussed that point more in-depth, even if sometimes CLI members lack both expertise and methodologies to grasp the essential stakes, particularly when they concern management and organization issues. It could be precisely part of the system to incite the operator to play the dialogical game and to provide the required analysis tools and expertise to make an in-depth analysis possible

Recently, Baker and Schaltegger (2015) have argued that pragmatism could significantly enhance the concept of accountability: they lament the fact that the accounts given to stakeholders are generally a form of one-way communication. In their view, those kinds of accounts do not take into consideration how stakeholders will read, use and make sense of them. In the same vein, some scholars (Morsing and Schultz, 2006; Manetti, 2011) assess that the level of detail in the account depends on whether stakeholders are involved in reporting, and that organizations should move from "informing" and "responding" to "involving" stakeholders in CSR⁴⁷ communication itself. Going even further, through the study of a reporting process for incidents in the nuclear context, this chapter makes a central theoretical contribution: it proposes a critical perspective on

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accountability drawing on the pragmatist concept of inquiry. Dewey's notion of inquiry rejects the common hypothesis in the accountability literature that an account exists "naturally", and shows that an account needs to be constructed through an inquiry. This concept of the inquiry leads to a new, more sophisticated perspective on accountability, that is more processual, dynamic and dialogical. The study of the incident reporting process illustrates the concepts of inquiry and accountability.

The central contribution of this chapter is that it encourages managers interested in increasing accountability to involve stakeholders in the production of the accounts given. As depicted by Baker and Schaltegger (2015), the accounting literature treats such reports as if they are the only possible form of information for stakeholders, but it is important to note that there are many sources of information (e.g. media, blogs, leaked documents, community sourced information). In incident reporting, if the information provided cannot give stakeholders a satisfactory grasp of the situation, they will turn to alternative sources.

VI. Conclusion

As shown in the literature, the concept of accountability has several limitations: Dixon et al. (2006) demonstrate through their study of a Zambian microfinance organization that it is difficult to reconcile different types of accountability when they have different power bases and resources. Similarly, Ebrahim (2005) argues that accountability mechanisms are likely to reproduce the relations of power that already exist within an environment: accountability will therefore work in the interests of dominant actors. This chapter belongs to the same stream of research, and shows that nuclear operators and regulators are willing to be more accountable to the public - under certain

conditions. When the questions asked concern managerial issues for instance, they tend to block accountability mechanisms.

In this chapter, it is demonstrated that the process used for reporting on incidents certainly triggers the dynamic of inquiry, but ultimately hampers inquiries and adversely affects their chances of a successful conclusion. What could have been the transformation by CLI members of a "one way" communicational process into a dialogical inquiry process has failed to happen: inquiries are mostly selective or aborted. Designing a process that provides members with an exhaustive account of the situation and underpins a kind of "constant vigilance" on incident feedback might help this community of inquiry. The nuclear sector's actors appear to share a desire to increase accountability to the public, and particularly to have greater involvement by the public in the governance of nuclear activities: this resulted in the institutionalization of CLIs in France. These aims are reflected for instance in the fact that operators are obliged to share incident feedback with CLI members. But incident reports should enable the CLIs to conduct their own inquiries, which are necessary to grasp the problems at stake and play the role of an "informed" public. If groups such as CLIs lose their capacity to carry out successful inquiries, they will lose their reason for being.

Pragmatism, in particular Dewey's concept of inquiry, moves the focus of accountability away from a representational truth, towards an understanding of how stakeholders collectively grasp a subject and inquire. In the end the major question of this chapter is: how far do the stakeholders actually understand the report (account) presented to them? This question should be central in the accountability literature, as an account that is given to stakeholders but not understood is useless. This chapter therefore contends that pragmatism could significantly enrich the concept of accountability.

CHAPTER 3 - CONTROL OR STAKEHOLDER GOVERNANCE: MAKING SENSE OF THE CLIS' ROLES IN THE GOVERNANCE OF NUCLEAR SAFETY

Abstract

Nuclear safety is controlled by two main institutions in France: the French Nuclear Safety Authority (ASN) and the French Radioprotection and Nuclear Safety Institute (IRSN), which are responsible for monitoring all nuclear activities in the country. Both these institutions and nuclear operators are currently taking steps to involve a third partner in the governance of nuclear safety: Local Information Commissions for nuclear activities (CLIs). The present study is about ASN safety inspectors' work to make sense of the ongoing political discourse and recent legislation - in particular the 2015 Energy Transition Law - which gives more power to CLIs. The aim of this chapter is to examine how such a change of governance occurs in practice, and how actors are making sense of it. The key finding is that safety inspectors' holistic view of control is not compatible with CLI involvement in nuclear safety governance. Unresolved tensions remain between two different views of control: regulation-based control, embodied here by the nuclear regulators, is difficult to combine with a more dialogical and pluralistic practice of governance that CLIs are intended to embody.

Keywords

Sensemaking, Control, Stakeholder, Nuclear Safety, Dialogism

I. Introduction

Albareda (2008) argues that globalization is bringing the end of governmental primacy and the emergence of governance, involving an extremely wide variety of actors and forms, contradictory local and global trends, cohesion and conflict. The rise of CSR⁴⁸ results from the need for a new kind of global governance: meeting social and environmental challenges by implementing ethical, responsible and sustainable conduct in business. This new governance also implies a total paradigm shift for existing actors, with a new vocabulary: “governancing” would be more adequate to capture its dynamic processes of constructing and diffusing schemes of governance with multiple stakeholders (Barkay, 2009).

This transition to multi-stakeholder governance is precisely the topic of this chapter, which explores a new form of governance-in-action: the process through which civil society actors participate in the governance of nuclear safety, which has so far been controlled by regulation-based institutions. The need for multi-stakeholder governance is particularly vivid in complex activities involving risks affecting large sectors of the population. Those activities are traditionally subject to a regulation-based model of government control, but nowadays are moving towards a stakeholder governance model, involving the public as a key stakeholder.

This chapter focuses on the following key issue: how does reinforcement of the public’s participation in governance have a concrete impact on the control activity performed by regulation-based controlling institutions and the professional identity of their members? Apart from the laws and political discourses, it studies the transition from the traditional model of

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nuclear safety governance (the predominantly professional and regulation-based control, embodied here by nuclear regulators) to the new model (a more dialogical practice of governance actively involving the public). Are these governance models compatible?

To study this transition process, the focus is laid on changes in the controllers' activity in response to the way they make sense of the new governance. The research materials are analyzed using a sensemaking approach, to understand how controllers make sense of a stakeholder representing civil society which has recently gained significantly in importance. It seeks to develop a processual view of stakeholder theory (Freeman, 1984; 1994) by combining it with sensemaking theory (Weick, 1995; Weick et al. 2005).

The research question is explored in the particular setting of nuclear safety governance in France, where the traditional regulation-based control is the responsibility of two institutions, the ASN⁴⁹ (the French Nuclear Safety Authority) and the IRSN⁵⁰ (the French Radioprotection and Nuclear Safety Institute), and public participation is through Local Information Commissions or CLIs⁵¹, which represent the different sectors of civil society. The ASN is an independent French administrative authority, which regulates nuclear safety and radioprotection on behalf of the State. It consists of a central administration (top management and functional divisions) and eleven local divisions that between them cover all of France. The ASN is also in charge of communication with the public and it contributes to a great extent to CLIs' financing. The IRSN is France's public expert body on nuclear and radiological risks, with a membership of over 1700 experts and researchers. The IRSN conducts investigations, expert assessments and research in the field of

⁴⁹ *Autorité de Sécurité Nucléaire*

⁵⁰ *Institut de radioprotection et de sûreté nucléaire*

⁵¹ *Commissions Locales d'Informations*

nuclear safety. The IRSN and ASN jointly determine where expert advice is needed, and the IRSN responds to the requests made. The ASN inspects civil nuclear sites for the French government, applying sanctions where relevant: it is often informally referred to as the “nuclear police”. Finally, the CLIs have recently gained greater power in the governance of nuclear safety in France. CLIs are institutionalized groups of civil society actors that were first set up in the early 1980s for civil nuclear sites⁵².

CLIs were initially intended to involve actors from civil society in the governance of nuclear safety, and they have acquired more power over time until they are now a stakeholder in nuclear safety governance in their own right. The 2006 Nuclear Transparency and Safety Law⁵³ requires a CLI for each civil nuclear site in France and defines the CLIs’ mission: monitoring, informing and discussing nuclear safety. The aim of establishing CLIs as a third partner in nuclear safety arose after the Fukushima accident of 2011, as a matter of public interest⁵⁴, on the assumption that civil society actors (via the CLIs) can contribute to enhancing nuclear safety. The specific example of the CLIs is thus particularly interesting, as CLIs now have almost 40 years of existence and experience; over time, they have had a significant impact on the governance of nuclear safety and they have recently gained official importance as changes in the legal and regulatory framework have triggered redefinitions of governance. The French government recently decided to reinforce the CLIs’ role in nuclear safety governance by increasing their investigation powers: the 2015 Energy Transition Law⁵⁵ gives CLIs a broader investigation role and larger

⁵² The difference between CLIs and civil society should be noted: while CLI members come from civil society and are meant to represent it, a CLI cannot be considered the same thing as civil society. In this chapter, it will be established that when CLIs do not build a strong link with civil society and maintain it over time they may be at risk of becoming just another institution, with less legitimacy in the governance of nuclear safety.

⁵³ Known as the “TSN law”, TSN standing for *Transparence et Sécurité en matière Nucléaire*

⁵⁴ Several political discourses argued for such a utility of CLIs, as well as the former IRSN’s president and IRSN’s Opening to Society Department.

⁵⁵ Loi relative à la transition énergétique pour la croissance verte

financial resources enabling them to call in expert assistance. Through a qualitative case study, this chapter seeks to understand how ASN safety inspectors make sense of the new governance situation and are rethinking their own activity and professional identity.

II. A Processual Sensemaking Approach

Since Freeman's seminal 1984 book "*Strategic Management, a Stakeholder Approach*", the stakeholder concept has become a prominent concept in organizational literature. Stakeholder theory's central tenets hold that the activities of any given organization are performed to meet a need of society (the market), and can potentially impact a range of stakeholders, either directly or indirectly. A stakeholder can be described as "any individual or group who can affect, or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46). In short, the term "stakeholder" designates individuals, groups or entities with stakes in a particular concern that may relate to an organization: a stakeholder holds a stake if she/he bears some form of risk, voluntarily or otherwise. In a constantly evolving and complex world, the concept of stakeholders should incorporate consideration of the social context of action and the various contingencies of each particular situation. Hence, the existence of stakeholders should be considered not as a given, but as an ongoing construction process. Understanding how safety inspectors make sense of a stakeholder (the CLIs) that recently gained significant importance is precisely the aim of this study.

The response to a significant modification in the governance model – increased public involvement - is analyzed from the point of view of regulation-based controllers (safety inspectors) who are being asked to play a key role in the implementation of the new model. In France, the safety inspectors in charge of investigating nuclear safety at each civil nuclear site are members of the ASN. This organization has contributed to construction of their professional identity as the only

lawful controllers. The nuclear industry has specific characteristics that impact both organizations and organizational actors in the sector. It has longstanding links with the atomic bomb and military activities, and as such has frequently operated under a policy of strict secrecy (Topçu, 2013). Moreover, it has always been the target of criticism worldwide, mainly over serious concerns about the industry's environmental impact, safety and the handling of radioactive waste (Banerjee and Bonnefous, 2011). Safety inspectors work in this context, and it influences their professional identity. They may feel that they are totally in charge of control of nuclear safety in France ("control" being understood here as a policing-type role of surveillance and inspection). But with the French government's decision to strengthen the role of CLIs, another model of governance, based on democratic or multi-stakeholder control of nuclear safety, has progressively taken shape and safety inspectors were unfamiliar with this type of approach. This new governance model involves pluralistic standpoints with multiple stakeholders, dialogical discussions, contradictory views and compromises. This upsets the balance of the previous governance model, in which safety inspectors constructed their professional identity based on a holistic view and regulation-based control of nuclear safety.

CLI involvement in the governance of nuclear safety thus brings challenges for safety inspectors, who have a clear sense of their "controller" identity and find themselves facing new professional requirements. This chapter examines how safety inspectors understand, talk and act with regards to CLIs. It draws upon Karl Weick's theory of sensemaking in organizations (Weick, 1995; Weick, 2003; Weick et al. 2005) to interpret the research materials. The political discourse generally presents involving members of civil society in nuclear safety governance as a good thing, despite existing practices and without questioning whether nuclear industry actors share this view. Adopting a sensemaking perspective promotes a focus on explanations and answers in terms of

how people see things and how they give meanings to situations (Ericson, 2001) while recognizing the importance of the social and organizational identity that safety inspectors convey through their interpretations and actions (Pratt, 2000; Anderson-Gough, Edgley, Robson and Sharma, forthcoming).

Sensemaking theory was first developed for crisis situations where it is necessary to create and maintain coherent understandings (Weick, 1993; Maitlis, 2005). The concept was prominently used by Weick to analyze the Mann Gulch disaster (Weick, 1993) and the fire crew's failure to make sense of the situation and thus enable meaningful collective action; flight operations on aircraft carriers and the actors' sensemaking processes (Weick and Roberts, 1993); and the Tenerife air disaster, its specific contextual characteristics and the sensemaking process of the two pilots (Weick, 1990).

Maitlis (2005) argues that such research concerning crisis situations has focused on pressurized environments, when actors need to make sense of the world quickly, and as such is not representative of organizational sensemaking more generally. In organizational contexts, long periods of time may pass in which organization members remain confused by events and actions: ambiguity and uncertainty may arise in more mundane situations or unfamiliar contexts where meaning can be elusive (Weick et al., 2005). But the upshot is the same: actors have to restore meaning through a sensemaking process.

Several authors have therefore used the organizational sensemaking approach with non-crisis situations: for instance, Anderson-Gough et al. (forthcoming) study how audit professionals give meaning to the perceived imperatives for them to embrace "diversity"; Griffith (1999) investigates the sensemaking processes of users confronted with new technologies; and Basu and

Palazzo (2008) study the sensemaking processes within which CSR is embedded. Thus, sensemaking has been extended to all situations characterized by ambiguity and uncertainty that require a reconstruction of meaning and a collective course of action, which is precisely the case of the governance transformation studied in this chapter. This paper adopts Maitlis' (2005) definition of sensemaking to study the research material collected: actors are involved in a process of sensemaking when they “*confront events, issues, and actions that are somehow surprising or confusing*”.

Despite current political discourses, integrating CLIs into nuclear safety governance has an ambiguous meaning for safety inspectors, and as such can lead to different interpretations and practical implications. Although CLIs are not a new invention, communicating to outsiders about nuclear activities is still a controversial concept inside the nuclear industry, often met with incomprehension and resulting in minor crises. In the specific case studied here, safety inspectors facing a political redefinition of the nuclear safety governance model find themselves required to modify their professional mission, and therefore their professional identity. From dealing exclusively with nuclear operators and having a monopoly on the final judgment, they now have to accept a view of governance in which the public must be actively involved, and therefore informed and “enlightened”.

Safety inspectors may wonder how far they should include CLIs in their decisions, and why. They may also interpret their duties in different ways: to keep their CLI informed of important subjects; to make sure that CLI members understand them; to discuss their decisions with the CLI; to involve the CLI in their investigations; or to consider that the CLI can conduct its own investigations. In each local division, it is the safety inspectors who authorize CLIs to perform such investigations, and provide them with access to information. The extent to which they will involve

CLIs in the governance of nuclear safety depends on the way they make sense of the new situation in terms of their work, their relations with the CLIs, and their professional values.

III. Research Methods

“Students of sensemaking understand that the order in organizational life comes just as much from the subtle, the small, the relational, the oral, the particular, and the momentary as it does from the conspicuous, the large, the substantive, the written, the general, and the sustained. To work with the idea of sensemaking is to appreciate that smallness does not equate with insignificance. Small structures and short moments can have large consequences.” (Weick et al. 2005)

For this paper, a qualitative methodology was used to address the research question. Qualitative techniques are common in the study of sensemaking in organizational literature (Craig-Lees, 2001; Van der Heijden et al., 2010; Maitlis and Christianson, 2014) as they are well-suited to studying individuals’ interpretations (Maitlis, 2005). Maitlis and Christianson (2014) argue that sensemaking studies usually draw on rich qualitative data to illustrate the process of sensemaking: single-case studies as examples of sensemaking are therefore quite common in the organizational literature. This study, too, draws upon a single case study and qualitative data such as interviews, observations and document analyses.

There were two main reasons for choosing French CLIs as an empirical field for the present research. Firstly, since their creation at the end of the 1970s, CLIs have succeeded in substantially modifying the French nuclear landscape: it is now mandatory to have a CLI for each civil nuclear site, and over the years they have acquired a certain influence in nuclear safety governance. Secondly, French CLIs appear to be among the most dynamic groups of their kind in the world. By

becoming a legitimate stakeholder in the French nuclear landscape, CLIs are transforming the institutions that must now take this new stakeholder into consideration and adjust their discourses and practices accordingly.

III.1. Research Setting

A CLI's mission is threefold: (1) to collect information; (2) to identify and discuss issues of nuclear safety and (3) to communicate with the local population. CLIs are made up of institutionalized members of civil society (scientists, trade unions, local elected officials, associations, etc). The great diversity in CLI members gives CLIs a valuable heterogeneity that is necessary to their mission, although it is sometimes difficult for a CLI to reach a consensus.

CLIs have recently gained greater investigation powers under the 2006 Nuclear Transparency and Safety law and the 2015 Energy Transition law. The 2006 law states that “in order to carry out their duties, CLIs can have expert assessments conducted [...] and have measures and analyses carried out in the environment”. Yet the terms and conditions of these expert assessments remain rather vague, and the financial resources allocated to them is limited. They are thus open to different interpretations by different actors. The 2006 law also proclaims that operators and the ASN must “communicate to the CLI all documents and data necessary to carry out its missions”. But this sentence is ambiguous, as the CLI's missions are broad and imprecise (i.e.: “discuss issues of nuclear safety”). Such imprecision contributes to the uncertainty and ambiguity surrounding the CLI's missions and roles in the governance of nuclear safety.

The 2015 law reasserted the need for public information and reinforced the role of CLIs, but it remained very vague. It proclaims that a CLI can “address any subject related to nuclear safety, radioprotection and the impacts of nuclear activities on people and the environment”. The

reference to “addressing” can be understood in different ways: does it mean that CLIs can have all the information on the subject concerned and undertake their own investigations? Some actors in the field, for instance, have understood this as giving CLIs very extensive investigation powers. The law also proclaims that in the event of an incident, a CLI can ask to visit the nuclear site concerned, and that nuclear operators must explain the background to the event and the measures taken afterwards. CLIs now have greater investigation powers in the event of an accident, but the extent of such investigations is not clarified in the law. Can the CLI interview actors? Can it see internal reports on the incident? Again, there is no mention in the law of financial resources allocated specifically to CLIs for their investigations (potentially involving expert assistance.

III. 2. Data Collection

In this case-study research, the first step was a phase of observation of CLI general meetings and inter-CLI meetings in Paris. The author personally attended most of one CLI’s meetings and colloquiums throughout the whole 3-year period, and took part in other formal/informal events: lunches, meetings, informal discussions, etc. This methodology provided a deeper insight into behaviors and their meanings, for the clearest possible understanding of the organizational context. In a second step, the contents of documents intended for CLIs and civil society were analyzed: the author performed a review of documents, minutes and recordings of past meetings, documentary videos, and websites and correspondence. To enrich her understanding of situations, the author conducted a series of semi-structured interviews about safety inspectors’ views of CLIs and their roles in the governance of nuclear safety. Specific interviews were conducted with directors and co-directors of regional ASN divisions, and with some ASN top managers. All these ASN actors were grouped under the term “safety inspectors”. Interviews were also conducted with IRSN experts: these interviews enabled the author to grasp how IRSN members perceived ASN safety

inspectors' roles, and provided valuable contextual information. In total, 19 interviews were conducted with ASN safety inspectors and IRSN experts. To add an element of robustness to these data, 17 additional interviews were also conducted with nuclear operators' employees and CLI members. Even though those interviews were not directly related to the present study, they helped the author to understand the broader framework.

Each interview began with a presentation of the research project, stating that it related to the impact of the public in the governance of nuclear safety. The conversation then turned to the interviewee's specific relations with their CLI. The safety inspectors were asked how far the CLI had helped them in the past few years, or on the contrary how far the CLI had hindered their mission. The author felt that those subjects were difficult to discuss with interviewees. Indeed, she felt that answering that the CLI (and thus public involvement) was useful could suggest that the inspectors had failed to identify something important for nuclear safety. At the same time, answering that the CLI was a hindrance or, at least, not a particular help, could suggest that the CLI's mission to represent the public is useless or even detrimental to the inspectors' mission to guarantee maximum nuclear safety. Each answer could then be perceived as a "wrong answer" by the interviewees. The narratives collected were then examined to identify the extent of consensus or divergence between their conceptions of CLI involvement in the governance of nuclear safety. The quotations used in this paper are anonymous for reasons of confidentiality and it is important to highlight that those interviewees expressed their own standpoint and not ASN's institutional position.

The initial research question evolved as the research progressed, and the author was able to ask her interviewees further questions by email, telephone or during meetings throughout the whole 3-year period of data collection. This proved to be useful to triangulate the data.

III.3. Data Analysis

The data were analyzed to explore themes that could account for the way safety inspectors make sense of the CLI's roles in nuclear safety governance. Data collection and data analysis were concurrent, and the author made a specific effort to continuously relate them to each other. In a grounded theory approach (Glaser and Strauss, 1967; Corbin and Strauss, 1990; Strauss and Corbin, 1998), she referred back and forth between data and theories, to check whether the emerging theoretical propositions were supported by the data and conversely, whether the theories were helping to make sense of the data.

During the early stage of the analysis, specific themes emerged concerning the way safety inspectors make sense of CLIs. In line with Strauss and Corbin's concept of open coding (Corbin and Strauss, 1990; Strauss and Corbin, 1998), some categories emerged early in the observation and interview phases, when the author compared events/actions/interactions to bring out similarities and differences. Those categories were organized into aggregate themes that related to the research question and enabled the author to visualize categories better. The first level of coding consisted of organizing every incident into specific categories relating to broad conceptions, which could then be broken down into subcategories. For instance, the author used the code "Generalized Other" when actors spoke of the CLI as a group of accountees asking for explanations, or "Second Opinion" when actors evoked the CLI's ability to call directly on expert knowledge and assistance.

In a second-level coding, the author set out to identify core variables and applied selective coding to the data. For instance, the "Generalized Other" code was divided into several sub-codes, such as "Stimulus" when safety inspectors mentioned the CLI's role as a stimulus on safety subjects, or "Pressure" when actors spoke about the CLI's ability to put pressure on nuclear

operators. Similarly, the “Second Opinion” code was divided into sub-categories such as “CLI as an environmental expert” when actors mentioned the CLI’s expertise on fauna and flora, or “CLI as a local communication expert” when actors spoke about the CLI’s expertise in processes for communicating with local populations.

Finally, the author used a third-level theoretical coding system based on the sensemaking literature. This coding aimed at scrutinizing the actors’ sensemaking process and enabled the author to conceptualize how the codes relate to each other and can be integrated into a theory. For instance, the ambiguous situations safety inspectors were facing were separated from the categorization process they used to make sense of the CLI’s roles in nuclear safety governance. The initial codes were finally regrouped into two main categories that accounted for safety inspectors’ views on CLIs, and through an iterative process the author developed additional categories to code information according to themes that were emerging from the data. These aggregate themes led the author to refine her research question, which in turn brought out new categories.

Once these successive coding phases were complete, the author began to navigate between emergent data, categories, themes and the existing literatures on sensemaking. This process enabled her to be more focused when looking at the literature, deepening her knowledge on certain aspects that were useful for understanding the results. Finally, the author re-read her data sources to check that her interpretations and her coding were consistent and authentic.

IV. Empirical Results: Investigating the Sensemaking Process

The following sections explore the safety inspectors’ sensemaking process by identifying themes from the interview data that explain how individuals perceive and categorize the CLI’s

roles in nuclear safety governance. Starting with a brief presentation of nuclear safety governance in France, the author analyzes the roots of the ambiguity and uncertainty the actors are currently facing (Part I). This is followed by a list of the different roles safety inspectors associate with CLIs (Part II), and finally a discussion of the contradictions and limitations of such a sensemaking process (Part III).

IV.1. The roots of ambiguity and uncertainty

The regulation-based institutions operating in France's nuclear landscape already operate in a highly codified environment, and incorporating new laws for CLI involvement is not a straightforward matter. The nuclear organizations are particular assemblages of identities, cultures, and practices which co-construct the way that this stakeholder's participation is made sense of, and in turn how it is exercised. As an introduction to the results of this paper, this section provides contextual information on CLI involvement, to shed light on the ambiguity of the situation actors are facing.

IV.1.1. French nuclear regulators' roles in the governance of nuclear safety

In France, nuclear regulators are responsible for nuclear safety and radioprotection on behalf of the State, acting to protect workers, the public and the environment from the risks related to nuclear activities. They also contribute to informing the public. The mission of the French Safety Authority (ASN) is to (1) help draft regulations; (2) deliver authorizations for nuclear facilities and activities; (3) monitor nuclear activities by means of inspections; (4) inform the public and (5) assist the government in the event of an accident. In order to fulfill this mission, the ASN has appropriate enforcement powers, and is often informally referred to as the "nuclear police". It is supported by the French Radioprotection and Nuclear Safety Institute (IRSN, the national expert

body on nuclear and radiological risks with a membership of more than 1700 experts and researchers) which provides expert assistance as and when necessary.

The State-imposed model of nuclear safety governance is thus based on top-down control by the ASN, with expert support from the IRSN. The ASN has almost unrestricted powers on behalf of the State, and its safety inspectors generally expect to have the last word on subjects linked to nuclear activities. Their training as inspectors is particularly demanding and they are all graduates of top engineering schools. Once qualified as nuclear safety inspectors, they feel responsible for “policing” nuclear safety in the whole of France. Control can be understood here as the role of surveillance and inspection.

IV.1.2. Ambivalent political discourses and regulations

The starting point of any sensemaking process is the ambiguity or uncertainty of circumstances in which the actors find themselves (Weick, 1995; Weick et al. 2005). Ambiguity and uncertainty occur when actors experience a situation that differs from the expected state of the world, and they do not know how to tackle it. The author noticed during her 3-year field research that the CLI’s role in nuclear safety governance was a sensitive question, with no real consensus among nuclear actors. The ambiguity mainly stemmed from political and top management “doublespeak”: while most people were calling for greater transparency in relations with civil society, it was not always happening in practice. Some nuclear regulators were unsure about what they should really share with civil society. They found themselves wondering about the respective roles of each actor, and more particularly the CLIs. Were CLIs now meant to become controllers? Also, most nuclear operators were reluctant to share more information with civil society. Some actors feared that the CLIs would gain too much power, while additional power for CLIs was

exactly what was hoped for by many CLI members (especially environmental association representatives), who wanted more access to information and greater control over nuclear activities, with often no real methods and resources to process that information. Given that CLIs have existed for more than 30 years, it is perhaps surprising that the situation remains ambiguous for nuclear regulators.

Over the past few decades, particularly since the Nuclear Transparency and Safety Law of 2006 and the Fukushima accident of 2011, both nuclear authorities and operators have been in agreement that if civil society – represented by CLIs – was more engaged with nuclear risks, this would help to enhance nuclear safety in France. This idea has been taken for granted in the political discourse of nuclear organizations, without any investigation of whether it was really true or exploration of how it could be accomplished in practice. In 2015, the Energy Transition Law reasserted that CLIs needed more power in the governance of nuclear safety, and extended the CLIs' investigation powers⁵⁶.

In short, recent political discourses have given CLIs more importance in the governance of nuclear safety, but no extra practical resources to exercise their new role. A CLI's investigation powers thus remain to some extent an empty prerogative: they are not specified clearly in the law (for instance, the CLI's investigation powers are not positioned in relation to the ASN's regulatory powers) and remain subject to actors' interpretations. The apparent contradiction between the political discourse and the resources allocated for the CLIs' mission creates an ambivalent situation. As a consequence, the CLIs' role is still an issue for nuclear actors, who often wonder what their role really is.

⁵⁶ Please refer to the Research Setting part for more details on recent regulations.

IV.1.3. CLIs have gained power over time...

As seen in the previous section, CLIs have officially gained power over the years, with both the political discourses and the regulations on their side. Moreover, most CLIs have succeeded in exercising indirect power through the media, since journalists generally attend CLI meetings and take an interest in their activities. CLIs thus have a significant impact on both a local and national scale whenever an incident happens. Finally, some members of CLIs (mainly associations) can sue nuclear operators if they consider that they were negligent, and as the interviewee quoted below explains, this has consequences for both nuclear operators and nuclear authorities, as they will then need to testify and can incur sanctions. Safety inspectors cannot afford to dismiss the possibility of a CLI winning a lawsuit, since such a verdict would mean that the safety inspectors were not vigilant enough and had not fulfilled their mission correctly. This fear gives CLIs more power over both nuclear operators and regulators.

“The CLIs are very attentive to environmental matters and thus to pollution, particularly via the NGO representatives. Some associations make formal complaints based on the offences noted in inspection letters that the ASN didn’t consider it necessary to write a report to the prosecutor for. There have been two cases like that at Golfech: a case of tritium pollution in the water table: EDF (Electricité de France) was found guilty because what was kept back was that there had been a leak. [...] And in another similar event the operator was really negligent. On that case, several association members joined the public prosecution action. Including on assumption that the ASN was informed a bit late, which we hadn’t noted.” (Safety Inspector)

IV.1.4. ... and have increased safety inspectors' workload

Managing CLIs is gradually taking up more of the nuclear regulators' time. Moreover, the CLIs are more competent and more dedicated today than in the past:

“When I started in this job 17 years ago, the CLI asked us a lot fewer questions, no doubt because there was less interest and less expertise.” (Safety Inspector)

Attending CLI meetings is very time-consuming for both nuclear operators and nuclear regulators: it was observed by the author during CLI meetings, and confirmed during the interviews, that it is often senior management and directors who take part in this exercise of communicating with the public. Facing the CLI can be a daunting task, as debates can be forceful.

“These CLI meetings involve the hierarchy because you need to take a dispassionate view of things. There weren't very many of us at the last meeting: I had 6 or 7 inspectors. 2 or 3 of us came to each CLI meeting, so that means that in a team of 8 people, that's quite a significant involvement, with preparations of presentations, questions, etc”
(Safety Inspector)

The attending managers are often accompanied by members of their staff teams, and meetings sometimes take place at quite a distance from their head offices. Moreover, they need to prepare for these meetings, and often also to attend committee meetings. All in all, this takes up a lot of time, as explained by the following interviewee:

“I go to all the meetings (6 to 8 a year) because I've got topics to present. Then there's the CLI committee meeting, they invite me from time to time for my opinion on a given subject, and things are a bit more informal then. If you add up the time spent on CLI

business, it's a lot, because you've got the time at the meeting and the preparation time, trying to anticipate the questions we might be asked." (Safety Inspector)

Apart from these formal meetings, both nuclear operators and regulators are frequently solicited by CLIs for ad hoc meetings, and they also meet with the CLI's official contact and association representatives.

"Each department has a designated person who handles the meeting agenda, the organization of full meetings and committee meetings. We have regular meetings with these people. [...] And next year, we're going to be very busy for the meeting about distribution of iodine pills, with 3 or 4 meetings for each site." (Safety Inspector)

"Also, we're in contact with Greenpeace, which is only an observing member of the CLI." (Safety Inspector)

Moreover, the safety inspectors often provide technical support for the CLIs to help them understand certain subjects. This task is an inherent part of their mission:

"Now, we always offer to attend work groups, to provide explanations about certain cases." (Safety Inspector)

When CLIs ask to visit the nuclear sites, that also occupies the safety inspectors' time, as explained by the following interviewee:

"When the CLI members ask to come with us on our inspections [...] that means more work for us, because we have to bring an extra inspector to look after the CLI members and answer their questions. It's a pretty unusual setup." (Safety Inspector)

Most interviewees also mentioned the time they spent with the media whenever there is an incident, or after CLI meetings for instance:

“For us, that all takes time, contacts from the media for example aren’t always foreseeable, or proportional to the importance of the subject as we see it.” (Safety Inspector)

Several interviewees found the amount of time they spend with CLIs regrettable, and some interviewees even claimed that such highly time-consuming relations are obstacles to their mission, which makes the situation all the more ambiguous. The author noted that these new demands on the inspectors’ time were not accompanied with explanations of why it was important to include the CLIs in nuclear risk governance. As a result, safety inspectors had trouble understanding why they need to spend so much time with the CLIs.

IV.1.5. Summary: two different views of control coexist

The fact that the CLIs have gained power both directly and indirectly brought about a paradigm shift for the whole nuclear landscape, with practical impacts for safety inspectors in the field. They had progressively to take their CLI’s demands into consideration, allocate more time to the CLI, adjust certain practices and develop specific skills. All these factors led to an ambiguity in their roles. Previously, the ASN had been the only nuclear regulator and was able to play by its own rules. Now it had to cope with another stakeholder (CLI), and the situation was very unfamiliar to ASN inspectors.

Consistent with Maitlis’ (2005) definition of sensemaking, the previous sections have shown that ASN safety inspectors are confronted with “issues” (the CLIs’ role in the governance of nuclear safety) and “actions” (the CLIs’ demands, and actions such as prosecutions) that are

confusing for them. The safety inspectors' professional identity was built on the model of regulation-based control of nuclear safety, founded on political power delegated by the State. The type of governance they were used to is not easily compatible with a participatory view of governance currently being promoted by political discourses and recent regulations. In this new model of governance, the CLI's voice can be considered just as legitimate as the safety inspector's voice, in contrast to a control-based view of governance. The safety inspectors thus find themselves confronted with a pluralistic, open model of governance, involving multiple stakeholders and producing potentially contradictory deliberative processes. Consulting another stakeholder on a particular concern implies listening to its views, and being prepared to accept potential contributions, or even disagreements or criticisms.

In a nutshell, in the safety inspectors' view the agenda behind CLI involvement in nuclear safety governance remained ill-defined, ambiguous, and shifting. The analysis highlighted that the main source of ambiguity lay in both the lack of a clear definition of roles by the authorities establishing CLIs as an institution, and political doublespeak creating something close to a double-bind situation: relations with civil society required transparency, but not too much transparency; the CLIs should be given more power, but not too much power. Above all, it was clear that such empowerment of CLIs was not underpinned by a real reflection on their roles in nuclear safety governance or the sorts of devices and tools that could help them. All these factors led to considerable ambiguity for the nuclear regulators who are being asked to empower CLIs in practice. The situation was accentuated with the 2015 Energy Transition Law which reaffirmed the CLI's roles. This law fueled the discussion and safety inspectors needed to reconstruct meaning through a sensemaking process, and the first step in that process was to categorize the CLI's roles.

IV.2. Coping with ambiguity: categorizing to make sense of the CLI

This section explores the sensemaking processes engaged by safety inspectors to cope with ambiguity concerning the CLI's roles in nuclear safety governance. The categorization process used to explore the different roles the safety inspectors attribute to a CLI is described below. The resulting categories account for the results of their sensemaking processes regarding the role and impact of CLI. The perceived potential consequences of a CLI on safety inspectors' practices will also be explored: as they categorize the CLI's roles and list the ways the CLI has impacted their practices, actors make sense of them. As sensemaking refers to situated practices, both aspects - how they describe the CLI and how they think it impacts their practices - are important in comprehending safety inspectors' process of sensemaking regarding the CLI's roles.

In Weick's theory of sensemaking, to cope with uncertain or ambiguous situations, organizational actors make sense of texts, actions and events in ways that are mainly self-referencing (Weick, 1995; Anderson-Gough et al., forthcoming). They use pre-existing schemes familiar to them, drawn from their own familiar frameworks such as institutional and organizational constraints, expectations and traditions, acceptable justifications, and more (Weick et al., 2005). Consequently, new situations, such as the challenging obligation to involve a new stakeholder like a CLI in the governance of nuclear safety, can be perceived in ways that confirm and conform to, rather than challenge, the familiar. It will be shown in this section that safety inspectors tend to use their familiar schemes of reference when they are making sense of the CLI's roles.

Moreover, in order to stabilize a disrupted course of activity, in making sense of situations, actors tend to use labeling and categorizing, and the categories used have considerable plasticity as they have to be adapted to local characteristics (Weick et al., 2005). As described by Chia (2000),

labeling is about differentiation, identifying, classifying, regularizing and translating an ambiguous situation into a form that permits consistent action. This was the type of categorization process used by safety inspectors when they were making sense of the CLI's roles in the governance of nuclear safety.

IV.2.1. A forum for contact with civil society

Some interviewees felt that CLIs had the benefit of regularly bringing together people representing civil society. Because of this, CLI meetings provide nuclear safety operators with opportunities to develop their relationships with field actors and meet with key local authorities, as explained by the following interviewee:

“All the informal aspects of discussion are very useful for those people, and even for us. You see, we aren't always in the same county or region as the plant concerned. So the CLI was a way for us to have regular meetings: the prefect's chief of staff, the disaster and emergency services, the environmental services, the river police, and so on. And so CLI meetings build connections with local actors, whether institutions, associations, elected officials, etc. It was through CLI meetings that I was kept informed of appointments of the chiefs of the Prefect's staff.” (Safety Inspector)

When they make sense of CLIs as a forum, safety inspectors reduce their CLI almost to a logistical function: a physical place where they can meet local elected officials (president of the county council, regional councilors, mayors, etc.) and local economy actors.

IV.2.2. A Second Opinion from Civil Society

Most interviewees make sense of the CLI as being the body where subjects concerning nuclear activities are discussed with civil society representatives, at a good level of competence:

CLIs become civil-society providers of a second opinion. As most members stay on the commission for a long run, over time CLIs acquire the ability to question nuclear actors, as depicted by the following interviewee:

“That means we can form an audience of people who are interested and will develop expertise and can examine a certain number of topics at the major stages of the plant’s life, on specific procedures, with good knowledge of how things work, the operator’s difficulties and strengths. It means we can form working parties where even if people don’t basically have the same opinions, on energy policy, etc, after spending a certain number of hours debating together they come to know and respect each other.” (Safety Inspector)

Thanks to most members’ long-term involvement in the CLI, other nuclear stakeholders often recognize the CLI’s expertise on certain subjects. As the first chapter of this dissertation showed, CLIs have been able to incorporate two different kinds of expertise. They have acquired extensive technical skills throughout the years, mostly thanks to a few key, highly skilled individuals with both national authority and professional legitimacy. With their help, the other less specialized or “lay” CLI members - nuclear site employees, or retired citizens – have gradually built up another, highly valuable form of expertise through experience. Such expertise confers the CLI with strong legitimacy on matters of nuclear safety, developing a body where complex subjects can be discussed with the due specialist knowledge.

i. Specific expertise on specific subjects

The safety inspectors often acknowledge the CLI’s expertise, particularly in specific fields of application, as shown in the following interview extract:

“The CLI is very relevant on protective measures for the local population: organization of an exercise, iodine tablet campaigns, evacuations, public information, they’re good at all that, it’s their area. And they’ve often told us ‘that’s not how you should go about it’. In fact the Gravelines CLI was a real pioneer, organizing door-to-door iodine pill distributions together with the Red Cross. That took 3 months of work.” (Safety Inspector)

These fields of application are usually related to what most concerns local people: as they live near nuclear sites, they are particularly sensitive to certain subjects – for instance tritium discharge, as the following interviewee comments:

“Among the recurring subjects, there have been a few problems of tritium discharge into the environment. And those subjects are closely monitored by the CLIs, because they affect the local population. Then you have other subjects such as problems with noisy equipment: those are practical matters for local residents, who are annoyed by the noise.” (Safety Inspector)

In the interviews the safety inspectors often associate the CLI’s role with issues of concern to the local population. As local commissions, they know their surroundings particularly well. As the next interview extract explains, some very local questions, such as where people go swimming, can arise in discussions with the CLI.

“In fact what we find interesting in a public consultation procedure is having local issues, that we would have missed, being brought to the forefront: for example swimming areas we might not have thought about, etc.” (Safety Inspector)

Also, CLIs are the best able to assess the feasibility of certain actions, such as the PPI (*Plan Particulier d'Intervention* or Emergency Plan) because they know the local environment particularly well:

“The CLI sometimes raises interesting points in the PPIs and takes the time to write up a contribution, particularly on practical matters of the plan’s implementation, particularly for alarm procedures, the involvement of mayors, the connection between PPIs and PCSs⁵⁷.” (Safety Inspector)

Most interviewees recognized that CLIs have genuine expertise on all subjects related to pollution or fauna and flora, and that the questions they raise on these topics are legitimate. The following extract is a good illustration of environmental demands that were accepted by safety inspectors:

“When we consult the CLIs, we make sure we look at the points raised. Sometimes, as regards knowledge of flora and fauna, they contribute something new. For example, the Site Z station pumps a massive amount of water and the fishermen in the estuary, represented at the CLI, were really insistent that the filters should have filtering drums so they wouldn’t kill the fish. And we agreed. Typically, they do a good job of representing local economic and ecological interests.” (Safety Inspector)

ii. A civil-society provider of second opinions with different resources and methods...

The CLIs’ work can sometimes provide valuable information for safety inspectors, establishing them as a legitimate, skillful group of actors, capable of sound work that can question the extant practices of nuclear actors. This work is all the more valuable since safety inspectors are

⁵⁷ *Plan Communal de Sauvegarde* or Local Emergency Plan

often short of time. Rather than “taking over” part of the ASN’s tasks, the CLI can add creativity and novelty to safety inspectors’ actions.

“The Golfech CLI wanted to check up on the inspector and was doing expert assessments taking a different angle from our own, they were very interesting and very complementary too. For instance, they did a very good Human and Organizational Factors study on the work done in a 10-year inspection. Their assessment didn’t tell us anything we didn’t already know fortunately, but they expressed their conclusions differently using an ergonomic methodology, which was very interesting for us. They also got an assessment of a highly technical area, providing a second opinion on the operator’s entire methodology for tests of the containment’s watertightness. That was really useful for us because our inspectors didn’t have the availability to audit that, and having an external expert with a reasonable degree of trustworthiness, that was very useful for us.” (Safety Inspector)

Moreover, as they are not traditional experts, CLIs tackle subjects from a new, more “naïve” angle, with different methods and references. This novel approach enables them to be creative, which can give them a specific value in the governance of nuclear risk.

“Obviously, in the Fukushima white paper, the CLIs achieved progress on safety because they asked questions, triggered a debate and brought certain matters out in that framework. Their questions expressed their concerns and areas for consideration, and in my view that took us forward.” (IRSN expert)

CLIs undeniably have their own methodology that is sometimes quite different from the traditional engineers’ approach. Creativity can be fostered by the various views expressed by the different profiles co-existing in the CLI: examples include the innovative use of kites to measure radioactive concentration of tritium in the air, or the use of new methodologies to measure

radioactive concentration of tritium in the underground reservoirs. Both methodologies were mocked at first, but came to be recognized as quite relevant. The operator tried to adapt its methodology accordingly, and there was also an impact on safety inspectors.

“We’ve been using kites to go and measure the radioactive concentration of tritium in the air and we showed that NuclearCo wasn’t fully respecting the law. Everybody made fun of our kites but nobody knew how to measure it. [...] Yet when we came to present our work at the next General meeting, a huge number of journalists were there!” (CLI member)

“Also, the Nord-Cotentin CLIs did an expert assessment of the tritium content in the underground water tables beneath the NuclearStorage⁵⁸ storage centre using a new methodology and different depths.” (Safety Inspector)

iii. ... that forces safety inspectors to take action

It will now be examined how far CLI demands and concerns resulted in concrete measures implemented by safety inspectors. Nuclear regulators are now required by law to collect and comment on the CLIs’ observations:

“In general, the most complex topics are handled at the ASN by commissioners, and part of the procedure is a report by the ASN with a section on ‘analyses of observations by the CLIs and proposals for action’, so in all cases they have to say what the CLI has said. The ASN departments are under an obligation to consider the feedback from the CLI and comment on it.” (Safety Inspector)

⁵⁸ Pseudonym for the company that operates the waste storage facility.

In some cases, following questions from the CLI, safety inspectors act on the CLI's comments. As shown in the following quotation, this can lead them to produce additional materials or make new decisions.

“I'll give you an example: the methane terminal and the 4km tunnel running 40 meters underground between the terminal and the plant (built to heat the gas with warm water from the plant). The CLI asked us whether the tunnel could cause subsidence, so we had to produce a settlement calculation.” (Safety Inspector)

iv. Summary

This section has analyzed how ASN safety inspectors make sense of the CLI's roles as a civil-society provider of second opinions. When the CLI plays this role, it sometimes forces safety inspectors to take concrete action to respond to the CLI's demands. When they talk about those impacts, safety inspectors give more meaning to the perceived roles they attribute to CLIs, in a dialogical process.

IV.2.3. A “Generalized Other”

In 1934, George Herbert Mead introduced the concept of the “Generalized Other”: the general notion that a person belonging to a specific social group has the common expectations held by members of the same group about action and thought. This concept highlights Mead's idea that the self is intrinsically social: the self develops in response to other people's attitudes, intentions and expectations. With this definition, Mead refutes the subjectivist or genetic view of Self as having the resources for its own development, independently of any social interaction. He goes further and argues that even when an actor seems to be acting alone, isolated from any social interaction, she/he is in fact involved in an invisible but essential dialogue with the social group she/he belongs to. As

such, the actor is subjected to this fictitious, invisible “other”, who observes, judges and responds to her/him. Whenever an actor tries to imagine what is expected of her/him, she/he unconsciously adopts the perspective of the “Generalized Other”. The “Generalized Other” concept thus serves to clarify an individual’s relations to the “other” as a representative member of a shared social system: it is the vehicle that links us with society.

The attitude of the “Generalized Other” is in fact the attitude of the broader community. This concept contributes to shaping the individual and collective attitudes of actors involved in the same process: according to Mead, it is as this “Generalized Other” that communities apply pressure on their members’ behaviors. To illustrate the concept, Mead takes the example of a baseball team – which becomes the “Generalized Other”: each player takes the other teammates into account when deciding on his own actions. The following sections will show that this “Generalized Other” concept could also be used to illustrate safety inspectors’ view of the CLI’s roles.

i. A “Generalized Other” demanding explanations

The safety inspectors interviewed often described a CLI as a group of accountees wanting explanations, requiring them to account for their activities on a regular basis, as expressed by the following interviewee:

“The CLIs have an unusual role because there’s an effort to include two-way discussion in the reporting. We have an audience that can ask any question they like, and we answer. **We tell ourselves that every three months, we meet the public and must report on what we do.**” (Safety Inspector)

Most interviewees said that when making a decision, they imagined themselves in the position of reporting afterwards to the CLI, as a kind of “Generalized Other”. As shown in the

following interview extract, even the ASN's top management uses this "Generalized Other" metaphor for the CLI in their guidelines for safety inspectors.

"To give a very practical example, from a discussion I had today with our manager about the exemption from a decision on discharge by the Civaux plant. He said: 'To give you some guidance on the level of preparation and justification for this decision, **you need to think about what you'd say in a CLI meeting.**' So that was the level required for my explanation – what the CLI requires." (Safety Inspector)

This quotation shows how such a "Generalized Other" role has an impact on safety inspectors' way of thinking and acting. Furthermore, most of the documents they produce are publicly released (inspection letters, incident reports, and so on) and they must be carefully worded. Each decision they make will be influenced by the future obligation to report and explain it to the CLI, and communicate it to the wider public.

When local safety inspectors first start in the job, they already know that managing relations with the CLI and the accountability exercise will make up a large share of their work. Some of them choose this kind of job partly because of its communication aspect and consider it as a challenge, as explained by the following interviewee:

"But giving out public information is one of the ASN's jobs. When you take on this kind of position, you know you're going to have to handle the public; it's a significant share of the job. In my case it takes up a quarter to a third of my working time, it's far from negligible. That's something that attracted me, it's really rewarding. There are matters at stake, it's demanding." (Safety Inspector)

This person considers dealings with the “Generalized Other” as a positive task. But many other safety inspectors described how it forced them to make changes to several internal practices, as will now be shown. Some interviewees described how interactions with the CLI - and more generally the general trend of increasing transparency around nuclear activities - had repercussions on their actions:

“On the role the CLIs have in our decisions: there’s an underlying role of transparency, being open to society obviously changes the way we act, basically. This way of reporting, in public, regularly, to local officials, local residents, associations, clearly has an implicit influence on all the opinions we get. It plays a role that’s really important but not very easy to quantify.” (Safety Inspector)

More specifically, most interviewees described how frequent contacts with their CLI had practical impacts for their subordinates and themselves, especially on their communication techniques. For instance, they now need to give background information – points that were not mentioned before as the documents were intended for insiders who knew the context – and use different words, in order to be easier to understand for external actors.

“Besides, all the documents we prepare not only have to be public, but must be drawn up with that in mind. And that has an effect on your work: when we were writing a document that would only be read by the operator, we didn’t necessarily express things the same way as if we knew it would be read by the public.” (Safety Inspector)

Nuclear regulators were used to being in a role of control towards the operators, using specific vocabularies in their reporting of a problem, sometimes emphasizing the risk involved. Today, those same documents are public, and safety inspectors have to be careful to avoid alarming the public. Some interviewees also mentioned how they were adopting a new methodology for

communicating with the CLI and with the public in general. Most interviewees could think of an example of communication being misunderstood by a CLI. Such experiences force them to adopt a cautious approach to communication, choosing their words carefully.

“For example, in a response letter, I once let the word ‘twisted’ (for reactor equipment) go through in a report, and that got really strong reactions. What I should have done in my public information mission was replace ‘twisted’ by ‘slightly misshapen’. Because we got a lot of questions from civil society. Hence the importance of words in this public information mission.” (Safety Inspector)

Also, some interviewees mentioned the difficulty of being both comprehensible to a non-professional audience, and accurate. It is hard for them to adapt their engineer’s vocabulary; this is quite a technical task and requires a broad understanding of the situations under discussion, as explained by the following interviewee:

“It’s a specific job that needs special technical skills, it isn’t an engineer’s job. The first important thing is that it has to be accurate, and secondly it has to be clear. You have to summarize and cover everything. This exercise has to be based on a sound and extremely detailed understanding.” (Safety Inspector)

In order to manage relations with the CLI, safety inspectors are now being asked to apply new skills they did not need before. Recent generations of safety inspectors are used to this, but people who have been in the job for a long time needed progressively to learn how to manage CLIs. As noted in the following quotation, engineers need to acquire different skills than those needed for their technical mission. Employees who are often in contact with the public and managers are sent on media training.

“All the inspectors have had training in written communication, and the ASN spokespersons (all members of the hierarchy) are given media training.” (Safety Inspector)

ii. A “Generalized Other” putting pressure on operators

The “Generalized Other” can thus be perceived as a third stakeholder in nuclear safety governance, putting pressure on nuclear operators. Safety inspectors can sometimes turn this situation to their advantage: as they are no longer in a one-to-one confrontation with operators, they can adopt the position of an arbitrator, which they consider more comfortable, as the following comments indicate.

“In the 1980s, we already had the feeling that it was totally in the interests of safety not to be confined to confrontation or dialogue between the operator and the government (the ASN), and that it was entirely in the government’s interest to have a third partner involved, the public. Which puts it in a position as arbitrator rather than a position of pure confrontation with the operator.” (Safety Inspector)

Taking this idea a little further, the CLIs’ involvement gives nuclear regulators a stronger position in the balance of power, and this has an indirect benefit for the governance of nuclear safety: CLIs force nuclear operators to be more transparent.

“They’re also there to force the operator to be transparent: if there’s no CLI, there’s no force for opposition between the ASN and the operator. They’re there to create a power balance that we couldn’t create on our own.” (Safety Inspector)

The CLIs’ involvement - and also the general trend for more transparency regarding governance of nuclear activities – is an advantage for safety inspectors, as they can put pressure on

nuclear operators by threatening to reveal any misconduct. Several interviewees describe such threats as unspoken: they rarely tell the nuclear operators that weaknesses on certain aspects will be made public. Instead, they warn them that it will be impossible to withhold important facts from the CLI or the wider public, as explained by the following interviewee:

“At the CLI meetings we don’t hold anything back, so when I know the operator is deliberately going to keep something from the CLI I ask him to act responsibly and not hide anything because whatever happens, the ASN will be transparent in line with its duty (...) I told the operator ‘you should say this, even if the results aren’t good, because of your duty of transparency’. We make sure transparency is respected.” (Safety Inspector)

iii. The stimulus of the common-sense approach

The role of the “Generalized Other” can also be a stimulus for other nuclear actors, through the CLIs’ expertise, experience, and common-sense approach to the decisions presented to them. Some safety inspectors highlighted the CLIs’ common sense as a useful contribution, as shown in the following examples.

“We’ll have an engineer’s take on the safety standards, processes, etc. While they’ll take a much more systemic view both of human factors and the broader environment. **The common sense of Mr or Mrs Average.**” (Safety Inspector)

“The Gravelines CLI is really into investigation. They play the role of stimulus, which they call **the layman’s expertise.**” (Safety Inspector)

Sometimes, the CLI’s “layman’s” concerns have resulted in concrete measures, as in the following example when a floating containment wall was installed after the CLI raised concerns about the risk of an oil tanker crash close to the nuclear site’s water supply point.

“At Gravelines, the plant’s next to the sea with a big sea harbor where they draw water for the plant. Oil tankers, passenger ferries, etc pass close to the place where the water is drawn. The CLI had long been saying ‘the water’s drawn where lots of boats go by; imagine if there was a big boom and an oil slick, without prompt action that oil slick could clog up the filter drums and you’d have to shut down the reactors, etc. But there’s no plan!’ And we answered that in the event of an emergency, a floating barrage would be set up. The CLI wanted a permanent floating barrage. The ASN thought that wasn’t a bad idea, so the ASN asked the operator to conduct a study. And in the end, everyone thought it was a good idea and the barrage was installed.” (ANCCLI)

Temporality is a particularly interesting aspect in this example. The CLI demanded urgent measures, while safety inspectors and nuclear operators wanted more time to perform their studies. Finally, the CLI won and the floating containment wall was swiftly installed.

Some interviewees consider that this stimulus role relates to the CLIs’ ability to address a very broad spectrum of subjects. CLIs raise new ideas that sometimes the nuclear actors did not consider, which is also an additional contribution to safety.

“But it’s true that the **layman’s expertise** (which is what a CLI or public inquiry can give us) often takes a slightly different approach. They ask questions that neither our technical support teams nor the ASN thought about. And that’s because they bring a fresh angle, and it’s useful! Because the CLIs can have members with genuine technical competence, and can also draw on external competences (in fact they have funding to do so).” (Safety Inspector)

As the “Generalized Other” is firmly anchored in a spatial and social context, it is the voice of a social group located in a specific territory, and CLIs are able to express specific contextual

concerns. They thus play a contextualizing role. For instance, in the following interview extract, the interviewee explains that after a warning from the CLI, safety inspectors agreed to add a new testing point at a water catchment area for farmland.

At Site Y, the CLI realized that not far from a discharge by the plant was one of the points where water was collected to irrigate farms, so they wanted to add sampling points in that location. That's a clear, practical example of the local population asking for something. And we agreed." (Safety Inspector)

In the following example, the interviewee explains that thanks to one CLI, the ASN studied the potential impact of large-scale underground roadworks on the safety of a specific installation. Until the CLI raised the question, the inspectors did not even consider that those roadworks could be a problem, since as mentioned by the interviewee, they tend to decontextualize the nuclear sites when performing their inspections:

"X is an irradiator in Town A, and it so happens that there are roadworks at the moment on the road, which runs close to the plant. When all the administrative discussions to assess the risks associated with the project took place, the ASN hadn't been put in the loop and the CLI sent us a question about that risk. And we realized that we'd never considered that question. Yet the work going on is large-scale and involves the use of explosives. [...] The CLIs have an overview of what's going on in the area around the plants, while we get disconnected from the site's environment, and that can have consequences. [...] Now it's a point we always look at." (Safety Inspector)

CLIs play a stimulus role, reminding safety inspectors not to ignore environmental subjects that are sometimes skimmed over:

“There’s a tendency at the ASN to not consider environmental subjects crucial for nuclear safety. But when there aren’t any accidents at a plant, the environment is generally the topic of discussion. The CLIs ask questions about discharges by the plants and thanks to them we think about issues we might forget about over time.” (Safety Inspector)

Such a stimulus role means that CLIs are able to question aspects of the nuclear actors’ work, for example their communication methods, leading to improvements in some internal processes.

“More generally, I see the CLI more as a stimulus, that often leads us to question whether we’re communicating properly.” (Safety Inspector)

CLIs can raise important points about the efficiency of nuclear regulators’ communication campaigns: as they are closer to the population, they are quicker to realize what actually works in practice.

“What we want the CLIs to do is raise questions about certain subjects, both related and unrelated to their territory. After the Socrati incident for example, we paid close attention to what the CLI told us: we thought we’d been very transparent and accessible and we realized that wasn’t the case at all. We revised the PPI (emergency plan) and ran a whole communication campaign in the Rhone Valley area to reach out to residents in a more personal way.” (Nuclear operator employee)

CLIs constitute an additional level of obligation for nuclear regulators, who must now consider that there is always a third partner looking at their decisions, with specific knowledge and the capacity to question their work. This “third eye” is an additional guarantee of safety, because

the nuclear operators and regulators know that they are constantly under scrutiny. The CLIs, with their closer connections to society at large, prevent operators and regulators from operating in a closed circuit, and promote additional vigilance. As a result, the safety inspectors generally recognize that CLIs tend to enhance nuclear safety.

“The essential risk in a procedure, both for the operator and the inspector, is being in a closed circuit, because there comes a point where there are things you stop keeping an eye on. Looking at a certain number of accidents, you realize that in fact there were people who failed to spot something, and there was no outside observer. The fact of having an outside observer, and the fact of knowing there’s an outside observer (and thinking “oooh did we really check everything and is anybody going to come and bother us about such-and-such a point”), that’s always really positive.” (Safety Inspector)

In some other cases, the interviewees qualified the CLI’s demands: the following interviewee’s comments show that safety inspectors responded to a CLI’s request, but using a solution they judged more appropriate.

“The Site Z CLI likes to keep coming back to a certain number of old chestnuts, especially stuff about fishing, or flooding on the road to the plant. The CLI regularly asks for something to be done about those things. The road would need to be raised by a meter. However, the ASN has asked the operator to have its crisis teams on standby once there are a certain number of flood risk factors. We think that’s an effective response to that.” (Safety Inspector)

iv. An informer of the public

Finally, within this “Generalized Other” role, safety inspectors also see CLIs as informers of the public: this is one of a CLI's primary missions (they have a public website, publish a brochure, and organize public meetings, in order to better inform the population about nuclear activities and risks). As CLI members emanate from civil society and include elected officials, they are likely to be in a good position to communicate with the public. Moreover, the media generally attend CLI meetings and take an interest in their activities, and media coverage has a great impact on the public, both locally and nationally, when something happens. This view of the CLI as the informer of the public is particularly relevant for safety inspectors, as informing the wider public is also one of their own missions. CLIs are in this sense a link in the inspectors’ communication chain.

This communication role also works in the other direction. When CLIs are firmly anchored in their social context and remain in tune with their public at all times, they are better able to understand and collect the public's concerns and queries. In this case, the CLI is fulfilling its translation role, passing on civil society’s demands and questions to nuclear actors.

v. Summary

As shown in the previous section, the CLI’s “Generalized Other” role is not only an abstraction with insignificant practical consequences, but a meaningful role in the governance of nuclear safety. It is the core of the CLI’s democratic function, which is crucial. As the voice of civil society, the “Generalized Other” has certain expectations and standpoints: it is a powerful concept as, being generalized, its expectations can concern any subject. This enables CLIs to put pressure on nuclear actors and impact safety inspectors’ practices. But the CLIs can only fully play

all the roles identified – a body to which safety inspectors are accountable, putting pressure on nuclear actors, being the voice of common sense, the translator of information for the public, and the collector of the public’s demands and questions - on condition it remains in tune with civil society at all times.

Whenever a CLI loses its connection with civil society, it is no longer legitimate in asking other nuclear stakeholders for explanations or putting pressure on them. It is only when CLIs genuinely represent civil society that nuclear actors consider them a force to be reckoned with. Moreover, a CLI’s common-sense approach is favored by the bonds it is able to build with civil society: when CLIs remain attentive to civil society’s concerns, they are better able to play their stimulus role and offer novel, creative ideas about nuclear safety.

Although sometimes quite similar, the "Generalized Other" role differs from the civil-society second opinion role as its contribution stems not from specific expertise, but rather from a “layman’s” reaction that is favored by its link with the public. The next section explores the compatibility between these two roles.

IV.3. The potential contradictions of this sensemaking process

The analysis brought out three different roles that safety inspectors attribute to CLIs in the governance of nuclear safety (the CLI as a forum for contact with civil society; the CLI as a provider of a second opinion from civil society; the CLI as a “Generalized Other”) through a process of individual and collective sensemaking. In the next section, the potential contradictions and limitations of this sensemaking process will be discussed. The analysis will focus on the CLI’s two main roles, as second opinion provider and “Generalized Other”.

IV.3.1. A “civil-society expert” capable of providing a second opinion?

It was shown in the previous section that safety inspectors are prepared to acknowledge that CLIs have genuine expertise, and classify them as providers of second opinions. However, the inspectors have a noteworthy tendency to concentrate on CLI skills and areas of expertise that do not interfere with their own traditional technical mission. They seem to fear that CLI expertise could threaten their own expertise and their role as controllers of nuclear safety. They therefore tend to limit acknowledgement of CLI expertise to specific subjects (fauna and flora, communication policies, problems affecting local residents, etc). These issues are generally not considered crucial for nuclear safety, making it easier for safety inspectors to admit that a CLI raised a point they had overlooked. Such points seem to be considered “wellbeing” concerns, of secondary importance.

In the interviews, the inspectors often wondered aloud whether CLIs can really play the “second opinion provider” role, covering all subjects related to nuclear safety, and in many cases their answer was negative. For instance, according to the following interviewee, CLIs find it difficult to comprehend processes on the nuclear sites and are better at tackling environmental subjects:

“On safety, we’ve still got the IRSN, and there are very few matters that escape our attention and are pulled out the hat of the ordinary citizen’s expertise. CLIs are better at engaging with environmental subjects (because it’s easier) than going into detail on processes: that’s a big step up and calls for complex expertise.” (Safety Inspector)

“Last year at Golfech, I thought the CLI’s work was good in terms of technical quality, but **I didn’t feel I’d really learned anything.**” (Safety Inspector)

Even when safety inspectors concede that CLIs can produce sound studies, they rarely admit to learning anything about technical subjects from those studies. Most interviewees said that the CLI's concerns were taken into account, resulting in a new point added to the inspector's report. Yet it was observed by the author that the points raised by CLIs did not seem crucial for nuclear safety. They mainly concerned minor adjustments, and were considered as such by the safety inspectors. This was also confirmed by the author's observations in the field⁵⁹ when studying the incident reporting process for communication to the CLIs.

In fact, safety inspectors rarely consider the CLIs' potential contribution to broader issues. In their view, on more crucial subjects for nuclear safety, the CLIs should remain in the position of an observer and receiver of information rather than acting as a provider of second opinions. They confine CLIs to a limited role as an information channel, giving little credit to their capacity to have a competent voice on nuclear safety: the CLIs are simply there to pass on information that has been provided to them, as shown by the following interview extract:

“We try to encourage giving information to the CLIs so that the CLIs can **digest the information and pass it on**. That's also a way of spreading our information through the CLI: it may be beneficial for decision-making.” (Safety inspector)

In the following quotation, the interviewee differentiates between practical safety and technical safety, as if trying to downplay the nuclear safety impact of the CLI white paper on the Fukushima accident. As a consequence, he talks of “purely technical” safety as the ultimate monopoly and “holy grail” of inspectors. The author observed that it is never easy for employees

⁵⁹ In the second chapter of this dissertation, the author shows that when nuclear operators report on incidents to the CLI, they skim over the analysis of the incident, partly because they doubt that the CLI has the technical skills necessary to understand it. Safety inspectors rarely intervene to give the CLI more information. The CLI thus has very little information enabling it to grasp the situation fully.

working on technical issues, in the domain of nuclear safety, to recognize that the public (for example CLIs) can improve nuclear safety in some way.. They may feel that their own position as experts could be questioned if the CLIs succeeded in improving nuclear safety by identifying new issues.

“The Nord-Cotentin CLIs, for instance, issued a post-Fukushima white paper. I think that paper achieved progress at macroscopic level, because the issues were made clearer for civil society, I mean there were safety improvements in practice, but not from a purely technical point of view. It made matters more concrete and supported the ASN’s work.” (Safety Inspector)

Several interviewees even claimed that CLI comments are sometimes totally irrelevant from a strictly technical angle, because of the lack of technical expertise:

“And whenever there’s a change of member, I have to explain it all over again. In fact CLI meetings can be quite bizarre: people are asking questions but you realize they haven’t really got a clue, because they ask the same questions later. [...] **I think CLIs are incapable of capitalizing on their knowledge: they forget this year the stuff that was discussed last year.**” (Safety Inspector)

“I can’t honestly say that on very technical topics the opinion issued by the CLI was decisive [...]” (Safety Inspector)

“I don’t feel I’ve ever made a decision I wouldn’t have made if the CLI didn’t exist.”
(Safety Inspector)

The lack of technical skills can lead CLIs to bad methodologies:

“At Site X, they tried to bring out different topics from ours. They scratch a lot of surface but they can’t tell the difference between what’s important and what’s less important: there isn’t much substance to their subjects. They don’t have the knowledge for that, or the analytical ability. The CLI’s designated contact never goes into technical stuff, even after 10 years: he doesn’t get it.” (Safety Inspector)

Some safety inspectors have no hesitation over voicing doubts and disappointments concerning CLIs, considering that they are not worth the time devoted to them, and that they obstruct the inspectors’ mission of ensuring nuclear safety.

“The CLI meetings take time, and from a managerial angle it’s difficult to explain why we spend so much time on CLIs. Our staff find it rather hard to understand.” (Safety Inspector)

[Involving CLIs in the governance of nuclear safety] is presented to me as my mission - **I don’t know if I understand that, but I can accept it.** I can see that it’s important but sometimes CLI meetings are a bit disappointing, they don’t live up to our own efforts, or match the ambition for CLIs as presented when you explain the CLI system to an outsider.” (Safety Inspector)

Another limitation of CLIs evoked by safety inspectors is that CLIs are sometimes biased and this makes discussing matters with them difficult. It was observed in the field that some CLI members systematically want to address certain subjects from their specific area of expertise, and this can be detrimental to the inquiries conducted in the CLI⁶⁰. Some of the interviews then

⁶⁰ Please refer to the second chapter of this dissertation for further details.

confirmed that this was quite a common tendency in several CLIs, as shown in the following interview extract.

“We’ve got a former expert in the CLI who presents himself as an expert and thinks he knows everything, but he has a specialist subject and at every meeting he asks questions about it, it’s getting to be an obsession [...] In his case it’s all about blowing his own trumpet.” (Safety Inspector)

The ASN could turn such “obsessive CLI members” into an advantage for nuclear safety governance: members’ specific expertise could help other CLIs, for instance through the CLIs’ national association (ANCCLI), if correctly assessed and assisted by ASN inspectors.

To summarize, safety inspectors tend to restrict the CLIs’ role to that of an observer that is unable to comprehend the complexity of nuclear safety, or that of a provider of second opinions on very specific topics of local relevance.

IV.3.2. Compatibility between the CLIs’ roles

It would appear difficult to be a “Generalized Other” without being a provider of civil-society second opinions, and vice versa. Can the roles of understanding, informing, questioning, and inquiring really be separated? For instance, in order to be credible as a “Generalized Other”, a CLI needs to have a certain level of expertise. Otherwise, the nuclear operators would consider the CLI as totally maneuverable and it would no longer be able to be a challenging body. Furthermore, when a CLI loses its ability to represent the voice of civil society, which is precisely its “Generalized Other” role, it is at risk of losing its legitimacy to pursue specific expertise in the nuclear safety debate, and may lose its role as a source of second opinions from civil society.

Yet when the CLIs position themselves as providers of second opinions, it may seem hard for them to be simultaneously the voice of the public. CLIs play their role fully when they ask naïve, common-sense questions, bringing novel insights to the nuclear safety debate. The question arises of whether CLIs can still ask such questions once they are positioned as even laymen-experts: are the “Generalized Other” and “provider of second opinion” roles compatible in practice? The civil-society actor giving a second opinion responds to technical expertise and aims to understand the global nuclear safety process from an “insider” standpoint, while the “Generalized Other” raises common-sense, “naïve” questions closely related to the preoccupations of civil society. The main difficulty lies in the necessity for the CLI to master both languages: the language of expert knowledge as well as the language of naïve common sense: this is a demanding exercise, and not always feasible.

Taking this line of reasoning further, another question is whether it is really the CLI’s role to provide second opinions and become specialists on technical issues. Although this happens, it can be a deviation from the core role of looking at nuclear matters from the layman’s angle. In the second chapter of this dissertation, it was shown that when some CLI members are specialized in a specific subject, they tend to stick strictly to their own field of expertise. Such specialization is detrimental to the CLI’s mission: members’ specialist understanding of subjects can blunt the CLI’s common sense reaction - something that no other actor can contribute. Over-specialization could lead CLIs to decontextualize their contribution, yet focusing attention on contextual factors potentially overlooked by the nuclear specialists is precisely one of their major strengths.

V. Discussion: are Safety Inspectors willing to accept CLIs as a Stakeholder in Nuclear Safety Governance?

In this chapter, the process by which safety inspectors make sense of CLIs was examined in depth. In the results section, the author successively analyzed the roots of the existing ambiguous, uncertain situation (Part I); the safety inspectors' categorization of the CLIs' roles, identifying three specific roles (Part II) and the potential contradictions and limitations of this sensemaking process (Part III). Safety inspectors work in the field. They hold the power to ensure that nuclear operators communicate the relevant information to CLIs, and that CLIs become partners in nuclear safety governance⁶¹. It was thus relevant to analyze the inspectors' sensemaking process and understand how they make sense of CLIs' roles in the governance of nuclear safety, and what roles the CLIs can in fact play.

Safety inspectors tend to classify the CLI's roles into three categories: 1- the CLI as a forum for contact with civil society; 2- the CLI as a provider of second opinions from civil society; 3- the CLI as a "Generalized Other". This chapter shows that even when safety inspectors understand CLIs as second opinion providers, they minimize the CLI's potential contributions to the specific nuclear safety debate. Safety inspectors' initiatives to involve CLIs in the safety debate seem to be primarily organizational responses to laws and regulations, rather than reflecting a genuine shared concern for CLI involvement. Most of the interviewees accept that they must comply with the legislation requiring greater CLI participation, but remain unconvinced of its relevance.

⁶¹ In her study of the incident reporting process, the author showed that safety inspectors are in a position to empower CLIs and give them a significant role in the governance of nuclear safety (by emphasizing certain facts to the CLI when they judged it necessary). Please refer to the second chapter of this dissertation for further details.

This chapter shows that unresolved tensions remain between the safety inspectors' professional identity and the obligation to involve CLIs in nuclear safety governance. It was mentioned in several interviews that the public expert body in nuclear and radiological risks (IRSN) and the nuclear safety authority (ASN) have sufficient technical expertise and there is no need for a third expert. The nuclear regulators seem unwilling to let CLIs interfere with their control power. Safety inspectors feel that CLIs should remain in an observer's position, and consider the roles of the CLIs, the nuclear operators and the safety inspectors as totally distinct. These statements were confirmed by the author's observations in the field and her review of archival data: safety inspectors are having difficulties moving from regulation-based control of nuclear safety to democratic (or multi-stakeholder) governance of nuclear safety.

According to safety inspectors, CLIs lack the technical skills and methodology necessary to make significant contributions to the nuclear safety debate. But this could be a criticism of their own organization. The ASN (the inspectors' employer) contributes to a great extent to CLIs' financing and functioning. When the ASN does not provide CLIs with the right methodological and technological support, it is responsible for their deficiencies. Since it is the nuclear regulators that manage the CLIs, it should be their duty to ensure that the CLIs have adequate skills and methodologies to perform their mission, and if not, to help them to acquire them. The discussion and conception of adequate governance methods should involve all nuclear actors. It is nonetheless important to note that facilitating the CLIs' role as a second opinion provider is quite challenging for safety inspectors, and would have important repercussions for the whole nuclear landscape. It will also need considerable financial resources if the CLI is to call in external expert assistance in order to lead robust investigations.

The ASN is responsible for regulating and controlling the safety of nuclear activities in all of France. It was noted by the author that the safety inspectors tend to consider that they must keep abreast of every matter regarding nuclear safety and that it is impossible for a CLI to make a significant contribution to nuclear safety, because that could mean the inspectors are inefficient controllers. Furthermore, during both observation phases and interviews, the author noted that safety inspectors do not necessarily want to engage in genuine dialogue with CLI. This was particularly noticeable when safety inspectors were reporting incidents to a CLI⁶². The safety inspectors seem to find it very hard to escape from their traditional framework, which leads them to consider that the only proper contribution CLIs can make is to repeat “parrot-fashion” what the safety inspectors have told them. The concept of dialogism - i.e. debates between several specific and independent voices - is rejected by most of the interviewees. Safety inspectors generally dismiss the CLI's contributions. Yet is it not precisely when CLIs do not unquestioningly share the traditional experts' standpoints that they are particularly useful? Is not the point of a CLI to challenge the existing nuclear actors, by bringing novel ideas and voicing disagreements as an independent or alternative voice?

Involving CLIs in matters of nuclear safety is a total paradigm shift, to a governance perspective instead of a control perspective. In a governance perspective – in other words in a coordination-of-safety perspective - no single actor is in control of everything, and anyone can contribute valuable information. In this approach, everybody is considered as a participant and nobody is undervalued: the naïve common sense of civil society can be considered as a form of expertise. Going further, a dialogical relationship could be established between all nuclear actors. If this is achieved, both nuclear regulators and other nuclear actors will find themselves exposed to

⁶² Please refer to the second chapter of this dissertation for further information.

the risk that the CLI might disagree with them, and perhaps bring them to change in some way. Dialogue with CLIs contains the potential for a consensus to emerge, but there is also the potential for a “dissensus”. Finally, in a dialogical relationship, each actor needs to retain some humility, and no actor should be privileged and considered as “possessing the truth”.

This chapter offers an important empirical contribution for organizations operating in a multi-stakeholder context: it highlights that the type of relationship between different nuclear actors needs to be sufficiently thought out at macro-level before changes can be imposed at micro-level. It explores the practical integration (or rather reinforcement) of a stakeholder in a particular governance situation. The chapter also pinpoints the bureaucratic limits of implementing an institution that is meant to represent civil society’s voice, without questioning its concrete operationalization. All actors in a particular governance model need to think about which tools and instruments would enable a dialogical relationship between civil society (or another particular stakeholder) and other actors. Establishing such a dialogical relationship between nuclear actors is challenging in practice, and also profoundly changes the roles and identities of these actors.

In the multi-stakeholder context where most High-Reliability Organizations (HRO) operate, this research raises an important question: is the involvement of civil society in the governance of HROs feasible in practice? There seems to be a certain tension between institutional sensemaking at a national and international scale, and sensemaking in the field: the discourses and actions are different. The case studied appears to indicate that the traditional model of nuclear safety governance (the predominantly professional, regulatory control that nuclear regulators embody here) is difficult to combine with the multi-stakeholder governance model (a more dialogical practice of governance actively involving the public). These two different views of governance conflict with each other. The need has been highlighted, especially with recent

legislation, for a redefinition of each stakeholder's role across the whole nuclear landscape. It was shown that this ambiguity in roles comes from especially ambiguous political “doublespeak”: the 2015 Transition Energy Law gave CLIs greater investigation powers, without examining the practical feasibility of this move (what processes? what tools?), leading to misunderstandings between the different actors.

This chapter also makes important theoretical contributions: it extends knowledge of the sensemaking processes of actors confronted with different views of control at institutional and organizational levels. Firstly, it investigates how a control view of nuclear safety can in fact cohabit with a multi-stakeholder approach. Secondly, the paper presents a case study of actors who need to restore meaning after a change of paradigm that led to ambiguity in their roles and identities. The chapter dissects the process of individual and collective sensemaking in a context where contradictory political discourses coexist. Finally, the chapter mobilizes two different views of the CLIs' role that fall within the Dewey-Lippmann debate of almost a century ago⁶³ on the role of civil society in democracy. Dewey (1925) would favor the “Generalized Other” view of CLIs and their ability to conduct investigations based on their commonsensical, “naïve” approach. Lippmann (1927) would rather favor the “civil-society second opinion” view of CLIs and their ability to become specialized in specific subjects. In this view, the CLI would inform the broader public of the matters discussed only when the “official” experts considered it necessary. The chapter establishes that although it is challenging for CLIs, they are all the more useful in the governance of nuclear safety when they are able to play both the roles of “provider of second opinions” and “Generalized Other”.

⁶³ For more details on this debate, please refer to the first chapter of this dissertation.

Several areas of this chapter could still be developed further. One particular question that could be addressed in future research is: to what extent does the safety inspectors' sensemaking process lead to action? It could be investigated how the categorization process corresponds to concrete actions by actors in the field: for instance, when safety inspectors make sense of a CLI as beneficial for their mission, do they do anything to facilitate CLI involvement in the governance of nuclear safety? Or on the contrary, when safety inspectors consider that CLIs provide no benefit, or worse are an obstacle to fulfillment of their mission, do they do anything to inhibit their participation?

VI. Conclusion

In this chapter, a sensemaking perspective was adopted to understand how safety inspectors make sense of the CLIs' role in the governance of nuclear safety, beyond political discourses and regulations. This led to an in-depth understanding of the micro-dynamics of CLIs' increasing involvement in nuclear safety governance. After a paradigm shift, there can be no change in practice and no organizational change without individual and collective sensemaking. Since the actors' sensemaking enables or constrains identity and action (Weick et al. 2005), this chapter argues that a triangular relationship exists between organizational change, change in practice and sensemaking by the actors. Opening up the governance of nuclear safety to civil society is a radical change in paradigm that has intensified these past few years in France with successive new legislation. This process of greater openness to society was accentuated after the Fukushima accident, through the 2015 Energy Transition Law. But despite the changes in political discourses and regulations, civil society actors are still complaining of a lack of access to information and a lack of regard from nuclear actors. What happens in practice was one of the main topics of this

chapter, which investigates how the political discourse of openness to civil society is actually understood by actors in the field.

This chapter examines the compatibility between two views of governance: control versus multi-stakeholder governance. It shows that there is a conflict between two different views of control of nuclear safety: the institutional control model and the model of democratic control - or coordination - by civil society. Neither nuclear regulators nor operators and CLI have a historical experience of an in-depth dialog about safety, open to the public. They still tend to refer to a model of “pure” information. Until this conflict can be resolved, the different actors will remain frustrated and the situation ambiguous. It is also observed that beyond laws and political discourses, the role of CLIs and their operationalization have not been sufficiently thought through. This highlights the bureaucratic limits of introducing an institution meant to represent civil society without giving due consideration to its concrete operationalization (tools, processes, redefinition of roles of each actor, etc).

Finally, the chapter establishes that nuclear regulators rarely recognize that CLIs can make valuable contributions to the safety debate, other than on so-called “non-technical” subjects. Safety inspectors are generally dismissive of the naïve common-sense concerns of CLIs and their ability to provide second opinions from civil society. Yet this chapter has shown that even when CLIs are not specialized in technical subjects, they have other skills that are important for the governance of nuclear safety. A CLI's contributions encompass not only the traditional technical expertise needed to comprehend complex subjects relating to nuclear activities, but also a civil-society expertise, which includes extensive knowledge of environmental and contextual factors but also a kind of naïve common sense.

In conclusion, CLIs could be bodies that have a good enough understanding of subjects to play the role of both a “Generalized Other” representing the voice of civil society, and an expert second opinion provider able to discuss complex subjects of concern. CLIs could achieve this by obtaining alternative expert assessments, possibly from other countries, enabling them to undertake investigations that are both commonsensical and technical. This dual nature would make investigations led by CLIs all the richer and more useful for nuclear safety governance. The technical aspect would reinforce the investigation’s legitimacy in the eyes of nuclear actors, and their common-sense “layman’s view” aspect would contribute a different view of nuclear issues to the safety debate, potentially leading to more creative contemplation of the issues and situations at stake. However, mobilizing both of these aspects in their investigations is challenging for CLIs, requiring a certain humility and a conception of themselves as a spokesperson rather than an “insider”. It would also need CLIs to maintain their link with civil society at all times. Finally, it means that CLIs must not fall into the trap of over-specialization, which could be detrimental to their mission.

CONCLUSION - TOWARDS STAKEHOLDER GOVERNANCE OF NUCLEAR SAFETY IN FRANCE?

This dissertation advances understanding of involvement of the public in the safety governance of highly complex activities that could impact large sections of the population. It presents an in-depth longitudinal case from the French nuclear sector, and proposes a pragmatist framework to study the construction and maintenance of the public over time. The author analyzes the circumstances in which the people potentially impacted by nuclear activities can become active participants in the governance of such high-risk industries, and how they can organize themselves and build a common voice. The field research took place in the nuclear industry, considering the process of constructing a public through a case study of the CLIs⁶⁴ in the Nord-Cotentin area of North-West France. The dissertation explores the role played by CLIs and the challenges they face over time. It also examines whether other nuclear stakeholders, in particular the nuclear regulators (ASN and IRSN), are willing to let CLIs play a role in the governance of nuclear safety.

This conclusive section aims at answering the dissertation's research questions and commenting on its theoretical, empirical and managerial contributions.

I. Answers to the Research Questions

The three chapters of this dissertation set out to understand what role the public plays in the governance of nuclear safety. Each chapter focuses on specific theoretical and practical issues to seek answers to the following questions:

⁶⁴ CLIs or "Local Information Commissions" are institutionalized groups of civil society actors that were set up in the early 1980s in France for civil nuclear sites. They were initially intended to involve civil society actors in the governance of nuclear safety and have acquired more power over time, constituting an established stakeholder in the governance of nuclear safety. The 2006 Nuclear Transparency Law requires a CLI for each civil nuclear site in France and defines its mission as monitoring, informing and discussing nuclear safety.

1. Chapter 1: How does a concerned social group construct and maintain itself as a public, in order to voice its opinion and play a role in the governance of nuclear safety?
2. Chapter 2: How is accountability practiced within the Nord-Cotentin CLI?
3. Chapter 3: How does reinforcement of the public's participation, through the CLIs, in the governance of nuclear safety have a concrete impact on the control activity performed by regulation-based controlling institutions and the professional identity of their members?

The first chapter examines the process of constructing a public and explores the limits of this construction process: it focuses especially on the difficulties of maintaining the public constructed in the long run. The analysis points to the actors' responsibility to become structured participants in debates. It also identifies a need to create such a setting for interaction, and highlights the importance of Follett, Lippmann and Dewey's contributions to studying its organization. The chapter argues that Follett's neighborhood groups, Lippmann's involvement of experts and Dewey's inquiry logic are complementary solutions in constructing the public as a strong entity, and ultimately those three dimensions enable us to understand *how a social group that is concerned in practice by a given question becomes a social group that is formally organized and able to express itself*.

The case study presented in this chapter shows that the circumstances were right in the late 1970s in Nord-Cotentin for creation of a committed community, able to express itself and become a relevant participant in a highly complex debate. It is shown that the Nord-Cotentin CLI members were not just the nuclear sites' "angry neighbors": over several decades and in response to major events (Chernobyl, institutionalization of the CLIs, Fukushima, etc.), they have succeeded in building a strong community with real skills, able to play an important role in the governance of

nuclear safety. It is also shown that this construction process loses its power whenever the public loses its capacity to generate communities of inquiry. All decisions and measures that are presented to CLIs need to be constantly questioned, and kept in a state of perpetual evolution through dialogue with the different stakeholders. Only through such an ongoing dialogical process of inquiry can the stakeholders construct and maintain themselves as “a public”. In other words, the CLI must keep its ability to be, or to give birth to, communities of inquiry as presented by Dewey. Within such communities, stakeholders can debate and develop new views and action possibilities about safety, and are able to make sense of a situation through constant interactions and the use of common languages and artefacts.

The second chapter explores an accountability process in action at the Nord-Cotentin CLI, focusing on the role played by incident reporting in the development of a community of inquiry to investigate the safety of nuclear activities. Actors in the French nuclear sector appear to share a desire to increase accountability to the public, and particularly to develop greater involvement by the public in the governance of nuclear activities: this has resulted in the institutionalization of CLIs in France, and more recent reinforcement of their powers. One indication of these aims is the fact that operators are now obliged to share incident feedback with CLI members. But incident reports should enable CLIs to conduct their own inquiries, which are necessary to grasp the problems at stake and play the role of an “informed” public. Building on the results of an empirical study conducted within the Nord-Cotentin CLI, it is demonstrated that the process used for reporting on incidents certainly triggers the dynamic of inquiry, but ultimately hampers inquiries and adversely affects the likelihood of a successful conclusion. CLI members fail to turn a “one-way” communicational process into a truly dialogical inquiry. Designing a process that provides members with a detailed account of the situation and underpins a kind of “constant vigilance” on

incident feedback might help this group of people to continue to play their role as a community of inquiry. The chapter concludes that when groups such as CLIs lose their capacity to carry out successful inquiries, they are in great danger of losing their link with the public.

The third chapter examines the compatibility between two views of governance: administrative or regulatory control versus multi-stakeholder or dialogical governance of nuclear safety. It shows that there is a conflict between these two views, and until this conflict is resolved, the different actors will remain frustrated and the situation ambiguous. This chapter adopts a sensemaking perspective to understand how, beyond political discourses and regulations, safety inspectors make sense of the CLIs' role in the governance of nuclear safety and how the political discourse of greater openness to the public is itself understood by actors in the field. This perspective provides in-depth understanding of the micro-dynamics of CLIs' growing involvement in nuclear safety governance. The analysis concludes that without individual and collective sensemaking following a change in paradigm, there will be no change in practice and no organizational change. Encouraging public involvement in nuclear safety governance is a radical change of paradigm that has intensified in the past few years in France with the introduction of several new regulations. Public involvement and transparency were stepped up after the Fukushima accident and with the 2015 Energy Transition Law. But despite the shift in political discourses and regulations, civil society actors are still complaining of a lack of access to information and lack of consideration from nuclear actors.

The third chapter establishes neither nuclear regulators nor operators and CLI have a historical experience of an in-depth dialog about safety, open to the public. They still tend to refer to a model of "pure" information. Nuclear regulators are finding it difficult to accept that CLIs can make valuable contributions to the safety debate, other than on very specific subjects regarding

protection of the local population and environment. The “layman’s” common-sense concerns of CLIs, and their ability to play the role of a civil-society provider of second opinions, is not considered as crucial as the technical expertise of safety inspectors. Most regulatory controllers do not accept that CLIs might have a different “take” on matters considered as “technical” and could trigger new ideas. Yet these are prerequisites if the CLIs are to become an active stakeholder in the governance of nuclear safety.

II. Contributions of the Dissertation

This section summarizes the contributions of this dissertation, which are twofold: theoretical and practical.

II. 1. Theoretical contributions

II.1.1. The concept of the “public”

From a theoretical perspective, this dissertation sets out to clarify the concept of the public, potentially making useful contributions to Organizational Theories at large, particularly those dealing with stakeholders or governance. It adds precision to the concept of “the public”, and its construction, consolidation and maintenance phases. This fills some of the gaps in the organizational literature, as most scholars have not really addressed the process of constructing the public.

The *public*, as defined in this dissertation, has an active, dynamic status: the public of the nuclear industry is made up of groups of people concerned by nuclear safety, who organize themselves so as to voice their opinion and who progress, through continuous inquiries, in their active understanding of nuclear issues. The dissertation analyses the different challenges such a

public may encounter. The whole process of construction and development of the public comes to a halt if the capacity to inquire weakens or disappears.

I.1.2. A processual view of stakeholder theory

A significant amount of management research (for example the literature drawing on stakeholder theory) concerns issues of collective governance, raising the following question: *how can a specific social group take part in making decisions that are likely to impact its interests, and how can it monitor their implementation and consequences* (Freeman, 1984; Hosseini and Brenner 1992; Freeman, 1994; Mitchell, Agle and Wood, 1997)? While such management theories implicitly use the notion of the *public*, they take the existence of that public for granted, and rarely pay attention to its construction process. Yet it cannot be assumed that the public for a specific class of decisions exists automatically. To exist as a relevant stakeholder group, the public must be constructed and governed. Moreover, to take into account the social context of action and the contingencies of each particular situation, the concept of the stakeholder should be considered in a dynamic perspective – more as a “stakeholding” process than a “stakeholder” entity - and focus on the process of public’s construction and transformation in real-life governance situations. This approach would also make it easier to give greater consideration to inter-stakeholder relationships.

II.1.3. A processual view of accountability theory

In the light of pragmatism, particularly Dewey’s concepts of inquiry and public, the accountability issue is less a matter of true and faithful representations than a matter of continuous stakeholders’ inquiry: how do stakeholders collectively grasp a subject and make it intelligible and debatable? The dissertation argues that one major weakness of the “accountability” concept is that scholars usually assume that accountability ends once the account is given. Yet accountability does

not consist of static disclosures: the dissertation shows that the account only exists once the accountees have co-constructed it through exploration and comprehension processes. Accountability as a process needs stakeholders to understand what is reported to them (the “account”), which means that they must participate in the elaboration of this account, as a community of inquirers. The major question about accountability thus becomes: how far do the stakeholders actually understand and grasp the report (account) presented to them?

II.1.4. Methodological contributions

This dissertation makes two main methodological contributions. Firstly, it provides an in-depth longitudinal study of the Nord-Cotentin CLI, thus contributing to the development of field studies in a particular context where data are difficult to obtain. Secondly, the dissertation contributes to the development of research methods based on pragmatism. The author adopted an approach using the pragmatist concept of inquiry (Dewey, 1938; Lorino, Tricard and Clot, 2011) with the intertwined use of narrative thought, logical reasoning and experimental action to make sense of situations and transform them (Lorino, 2013). She consciously sought to set up an ongoing dialogue between actors, taking their differences into consideration to nurture the inquiry. Experimentation was a key feature of the researcher’s inquiry: the author could test some of her hypotheses on the incident reports with IRSN experts, and collect their thoughts about them. Such experimentation was combined with narrative hypotheses and logical reasoning, leading to new practical suggestions and new concepts (Lorino et al., 2011). In the preliminary phases of the inquiry, when looking for some “working hypotheses”, an abductive mode of reasoning helped the researcher to develop explanations for new or unusual events. She could then submit them to actors in the field for confirmation or rejection. Narratives, mobilizing counterfactual reasoning, rival plausible hypotheses and absurd reasoning were among the techniques used.

II.2. Practical contributions

II.2.1. Stakeholder governance

Lozano (2005) proposes that corporations today should be more relational, in the sense that they should see themselves not only as managers but as builders of stakeholder relations. It is argued in this dissertation that while organizations have a responsibility to foster productive discussions between their stakeholders, and thus to “build” stakeholder relations, the stakeholders also have a responsibility to organize themselves as active participants, able to lead felicitous⁶⁵ inquiries (Lorino, 2013). Such communities of inquiry could benefit both sides. Firstly, since greater public involvement and awareness should raise the level of society’s expectations, the organization would be driven to be more effective. This is particularly important in the case of high-risk organizations. Secondly, when various stakeholders organize themselves into a structured public, their voices are more likely to be heard and taken into consideration.

II.2.2. Opening high-risk sectors’ governance to civil society actors

In France, the State, nuclear regulators (ASN and IRSN) and most NGOs postulate that involving civil society actors in the nuclear safety debate should be a key factor for the improvement of nuclear safety: a public with greater awareness of the particular stakes is bound to contribute to safety enhancements. The dissertation identifies how such involvement by civil

⁶⁵ According to Lorino (2013, p. 11), “[the felicity conditions of an inquiry] must include language conditions (inquirers must have some common language to be able to dialog), tooling conditions (they must have access to methods and tools required by a specific type of inquiry), roles conditions (the roles of the distinct inquirers must be more or less clearly defined, accepted by participants, and coherent with their actual aptitudes), political conditions (some freedom of expression, no dominant voice silencing others), ethical conditions (no deliberate manipulation which would impede inquirers to ensure a minimum mutual trust), performance conditions (in their inquiring efforts, inquirers must not make such fundamental mistakes that there would be no more possible development of the inquiry) and circumstantial conditions (adequate temporal and spatial frames).”

society can be facilitated, or on the contrary hampered. Opening up nuclear safety governance to civil society is a radical paradigm shift that has intensified these past few years in France with successive new legislation. For example, the process was stepped up after the Fukushima accident. The dissertation establishes that the various nuclear stakeholders find it difficult to accept that CLIs can make valuable contributions to the nuclear safety debate. Most nuclear stakeholders are unwilling to encourage public input into the governance of nuclear safety.

The chapters of the dissertation explore the circumstances in which people potentially impacted by nuclear activities can become active participants in the governance of such high-risk industries, and how they can organize themselves and build a common voice. The chapters also shed light on the changing roles of different nuclear stakeholders that have dealings with this public. Overall, the dissertation highlights the bureaucratic limits of establishing an institution meant to represent civil society, without questioning its concrete operationalization (tools, process, redefinition of the roles of each actor, etc). It is clear that beyond the laws and political discourses, not enough thought has been given to the CLIs' role and operationalization.

II.2.3. The CLIs' potential contributions to nuclear safety

The dissertation establishes that CLIs have several key contributions to make to the nuclear safety debate. Firstly, CLIs provide a more open connection to society, preventing operators and regulators from functioning in a closed circuit, and adding vigilance in the nuclear safety debate. CLIs also foster greater transparency and accountability practices in operators and regulators. When CLIs are able to build a strong link with their public and maintain it over time, they are also able to make valuable contributions to the nuclear safety debate. The CLIs' main strengths lie in their civil-society expertise, which includes extensive knowledge of environmental and contextual

characteristics, but also a kind of naïve common sense. When CLIs constantly listen to their public and remain attentive to the public's interrogations and concerns, such strengths enable CLIs to act as a stimulus and contribute novel, creative views on nuclear safety.

Effective public participation in the governance of high-risk activities can thus lead to higher levels of safety, through the organization of a dialogical, reflexive performativity in which other nuclear stakeholders are committed to continuous dialogue with the public. This construction process – provided the public constructed is truly representative and constitutes an active, structured stakeholder in the social monitoring of the activity – could be a great advantage for high-risk organizations. Collectives such as CLIs increase the chances of perceiving weak signals, prevent the organization from becoming enclosed in a culture of secrecy, and reduce the risk of downward bureaucratic spirals that could in turn lead to lower vigilance.

II.2.4. Implications for CLIs

In this dissertation, the CLIs' roles are analyzed and it is observed that CLIs could be bodies where subjects are sufficiently well understood to take on the role of a “Generalized Other”. As shown in the third chapter, a CLI's “Generalized Other” role is not simply an abstraction with insignificant practical consequences, but a powerful role in the governance of nuclear safety. It relates to the CLI's very important democratic role. As the voice of the public, the “Generalized Other” has expectations and standpoints: it is a strong concept as, being generalized, its expectations can concern any subject, and this enables CLIs to apply pressure on nuclear actors and impact safety inspectors' practices. It also requires CLIs to maintain their link with their public at all times, which is not always the case today. For the future of the CLIs, it would be interesting to understand how CLIs can mobilize their public.

It has also been shown in this dissertation that it would be detrimental to the CLIs' mission to fall into the trap of specialization, as they could lose their common-sense judgment and become simply another kind of technical expert to contribute specialist opinions. And yet CLIs need some degree of specialization to conduct technical investigations. One potential solution to this would be to call in external expert assistance. Some CLIs already do this, but they are limited by both lack of financial resources and lack of expert "second opinions". It is not easy to find second opinions from experts in the nuclear field in France, apart from IRSN members. CLIs could consider calling in assistance from abroad, which would need substantial financial resources. This problem could perhaps be solved by centralizing needs for expert assessments via the national CLI association (ANCCLI). Given the similarity of several nuclear sites in France, several subjects are recurrent: if the CLIs succeed in sharing expertise on those subjects, they could achieve important economies of scale. It was observed by the author that although some CLIs are in contact with each other, such initiatives remain too rare.

III. Concluding Comments

The three chapters of this dissertation seek to understand what role the public plays, through CLIs, in the governance of nuclear safety. The dissertation establishes that when CLIs play both the role of a "Generalized Other" representing the public's voice, and the role of a civil provider of second opinions, able to discuss the complex subjects at stake, they become a powerful and legitimate stakeholder in nuclear safety governance. In such circumstances, CLIs should be able to conduct investigations that are both commonsensical and technical. These characteristics would make CLI-led investigations all the more rich and useful for the governance of nuclear safety. The technical aspect (with the help of experts and specialists) would reinforce the legitimacy of such investigations in the eyes of nuclear actors, and their commonsensical or "layman's view" aspect

would provide an alternative view of nuclear questions in the safety debate, potentially leading to creative ways of addressing the issues and situations at stake.

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APPENDICES

Appendix 1 – Synthesis of Interviews

Number	Function	Date	Time
1	CLI's administrative support	Oct-13	80 min
2	Member of CLI and ANCCLI - Expert	Oct-13	120 min
3	Member of CLI - Trade Union	Nov-13	75 min
4	Member of CLI - Expert	Nov-13	120 min
5	Member of CLI - Expert	Nov-13	
6	Member of CLI - Association	Nov-13	120 min
7	Member of CLI - Trade Union	Dec-13	85 min
8	Member of CLI - Expert	Dec-13	110 min
9	Member of CLI - Association	May-14	95 min
10	CLI's administrative support	Jun-14	50 min
11	Member of CLI - Association	Jun-14	90 min
12	IRSN	Oct-14	70 min
13	IRSN	Oct-14	
14	Member of CLI - Association	Apr-15	180 min
15	Member of CLI - Association	Apr-15	
16	Member of CLI - Expert	Apr-15	90 min
17	Member of CLI - Mayor	Apr-15	55 min
18	CLI's former technical support	may-15	90 min
19	Areva	Jun-15	75 min
20	ASN	Jul-15	45 min
21	CLI's technical support	Aug-15	90 min
22	IRSN	Sep-15	65 min
23	IRSN	Sep-15	
24	ASN	Sep-15	80 min
25	ASN	Oct-15	80 min
26	IRSN	Oct-15	90 min
27	Areva	Nov-15	80 min
28	EDF	Nov-15	55 min
29	Areva	Dec-15	85 min
30	ASN	Dec-15	90 min
31	ASN	Dec-15	70 min
32	ASN	Dec-15	90 min
33	ASN	Dec-15	90 min
34	ANCCLI	Jan-16	80 min
35	ASN	May-16	85 min
36	ASN	May-16	75 min

Appendix 2 – Synthesis of CLI's mails from October 2013 to October 2014

Date	Objet	Remarques
31-oct-13	Lettre de suite inspection	Première barrière
05-nov-13	Lettre de suite inspection	Gestion des déchets
05-nov-13	Lettre de suite inspection	Rejet des effluent
05-nov-13	Communication	Essai mensuel des sirènes PPI
06-nov-13	Lettre de suite inspection	Elaboration et respect de la documentation
08-nov-13	Lettre de suite inspection	Mise en service actif de l'extension de l'entreposage de verres de la Hague
12-nov-13	Lettre de suite inspection	Préparation et la réalisation des épreuves d'étanchéité des piscines et bâches de l'EPR
12-nov-13	Lettre de suite inspection	Incendie et explosion
18-nov-13	Presentation ANDRA pour l'AG	
18-nov-13	Compte-rendu ANDRA de l'AG	
18-nov-13	Documents pour l'AG Areva	
19-nov-13	Lettre de suite inspection	Opérations de mise à l'arrêt définitif des ateliers MAPu et MAU de l'usine UP2-400
20-nov-13	Communication	Calendrier prévisionnel 2014
21-nov-13	Communication	Articles Ouest-France
26-nov-13	Lettre de suite inspection	Suivi en service des équipements sous pression nucléaires
27-nov-13	Communication	Réunion publique ASN sur l'ANDRA
27-nov-13	Communication	Réunion publique ASN sur les EPR
27-nov-13	Communication	Décision de l'ASN sur le traitement de combustibles Italiens
04-déc-13	Communication	Lettre d'information de l'ASN
10-déc-13	Communication	Expo radio-activité Grand palais
10-déc-13	Lettre de suite inspection	L'organisation et des moyens de crise
10-déc-13	Communication	Retour de déchets compactés vers la Belgique
12-déc-13	Communication	Retour de déchets compactés vers la Belgique
16-déc-13	Lettre de suite inspection	Agressions externes
20-déc-13	Lettre de suite inspection	Exploitation de l'atelier UCD
20-déc-13	Communication	Articles la Gazette
20-déc-13	Carte de Vœux	
27-déc-13	Lettre de suite inspection	Protection contre l'incendie dans les installations en démantèlement

30-déc-13	Lettre de suite inspection	Confinement des matières radioactives au sein de l'atelier de vitrification R7 de l'usine UP2-800
07-janv-14	Réponse Areva	Bilan inventaire des déchets entre 1967 et 1977
07-janv-14	Communication	Articles Presse de la Manche
10-janv-14	Communication	Publication Journal Officiel
10-janv-14	Lettre de suite inspection	Criticité dans le cadre des opérations en cours de démantèlement de l'atelier MAPu et traitement du plutonium dans l'usine ancienne UP2 400
10-janv-14	Compte-rendu de lancement de l'exercice Areva du 29/04	
13-janv-14	Décision ASN	ECS à l'ANDRA
13-janv-14	Lettre de suite inspection	Fabrication des colis standards de déchets vitrifiés.
13-janv-14	Lettre de suite inspection	Organisation et Moyens de crise
14-janv-14	Communication	Article Grand Angle +
14-janv-14	Lettre de suite inspection	FOH
16-janv-14	Compte-rendu de la réunion du 19/11	Révision du PPI du CNPE à la préfecture
16-janv-14	Communication	Accident du travail sur le chantier de l'EPR
16-janv-14	Compte-rendu Flamanville de l'AG	
16-janv-14	Lettre de suite inspection	La gestion des sources radioactives nécessaires au fonctionnement des installations.
16-janv-14	Compte-rendu Areva de l'AG	
16-janv-14	Compte-rendu ANDRA de l'AG	
17-janv-14	Lettre de suite inspection	Préparation à la réalisation des essais de démarrage du réacteur EPR
17-janv-14	Communication	Areva et syndicats en appel pour un projet de sous-traitance à La Hague
23-janv-14	Lettre de suite inspection	Service d'inspection reconnu pour les équipements sous pression
23-janv-14	Invitation à l'AG Flamanville	
24-janv-14	Communication	Lettre d'information de l'ASN
24-janv-14	Communication	EPR de Flamanville: feu vert de l'ASN à la reprise de la manutention lourde

27-janv-14		Les chantiers réalisés dans l'atelier R1 de cisailage et de dissolution au cours de l'arrêt programmé pour maintenance de l'usine UP2-800
29-janv-14	Lettre de suite inspection	Article Le Monde
03-févr-14	Prévisionnel rejets et prélèvements d'eau du CNPE de Flamanville pour 2014	
03-févr-14	Prévisionnel des prélèvements et consommation d'eau et des rejets du CSM pour 2014	
03-févr-14	Décision ASN	ECS pour la centrale nucléaire de Flamanville
03-févr-14	Lettre de suite inspection	CNPE de Flamanville
03-févr-14	Lettre de suite inspection	Agression interne sur les ateliers de cisailage et de dissolution de la direction d'exploitation du traitement et du recyclage (DETR)
04-févr-14	Prévisionnel prélèvements rejets et consommation d'eau pour Flamanville 3 pour 2014	
04-févr-14	Prévisionnel prélèvements rejets et consommation d'eau pour Areva pour 2014	
04-févr-14	Lettre de suite inspection	Organisation des contrôles radiographiques et de la gestion des sources
04-févr-14	Lettre de suite inspection	Confinement et de la ventilation des bâtiments nucléaires
05-févr-14	Communication	Article Grand Angle +
05-févr-14	Lettre de relance	Inspection du 23/07/2013
06-févr-14	Invitation à l'AG Areva	
07-févr-14	Communication	Plan national de réponse "Accident nucléaire ou radiologique majeur"
10-févr-14	Information	Arrêt de production à la centrale de Flamanville suite à un défaut sur le réseau de transport d'électricité
11-févr-14	Inscription visite chantier EPR	
13-févr-14	Information	Remplacement d'un pôle du transformateur principal de l'unité de production n°1

13-févr-14	Lettre de suite inspection	Opérations réalisées dans l'atelier T2 au cours de l'arrêt programmé pour maintenance (APM) de l'usine UP 3 de retraitement de combustible nucléaire usagé
13-févr-14	Documents pour l'AG EDF	Compte-rendu et autres docs
17-févr-14	Bilan CLI Flamanville	Budgets, calendrier, objectifs, etc.
18-févr-14	Communication	Création d'un groupe de travail ANCCLI/IRSN sur les sujets de sûreté
18-févr-14	Information	7e retour de déchets compactés vers la Suisse
19-févr-14	Information	Arrivée prochaine d'un transport de combustibles usés en provenance des Pays-Bas
20-févr-14	Information	Départ du transport de déchets métalliques compactés vers la Suisse
20-févr-14	Information	Arrivée ce jour d'un transport de combustibles usés en provenance des Pays-Bas
25-févr-14	Lettre de suite inspection	Système d'autorisations internes utilisé sur le site de La Hague en préalable à certaines modifications des installations
27-févr-14	Communication	Article Huffington Post à la demande de Yann Perrotte
27-févr-14	Lettre de suite inspection	Surveillance de l'exploitation du circuit primaire principal et des circuits secondaires principaux & Application de l'arrêté du 12/12/2005 relatif aux ESPN
12-mars-14	Information	Dossier de demande d'information transmis par M. Martin et M. Baron
17-mars-14	Invitation à l'AG ANDRA	
18-mars-14	Documents pour l'AG Areva	Projet compte-rendu AG et nombreux docs
18-mars-14	Documents pour l'AG Areva	Présentation de l'ASN
19-mars-14	Lettre de suite inspection	Inspection du 25/02
19-mars-14	Lettre de suite inspection	Inspection du 26/02
27-mars-14	Information	Séminaire Réversibilité ANCCLI/IRSN
27-mars-14	Lettre de suite inspection	Inspection du 25/02
28-mars-14	Communication	Décision ASN liée à la réception, à l'entreposage et au traitement dans les usines UP3-A et UP2-800 du site AREVA
28-mars-14	Compte-rendu Flamanville de l'AG	
28-mars-14	Lettre de suite inspection	Inspection du 27/02
31-mars-14	Bilan 2013 des transferts INB-INBS	

03-avr-14	Lettre de suite inspection	Inspection du 12/02
07-avr-14	Lettre de suite inspection	Inspection du 13/03
07-avr-14	Information	Prochain transport de déchets vitrifiés à destination des Pays-Bas
07-avr-14	Information	7e retour de déchets vitrifiés vers les Pays-Bas
10-avr-14	Lettre de suite inspection	Inspection du 11/03
10-avr-14	Lettre de suite inspection	Inspection du 21/01
16-avr-14	Communication	Journée ANNCLI et IRSN démentèlement
16-avr-14	Lettre de suite inspection	Inspection du 27/03
17-avr-14	Communication	Journée ANNCLI post-accident
22-avr-14	Lettre de suite inspection	Inspection du 25/03
22-avr-14	Décision ASN	Surveillance et la mitigation d'une fuite du silo 130 de l'INB 38
22-avr-14	Documents pour l'AG ANDRA	Compte-rendu, ordre du jour, budget, bilan de la CLI, etc.
24-avr-14	Compte-rendu de la réunion de synthèse avant l'exercice Areva du 29/04	
28-avr-14	Compte-rendu Areva de l'AG	
29-avr-14	Information	PPI déclenché suite à un incendie sur le site Areva
29-avr-14	Information	Message de l'ANDRA suite à l'incendie sur le site Areva
29-avr-14	Lettre de suite inspection	Inspection du 01/04
29-avr-14	Information	Fin d'exercice suite à l'incendie sur le site Areva
30-avr-14	Lettre de suite inspection	Inspection du 10/04
30-avr-14	Lettre de suite inspection	Inspection du 03/04
13-mai-14	Décision ASN	
13-mai-14	Décision ASN	Réacteurs électronucléaires EDF
15-mai-14	Information	Débat public Bure
15-mai-14	Lettre de suite inspection	Inspection du 09/04
15-mai-14	Invitation à l'AG Flamanville	
16-mai-14	Invitation à l'AG Areva	
21-mai-14	Modifications des statuts et du règlement intérieur d'Aréva	
21-mai-14	Modifications des statuts et du règlement intérieur de flamanville	

02-juin-14	Lettre de suite inspection	Inspection du 25/04
04-juin-14	Lettre de suite inspection	Inspection du 15/05
10-juin-14	Documents pour l'AG EDF	
10-juin-14	Invitation	Projection film Pandora's promise
10-juin-14	Lettre de suite inspection	Inspection du 13/05
11-juin-14	Lettre de suite inspection	Inspection du 22/05
19-juin-14	Décision ASN	Construction de cellules de reprise et conditionnement de déchets dans le bâtiment Silo de l'INB 80
23-juin-14	Lettre de suite inspection	Inspection du 22/05 Bis
24-juin-14	Documents pour l'AG Areva	Bilan et Compte de résultat
25-juin-14	Documents pour l'AG Areva	
25-juin-14	Lettre de suite inspection	Inspection du 20/06
25-juin-14	Lettre de suite inspection	Inspection du 20/06 Bis
04-juil-14	Lettre de suite inspection	Inspection du 19/06
04-juil-14	Lettre de suite inspection	Inspection du 24/06
04-juil-14	Lettre de suite inspection	Inspection du 16/04
04-juil-14	Lettre de suite inspection	Vérifier le respect des décisions de l'ASN relatives aux prélèvements, aux rejets et à la surveillance de l'environnement effectués par EDF pour l'exploitation du CNPE de Flamanville
04-juil-14	Rapport annuel CSM	
28-juil-14	Lettre de suite inspection	Rejets et Effluents avec réalisation de prélèvements
28-juil-14	Lettre de suite inspection	Inspection du 21/05
28-juil-14	Lettre de suite inspection	Inspection du 12/06
28-juil-14	Lettre de suite inspection	Inspection du 19/06
28-juil-14	Lettre de suite inspection	Inspection du 16/04
28-juil-14	Lettre de suite inspection	Vérifier le respect des décisions de l'ASN relatives aux prélèvements, aux rejets et à la surveillance de l'environnement effectués par EDF pour l'exploitation du CNPE de Flamanville
28-juil-14	Rapport annuel CSM	
28-juil-14	Compte-rendu exercice Areva du 29/04	
29-juil-14	Lettre de suite inspection	L'exploitation du secteur de réception et d'entreposage en piscines du combustible utilisé (DEMC RE)

31-juil-14	ASN projet de programme de reprise et de conditionnement des déchets anciens	
04-août-14	Lettre de suite inspection	Inspection du 23/07
04-août-14	Lettre de suite inspection	La prévention du risque de criticité dans l'usine UP2-400 (INB 33)
04-août-14	décision de l'ASN relative aux modalités de mise en œuvre du système d'autorisations internes relatif aux modifications temporaires des règles générales d'exploitation pour les réacteurs en fonctionnement	
07-août-14	Lettre de suite inspection	Inspection du 31/07
11-août-14	Lettre de suite inspection	Inspection du 23/07
21-août-14	Compte-rendu ANDRA de l'AG	
01-sept-14	Information	Mise à l'arrêt programmé de l'unité de production n°1 - Centrale de Flamanville
01-sept-14	Communication	Consultation de la CLI - Révisions des prescriptions relatives au prélèvement, à la consommation d'eau et aux rejets dans l'environnement des effluents liquides et gazeux de l'établissement d'AREVA NC La Hague
02-sept-14	Lettre de suite inspection	Montages mécaniques
02-sept-14	Lettre de suite inspection	Visite générale – Chantiers de démantèlement
03-sept-14	Lettre de suite inspection	La surveillance des intervenants extérieurs
04-sept-14	Lettre de suite inspection	Exploitation des ateliers T3 et T5
08-sept-14	Communication	Rapport sur la sous-traitance du groupe AREVA en France - Edition 2013
10-sept-14	Information	Prochain transport de déchets compactés et vitrifiés vers la Suisse
10-sept-14	Information	Départ du transport de déchets vitrifiés et compactés vers la Suisse
12-sept-14	Invitation à l'AG ANDRA	
12-sept-14	Communication	Article Science et vie
16-sept-14	Communication	Article de presse Fukushima

16-sept-14	Remarque sur l'article Science et Vie d'un membre de la CLI	
22-sept-14	Communication	PPI du port de Cherbourg
22-sept-14	Compte-rendu Flamanville de l'AG	
23-sept-14	Lettre de suite inspection	Le management par le site de la protection des intérêts mentionnés à l'article L. 593-1 du code de l'environnement, à savoir, la sécurité, la santé et la salubrité publiques et la protection de la nature et de l'environnement.
25-sept-14	Renseignements sur la consultation publique sur les décisions encadrant les rejets de la Hague	
26-sept-14	Communication	Article de presse suite au retrait des associations
29-sept-14	Compte-rendu Areva de l'AG	
29-sept-14	Lettre de suite inspection	Le management de la sûreté
30-sept-14	Invitation à l'AG Flamanville	
30-sept-14	Lettre de suite inspection	Visite générale des ateliers T4, BSI, R4 et BST1
01-oct-14	Documents pour l'AG ANDRA	
01-oct-14	Information	Stationnement pour l'AG
02-oct-14	Nominations a l'ANCCLI	
03-oct-14	Lettre de suite inspection	La pérennité de la qualification et de la gestion des pièces de rechange
03-oct-14	Invitation Visite chantier Flamanville	
06-oct-14	Information	Barge de dragage accidentée
07-oct-14	Lettre de suite inspection	La surveillance de l'impact du site sur son environnement
08-oct-14	Information	

Appendix 3 – List of Observed Meetings and Events

Date	Participants	Description	Meeting	Length
May, 11th, 2011	Flamanville CLI members	Recording	General meeting of the CLI	4 hours
June, 8th, 2011	Areva CLI members	Recording	General meeting of the CLI	3,5 hours
October, 28th, 2011	Areva CLI members	Recording	General meeting of the CLI	2 hours
November, 4th, 2011	Flamanville CLI members	Recording	General meeting of the CLI	3 hours
March, 1st, 2012	Areva CLI members	Recording	General meeting of the CLI	3 hours
April, 20th, 2012	Flamanville CLI members	Recording	General meeting of the CLI	3 hours
September, 26th, 2012	Areva CLI members	Recording	General meeting of the CLI	3 hours
November, 8th, 2012	Flamanville CLI members	Recording	General meeting of the CLI	4 hours
December, 18th, 2012	Areva CLI members	Recording	General meeting of the CLI	2 hours
March, 20th, 2013	Flamanville CLI members	Recording	General meeting of the CLI	3,5 hours
April, 5th, 2013	Areva CLI members	Recording	General meeting of the CLI	3,5 hours
June, 19th, 2013	CLI members, ANCCLI, IRSN	Observation	Les enjeux de sûreté des réacteurs suite à l'accident de Fukushima	8 hours
June, 27th, 2013	Areva CLI members	Recording	General meeting of the CLI	2,5 hours
October, 17th, 2013	Flamanville CLI members	Recording	General meeting of the CLI	4 hours
November, 19th, 2013	Areva CLI members	Observation	General meeting of the CLI	2,5 hours + lunch
November, 19th, 2013	ANDRA CLI members	Observation	General meeting of the CLI	2 hours
December, 10th, 2013	CLI members, ANCCLI, IRSN	Observation	Les enjeux de sûreté des installations autres que les réacteurs d'EDF en fonctionnement suite à l'accident de Fukushima	7,5 hours
February, 19th, 2014	Flamanville CLI members	Recording	General meeting of the CLI	3,5 hours
March, 20th, 2014	Areva CLI members	Observation	General meeting of the CLI	3 hours + lunch
May, 15th, 2014	CLI members, ANCCLI, IRSN	Observation	Journée ANCCLI Post-Accident	8 hours
June, 26th, 2014	Areva CLI members	Observation	General meeting of the CLI	3,5 hours + lunch

October, 28th, 2014	Flamanville CLI members	Observation	General meeting of the CLI	3 hours + lunch
October, 28th, 2014	Flamanville CLI members	Observation	Visit of Flamanville nuclear site	2 hours
December, 3th, 2014	Areva CLI members	Recording	General meeting of the CLI	5,5 hours
March, 5th, 2015	Areva CLI members	Recording	General meeting of the CLI	2,5 hours
June, 20th, 2016	CLI members, ANCCLI, IRSN	Observation	Journée de sensibilisation à l'ouverture à la société	7 hours

Appendix 4 – Interview Guides

I. For CLI members

1. Can you present yourself ?
2. Which CLI are you part of ?
3. How long have you been part of the CLI ?
4. What is your concrete role with CLI ?
5. What actions have you undertaken or performed regarding CLI ?
6. What motivated you to take part in the CLI debates ?
7. How do you rate the CLI's roles and organization ?
8. Do you consider that there exist an effective dialogue in CLI ?
9. What are in your views the potential areas for improvement to enhance the CLI's role and mission ?

II. For ASN safety inspectors

1. Can you present yourself and the service you are in charge of ?
2. Can you explain your relationships with CLI ?
3. What are in your views the changes that CLI operated in the governance of nuclear safety ?
4. What are in your views, CLI's roles in the governance of nuclear safety ?
5. What were the impacts of the reinforcement of CLI on your practices ?
6. Do you consider that CLI have some power in the governance of nuclear safety ?
7. Do you consider that CLI can bring contributions to the nuclear safety debate ? Or on the contrary, do you consider that CLI can be an obstacle to nuclear safety ?

8. Do you integrate CLI's remarks in your reports ? Why ?
9. Do you have any example of CLI enhancing the nuclear safety debate ? Or on the contrary do you have any example of CLI being an obstacle to the nuclear safety debate ?
10. What are in your views the potential areas for improvement to enhance the CLI's contributions to the nuclear safety debate ?

Appendix 5 – 2006 Nuclear Security and Transparency Law

Loi n° 2006-686 du 13 juin 2006 relative à la transparence et à la sécurité en matière nucléaire (1).

NOR: DEVX0100081L
Version consolidée au 07 novembre 2008

- TITRE Ier : DISPOSITIONS GÉNÉRALES.

TITRE III : L'INFORMATION DU PUBLIC EN MATIÈRE DE SÉCURITÉ NUCLÉAIRE

- Chapitre Ier : Droit à l'information en matière de sûreté nucléaire et de radioprotection.

Article 18 (abrogé au 7 janvier 2012)

- Abrogé par Ordonnance n°2012-6 du 5 janvier 2012 - art. 6

L'Etat est responsable de l'information du public sur les modalités et les résultats du contrôle de la sûreté nucléaire et de la radioprotection. Il fournit au public une information sur les conséquences, sur le territoire national, des activités nucléaires exercées hors de celui-ci, notamment en cas d'incident ou d'accident.

Article 19

- Abrogé par Ordonnance n°2012-6 du 5 janvier 2012 - art. 6

I.-Toute personne a le droit d'obtenir, auprès de l'exploitant d'une installation nucléaire de base ou, lorsque les quantités en sont supérieures à des seuils prévus par décret, du responsable d'un transport de substances radioactives ou du détenteur de telles substances, les informations détenues, qu'elles aient été reçues ou établies par eux, sur les risques liés à l'exposition aux rayonnements ionisants pouvant résulter de cette activité et sur les mesures de sûreté et de radioprotection prises pour prévenir ou réduire ces risques ou expositions, dans les conditions définies aux articles L. 124-1 à L. 124-6 du code de l'environnement.

II.-Les litiges relatifs aux refus de communication d'informations opposés en application du présent article sont portés devant la juridiction administrative selon les modalités prévues par la loi n° 78-753 du 17 juillet 1978 précitée.

III.-Les dispositions du chapitre II du titre Ier de la loi n° 78-753 du 17 juillet 1978 précitée ne sont pas applicables aux informations communiquées en application du présent article.

NOTA :

L'article 19 de la loi n° 2006-686 du 13 juin 2006 est abrogé, à l'exception, à son premier alinéa, des mots " ou, lorsque les quantités en sont supérieures à des seuils prévus par décret " et " du détenteur de telles substances, ".

Article 20

A modifié les dispositions suivantes :

- Modifie Loi n°78-753 du 17 juillet 1978 - art. 21 (V)

Article 21

- Abrogé par Ordonnance n°2012-6 du 5 janvier 2012 - art. 6

Tout exploitant d'une installation nucléaire de base établit chaque année un rapport qui expose :

- les dispositions prises en matière de sûreté nucléaire et de radioprotection ;
- les incidents et accidents en matière de sûreté nucléaire et de radioprotection, soumis à obligation de déclaration en application de l'article 54, survenus dans le périmètre de l'installation, ainsi que les mesures prises pour en limiter le développement et les conséquences sur la santé des personnes et l'environnement ;
- la nature et les résultats des mesures des rejets radioactifs et non radioactifs de l'installation dans l'environnement ;
- la nature et la quantité de déchets radioactifs entreposés sur le site de l'installation, ainsi que les mesures prises pour en limiter le volume et les effets sur la santé et sur l'environnement, en particulier sur les sols et les eaux.

Ce rapport est soumis au comité d'hygiène, de sécurité et des conditions de travail de l'installation nucléaire de base, qui peut formuler des recommandations. Celles-ci sont annexées au document aux fins de publication et de transmission.

Ce rapport est rendu public et il est transmis à la commission locale d'information et au Haut Comité pour la transparence et l'information sur la sécurité nucléaire.

Un décret précise la nature des informations contenues dans le rapport.

NOTA :

Ordonnance n° 2012-6 du 5 janvier 2012 article 7 : L'abrogation des dispositions énumérées à l'article 6 ne prendra effet qu'à compter de la publication du décret en Conseil d'Etat codifiant les dispositions réglementaires correspondantes pour ce qui concerne les articles ou parties d'articles, les alinéas ou parties d'alinéas suivants : Le dernier alinéa de l'article 21 (Fin de vigueur : date indéterminée).

• Chapitre II : Les commissions locales d'information.

Article 22

I.-Après de tout site comprenant une ou plusieurs installations nucléaires de base telles que définies à l'article 28 est instituée une commission locale d'information chargée d'une mission générale de suivi, d'information et de concertation en matière de sûreté nucléaire, de radioprotection et d'impact des activités nucléaires sur les personnes et l'environnement pour ce qui concerne les installations du site. La commission locale d'information assure une large diffusion des résultats de ses travaux sous une forme accessible au plus grand nombre.

La commission peut être créée dès lors qu'une installation nucléaire de base a fait l'objet d'une demande d'autorisation de création en application de l'article 29.

Une même commission locale d'information peut être créée pour plusieurs installations nucléaires de base proches. Une commission peut aussi être créée auprès d'un site sur lequel a été implantée une installation nucléaire de base.

II.-La commission locale d'information comprend des représentants des conseils généraux, des conseils municipaux ou des assemblées délibérantes des groupements de communes et des conseils régionaux intéressés, des membres du Parlement élus dans le département, des représentants d'associations de protection de l'environnement, des intérêts économiques et d'organisations syndicales de salariés représentatives et des professions médicales, ainsi que des personnalités qualifiées.

Les représentants de l'Autorité de sûreté nucléaire et des autres services de l'Etat concernés, ainsi que des représentants de l'exploitant peuvent assister, avec voix consultative, aux séances de la commission locale d'information. Ils ont accès de plein droit à ses travaux.

III.-La commission locale d'information est créée par décision du président du conseil général du département dans lequel s'étend le périmètre de l'installation ou des installations concernées ou par décision conjointe des présidents des conseils généraux si le périmètre s'étend sur plusieurs départements.

Le président du conseil général nomme les membres de la commission. La commission est présidée par le président du conseil général ou par un élu local du département nommé par lui parmi ses membres.

Si le périmètre de l'installation nucléaire de base comprend une installation d'élimination ou de stockage de déchets, la commission mentionnée au présent article se substitue à la commission locale d'information et de surveillance mentionnée à l'article L. 125-1 du code de l'environnement.

IV.-La commission locale d'information peut être dotée de la personnalité juridique avec un statut d'association.

V.-Pour l'exercice de ses missions, la commission locale d'information peut faire réaliser des expertises, y compris des études épidémiologiques, et faire procéder à toute mesure ou analyse dans l'environnement relative aux émissions ou rejets des installations du site.

La commission locale d'information est informée par l'exploitant des demandes qui lui sont adressées conformément aux dispositions de l'article 19 dans les huit jours suivant leur réception. Dans les mêmes conditions, l'exploitant lui adresse les réponses apportées à ces demandes.

L'exploitant, l'Autorité de sûreté nucléaire et les autres services de l'Etat lui communiquent tous documents et informations nécessaires à l'accomplissement de ses missions. Selon le cas, les dispositions de l'article 19 de la présente loi ou celles du chapitre IV du titre II du livre Ier du code de l'environnement et de la loi n° 78-753 du 17 juillet 1978 précitée sont applicables à cette communication.

L'exploitant informe la commission de tout incident ou accident mentionné à l'article 54 de la présente loi dans les meilleurs délais.

L'Autorité de sûreté nucléaire, les ministres chargés de la sûreté nucléaire ou de la radioprotection peuvent consulter la commission sur tout projet concernant le périmètre de l'installation nucléaire de base. Cette consultation est obligatoire pour tout projet faisant l'objet d'une enquête publique dès lors que la commission est régulièrement constituée.

La commission peut saisir l'Autorité de sûreté nucléaire et les ministres chargés de la sûreté nucléaire ou de la radioprotection de toute question relative à la sûreté nucléaire et à la radioprotection intéressant le site.

La commission locale d'information peut être saisie pour avis sur toute question relevant de son domaine de compétence par la commission départementale compétente en matière d'environnement, de risques sanitaires et technologiques.

La commission locale d'information et le Haut Comité pour la transparence et l'information sur la sécurité nucléaire mentionné à l'article 23 se communiquent tous renseignements utiles à l'exercice de leurs missions et concourent à des actions communes d'information.

Les représentants désignés par le comité d'hygiène, de sécurité et des conditions de travail d'un établissement comprenant une ou plusieurs des installations nucléaires de base mentionnées au I sont auditionnés à leur demande par les commissions locales d'information à chaque fois qu'ils l'estiment nécessaire. Les commissions locales d'information peuvent également les solliciter.

VI.-Les dépenses de la commission locale d'information sont financées par :

-l'Etat ;

-les collectivités territoriales et leurs groupements.

Si la commission est dotée de la personnalité juridique, outre les subventions qui peuvent lui être attribuées par l'Etat, ces collectivités et ces groupements, elle peut recevoir une partie du produit de la taxe instituée par l'article 43 de la loi de finances pour 2000 (n° 99-1172 du 30 décembre 1999) dans les conditions définies en loi de finances.

Les comptes de la commission sont soumis au contrôle de la chambre régionale des comptes.

VII.-Les commissions locales d'information peuvent constituer une fédération, sous la forme d'une association, chargée de les représenter auprès des autorités nationales et européennes et d'apporter une assistance aux commissions pour les questions d'intérêt commun.

Les ressources de cette fédération proviennent notamment de subventions versées par l'Etat et de cotisations des commissions qui en sont membres.

VIII.-Un décret en Conseil d'Etat détermine les modalités d'application du présent chapitre. Il peut définir des clauses appartenant à celles devant obligatoirement figurer dans les statuts des commissions dotées de la personnalité juridique.

- **Chapitre III : Le Haut Comité pour la transparence et l'information sur la sécurité nucléaire.**

Article 23

- Modifié par Décret n°2008-1108 du 29 octobre 2008 - art. 1
- Abrogé par Ordonnance n°2012-6 du 5 janvier 2012 - art. 6

Il est créé un Haut Comité pour la transparence et l'information sur la sécurité nucléaire.

Il est composé de membres nommés pour six ans par décret, au nombre de quatre pour les parlementaires et de six au titre de chacune des autres catégories, ainsi répartis :

- 1° Deux députés désignés par l'Assemblée nationale et deux sénateurs désignés par le Sénat ;
- 2° Des représentants des commissions locales d'information ;
- 3° Des représentants d'associations de protection de l'environnement et d'associations mentionnées à l'article L. 1114-1 du code de la santé publique ;
- 4° Des représentants des personnes responsables d'activités nucléaires ;
- 5° Des représentants d'organisations syndicales de salariés représentatives ;
- 6° Des personnalités choisies en raison de leur compétence scientifique, technique, économique ou sociale, ou en matière d'information et de communication, dont trois désignées par l'Office parlementaire d'évaluation des choix scientifiques et technologiques, une par l'Académie des sciences et une par l'Académie des sciences morales et politiques ;
- 7° Des représentants de l'Autorité de sûreté nucléaire, des services de l'Etat concernés et de l'Institut de radioprotection et de sûreté nucléaire.

Le président du haut comité est nommé par décret parmi les parlementaires, les représentants des commissions locales d'information et les personnalités choisies en raison de leur compétence qui en sont membres.

NOTA :

Ordonnance n° 2012-6 du 5 janvier 2012 article 7 : L'abrogation des dispositions énumérées à l'article 6 ne prendra effet qu'à compter de la publication du décret en Conseil d'Etat codifiant les dispositions réglementaires correspondantes pour ce qui concerne les articles ou parties d'articles, les alinéas ou parties d'alinéas suivants :

A l'article 23 :

a) Au deuxième alinéa, les mots " par décret " et le chiffre " six " issu de l'article 1er du décret n° 2008-1108 du 29 octobre 2008 susvisé ;

b) Au dernier alinéa, les mots " par décret ". (Fin de vigueur : date indéterminée).

Article 24 (abrogé au 7 janvier 2012)

- Abrogé par Ordonnance n°2012-6 du 5 janvier 2012 - art. 6

Le Haut Comité pour la transparence et l'information sur la sécurité nucléaire est une instance d'information, de concertation et de débat sur les risques liés aux activités nucléaires et l'impact de ces activités sur la santé des personnes, sur l'environnement et sur la sécurité nucléaire. A ce titre, il peut émettre un avis sur toute question dans ces domaines, ainsi que sur les contrôles et l'information qui s'y rapportent. Il peut également se saisir de toute question relative à l'accessibilité de l'information en matière de sécurité nucléaire et proposer toute mesure de nature à garantir ou à améliorer la transparence en matière nucléaire.

Le haut comité peut être saisi par les ministres chargés de la sûreté nucléaire, par les présidents des commissions compétentes de l'Assemblée nationale et du Sénat, par le président de l'Office parlementaire d'évaluation des choix scientifiques et technologiques, par les présidents des commissions locales d'information ou par les exploitants d'installations nucléaires de base sur toute question relative à l'information concernant la sécurité nucléaire et son contrôle.

Article 25 (abrogé au 7 janvier 2012)

- Abrogé par Ordonnance n°2012-6 du 5 janvier 2012 - art. 6

Le Haut Comité pour la transparence et l'information sur la sécurité nucléaire peut faire réaliser des expertises nécessaires à l'accomplissement de ses missions et organiser des débats contradictoires.

Il rend publics ses avis.

Il établit un rapport annuel d'activité qui est également rendu public.

Les personnes responsables d'activités nucléaires, l'Autorité de sûreté nucléaire ainsi que les autres services de l'Etat concernés communiquent au haut comité tous documents et informations utiles à l'accomplissement de ses missions. Selon le cas, les dispositions de l'article 19 de la présente loi ou celles du chapitre IV du titre II du livre Ier du code de l'environnement et de la loi n° 78-753 du 17 juillet 1978 précitée sont applicables à cette communication.

Article 26 (abrogé au 7 janvier 2012)

- Abrogé par Ordonnance n°2012-6 du 5 janvier 2012 - art. 6

Les crédits nécessaires à l'accomplissement des missions du Haut Comité pour la transparence et l'information sur la sécurité nucléaire sont inscrits au budget de l'Etat.

Les membres du haut comité, à l'exception des représentants des personnes responsables d'activités nucléaires, font, à la date de leur entrée en fonction, une déclaration rendue publique mentionnant leurs liens, directs ou indirects, avec les entreprises ou organismes dont l'activité entre dans la compétence du haut comité.

Article 27 (abrogé au 7 janvier 2012)

- Abrogé par Ordonnance n°2012-6 du 5 janvier 2012 - art. 6

Les modalités d'application du présent chapitre sont définies par décret en Conseil d'Etat.

Appendix 6 – 2015 Energy Transition Law

LOI n° 2015-992 du 17 août 2015 relative à la transition énergétique pour la croissance verte (1)

NOR: DEVX1413992L

ELI: <https://www.legifrance.gouv.fr/eli/loi/2015/8/17/DEVX1413992L/jo/texte>

Alias: <https://www.legifrance.gouv.fr/eli/loi/2015/8/17/2015-992/jo/texte>

L'Assemblée nationale et le Sénat ont délibéré,

L'Assemblée nationale a adopté,

Vu la décision du Conseil constitutionnel n° 2015-718 DC du 13 août 2015 ;

Le Président de la République promulgue la loi dont la teneur suit :

Titre VI : RENFORCER LA SÛRETE NUCLÉAIRE ET L'INFORMATION DES CITOYENS

Article 123

I.-L'article L. 125-17 du code de l'environnement est complété par deux alinéas ainsi rédigés :

Elle organise, au moins une fois par an, une réunion publique ouverte à tous.

Elle peut se saisir de tout sujet entrant dans les compétences mentionnées au deuxième alinéa.

II.-L'article L. 125-20 du même code est complété par un III ainsi rédigé :

III.-Si le site est localisé dans un département frontalier, la composition de la commission mentionnée au I est complétée afin d'inclure des membres issus d'Etats étrangers.

III.-La sous-section 2 de la section 2 du chapitre V du titre II du livre Ier du même code est complétée par un article L. 125-16-1 ainsi rédigé :

Art. L. 125-16-1.-Les personnes domiciliées ou établies dans le périmètre d'un plan particulier d'intervention mentionné à l'article L. 741-6 du code de la sécurité intérieure défini pour une installation nucléaire de base reçoivent régulièrement, sans qu'elles aient à le demander, des informations sur la nature des risques d'accident et sur les conséquences envisagées, sur le périmètre du plan particulier d'intervention et sur les mesures de sécurité et la conduite à tenir en application de ce plan. Ces actions d'information font l'objet d'une consultation de la commission locale d'information prévue à l'article L. 125-17 du présent code et sont menées aux frais des exploitants.

IV.-Après l'article L. 125-25 du même code, il est inséré un article L. 125-25-1 ainsi rédigé :

Art. L. 125-25-1.-A la demande du président de la commission locale d'information, l'exploitant organise à l'attention de ses membres une visite de l'installation afin de leur présenter son fonctionnement.

En cas d'événement de niveau supérieur ou égal à 1 sur l'échelle internationale de classement des événements nucléaires, dès la restauration des conditions normales de sécurité, l'exploitant organise à l'attention des membres de la commission locale d'information, sur demande de son président, une visite de l'installation afin de leur présenter les circonstances de l'événement ainsi que les mesures prises pour y remédier et en limiter les effets.

V.-L'article L. 592-31 du même code est complété par un alinéa ainsi rédigé :

Ce rapport est ensuite rendu public. A cette occasion, l'Autorité de sûreté nucléaire se prononce sur l'état de la sûreté nucléaire et de la radioprotection.

VI.-Dans les conditions prévues à l'article 38 de la Constitution, le Gouvernement est autorisé à prendre par ordonnance les dispositions relevant du domaine de la loi nécessaires pour :

1° Etendre, avec les adaptations nécessaires, à l'ensemble des intérêts protégés mentionnés à l'article L. 593-1 du code de l'environnement, le champ d'application des informations et déclarations prévues aux articles L.

125-10, L. 125-15 et L. 591-5 du même code ;

2° Créer un régime de servitudes d'utilité publique instituées par l'autorité administrative applicable aux terrains,

constructions ou ouvrages qui peuvent occasionner une exposition des personnes aux effets nocifs des rayonnements ionisants justifiant un contrôle de radioprotection, en vue de prévenir une telle exposition ou d'en réduire les effets.

L'ordonnance est prise dans un délai de huit mois à compter de la promulgation de la présente loi.

Le projet de loi de ratification est déposé devant le Parlement dans un délai de quatre mois à compter de la publication de l'ordonnance.

VII.-L' article L. 125-26 du code de l'environnement est complété par un alinéa ainsi rédigé :

Toute modification du plan particulier d'intervention mentionné à l'article L. 741-6 du code de la sécurité intérieure défini pour une installation nucléaire de base fait l'objet d'une consultation de la commission locale d'information.

Article 124

La sous-section 1 de la section 1 du chapitre III du titre IX du livre V du même code est complétée par un article L. 593-6-1 ainsi rédigé :

« Art. L. 593-6-1. - En raison de l'importance particulière de certaines activités pour la protection des intérêts mentionnés à l'article L. 593-1, un décret en Conseil d'Etat peut encadrer ou limiter le recours à des prestataires ou à la sous-traitance pour leur réalisation.

« L'exploitant assure une surveillance des activités importantes pour la protection des intérêts mentionnés au même article L. 593-1 lorsqu'elles sont réalisées par des intervenants extérieurs. Il veille à ce que ces intervenants extérieurs disposent des capacités techniques appropriées pour la réalisation desdites activités. Il ne peut déléguer cette surveillance à un prestataire. »

Article 125

I.-L'article L. 4451-2 du code du travail est complété par un 4° ainsi rédigé :

« 4° Les modalités de suivi médical spécifiques et adaptées pour les travailleurs exposés à des rayonnements ionisants, en particulier pour les travailleurs mentionnés à l'article L. 4511-1. »

II.-Dans un délai de six mois à compter de la promulgation de la présente loi, le Gouvernement remet au Parlement un rapport sur les modalités d'intégration, dans les critères de risques au titre d'un environnement physique agressif mentionnés à l'article L. 4161-1 du code du travail, des rayonnements ionisants subis, le cas échéant, par les travailleurs du secteur nucléaire.

Article 126

Le code de l'environnement est ainsi modifié :

1° Les articles L. 593-14 et L. 593-15 sont ainsi rédigés :

« Art. L. 593-14.-I.-Une nouvelle autorisation est requise en cas de changement d'exploitant d'une installation nucléaire de base. Elle est accordée suivant une procédure allégée, dans des conditions définies par décret en Conseil d'Etat.

« II.-Une nouvelle autorisation est requise en cas de modification substantielle d'une installation nucléaire de base, de ses modalités d'exploitation autorisées ou des éléments ayant conduit à son autorisation. Le caractère substantiel de la modification est apprécié suivant des critères fixés par décret en Conseil d'Etat au regard de son impact sur la protection des intérêts mentionnés à l'article L. 593-1. La nouvelle autorisation est accordée dans les conditions prévues aux articles L. 593-7 à L. 593-12, suivant des modalités définies par décret en Conseil d'Etat.

« III.-Pour les installations ayant fait l'objet d'un décret de démantèlement mentionné à l'article L. 593-28, en cas de modification substantielle des conditions de démantèlement ou des conditions ayant conduit à leur prescription, un nouveau décret délivré dans les conditions prévues aux articles L. 593-25 à L. 593-28, suivant des modalités définies par décret en Conseil d'Etat, est nécessaire.

« Art. L. 593-15.-En dehors des cas mentionnés aux II et III de l'article L. 593-14, les modifications notables d'une installation nucléaire de base, de ses modalités d'exploitation autorisées, des éléments ayant conduit à son autorisation ou à son autorisation de mise en service, ou de ses conditions de démantèlement pour les installations ayant fait l'objet d'un décret mentionné à l'article L. 593-28 sont soumises, en fonction de leur importance, soit à déclaration auprès de l'Autorité de sûreté nucléaire, soit à l'autorisation par cette autorité.

Ces modifications peuvent être soumises à consultation du public selon les modalités prévues au titre II du livre Ier. Les conditions d'application du présent article sont définies par décret en Conseil d'Etat. » ;

2° L'article L. 593-19 est complété par un alinéa ainsi rédigé :

« Les dispositions proposées par l'exploitant lors des réexamens de sûreté au-delà de la trente-cinquième année de fonctionnement d'un réacteur électronucléaire sont soumises, après enquête publique, à la procédure d'autorisation par l'Autorité de sûreté nucléaire mentionnée à l'article L. 593-15, sans préjudice de l'autorisation mentionnée au II de l'article L. 593-14 en cas de modification substantielle. Les prescriptions de l'Autorité de sûreté nucléaire comprennent des dispositions relatives au suivi régulier du maintien dans le temps des équipements importants pour la sûreté. Cinq ans après la remise du rapport de réexamen, l'exploitant remet un rapport intermédiaire sur l'état de ces équipements, au vu duquel l'Autorité de sûreté nucléaire complète éventuellement ses prescriptions. »

Article 127

I.-L'article L. 593-24 du même code est ainsi rédigé :

« Art. L. 593-24.-Si une installation nucléaire de base cesse de fonctionner pendant une durée continue supérieure à deux ans, son arrêt est réputé définitif. Le ministre chargé de la sûreté nucléaire peut, à la demande de l'exploitant et par arrêté motivé pris après avis de l'Autorité de sûreté nucléaire, proroger de trois ans au plus cette durée de deux ans.

« Au terme de la période prévue au premier alinéa du présent article, l'exploitant de l'installation n'est plus autorisé à la faire fonctionner. Il souscrit, dans les meilleurs délais, la déclaration prévue à l'article L. 593-26. Il porte cette déclaration à la connaissance de la commission locale d'information prévue à l'article L. 125-17. La déclaration est mise à la disposition du public par voie électronique par l'exploitant.

« Les articles L. 593-27 à L. 593-31 s'appliquent, le délai de dépôt du dossier mentionné à l'article L. 593-27 étant fixé par décision de l'Autorité de sûreté nucléaire.

« Jusqu'à l'entrée en vigueur du décret de démantèlement mentionné à l'article L. 593-28, l'installation reste soumise aux dispositions de son autorisation mentionnée à l'article L. 593-7 et aux prescriptions définies par l'Autorité de sûreté nucléaire, ces dernières pouvant être complétées ou modifiées en tant que de besoin. »

II.-La sous-section 4 de la section 1 du chapitre III du titre IX du livre V du même code est ainsi rédigée :

« Sous-section 4

« Arrêt définitif, démantèlement et déclassement

« Art. L. 593-25.-Lorsque le fonctionnement d'une installation nucléaire de base ou d'une partie d'une telle installation est arrêté définitivement, son exploitant procède à son démantèlement dans un délai aussi court que possible, dans des conditions économiquement acceptables et dans le respect des principes énoncés à l'article L. 1333-1 du code de la santé publique et au II de l'article L. 110-1 du présent code.

« Les délais et conditions de réalisation du démantèlement sont fixés par le décret mentionné à l'article L. 593-28.

« Art. L. 593-26.-Lorsque l'exploitant prévoit d'arrêter définitivement le fonctionnement de son installation ou d'une partie de son installation, il le déclare au ministre chargé de la sûreté nucléaire et à l'Autorité de sûreté nucléaire. Il indique dans sa déclaration la date à laquelle cet arrêt doit intervenir et précise, en les justifiant, les opérations qu'il envisage de mener, compte tenu de cet arrêt et dans l'attente de l'engagement du démantèlement, pour réduire les risques ou inconvénients pour les intérêts protégés mentionnés à l'article L. 593-1. La déclaration est portée à la connaissance de la commission locale d'information prévue à l'article L. 125-17. Elle est mise à la disposition du public par voie électronique par l'exploitant.

« La déclaration mentionnée au premier alinéa du présent article est souscrite au moins deux ans avant la date d'arrêt prévue, ou dans les meilleurs délais si cet arrêt est effectué avec un préavis plus court pour des raisons que l'exploitant justifie. L'exploitant n'est plus autorisé à faire fonctionner l'installation à compter de cette date.

« Jusqu'à l'entrée en vigueur du décret de démantèlement mentionné à l'article L. 593-28, l'installation reste soumise aux dispositions de son autorisation mentionnée à l'article L. 593-7 et aux prescriptions définies par l'Autorité de sûreté nucléaire, ces dernières pouvant être complétées ou modifiées en tant que de besoin.

« Art. L. 593-27.-L'exploitant adresse, au plus tard deux ans après la déclaration mentionnée à l'article L. 593-26, au ministre chargé de la sûreté nucléaire un dossier précisant et justifiant les opérations de démantèlement

et celles relatives à la surveillance et à l'entretien ultérieurs du site qu'il prévoit. Dans le cas de certaines installations complexes, en dehors des réacteurs à eau sous pression de production d'électricité, le ministre chargé de la sûreté nucléaire peut, à la demande de l'exploitant et par arrêté motivé pris après avis de l'Autorité de sûreté nucléaire, prolonger ce délai de deux ans au plus. Le dossier comporte l'analyse des risques auxquels ces opérations peuvent exposer les intérêts protégés mentionnés à l'article L. 593-1 et les dispositions prises pour prévenir ces risques et, en cas de réalisation du risque, en limiter les effets.

« Art. L. 593-28.-Le démantèlement de l'installation nucléaire de base ou de la partie d'installation à l'arrêt définitif est, au vu du dossier mentionné à l'article L. 593-27, prescrit par décret pris après avis de l'Autorité de sûreté nucléaire et après l'accomplissement d'une enquête publique réalisée en application du chapitre III du titre II du livre Ier et de l'article L. 593-9.

« Le décret fixe les caractéristiques du démantèlement, son délai de réalisation et, le cas échéant, les opérations à la charge de l'exploitant après le démantèlement.

« Art. L. 593-29.-Pour l'application du décret mentionné à l'article L. 593-28, l'Autorité de sûreté nucléaire définit, dans le respect des règles générales prévues à l'article L. 593-4, les prescriptions relatives au démantèlement nécessaires à la protection des intérêts mentionnés à l'article L. 593-1.

« Elle précise notamment, s'il y a lieu, les prescriptions relatives aux prélèvements d'eau de l'installation et aux substances radioactives issues de l'installation.

« Art. L. 593-30.-Lorsque l'installation nucléaire de base a été démantelée dans son ensemble conformément aux articles L. 593-25 à L. 593-29 et ne nécessite plus la mise en œuvre des dispositions prévues au présent chapitre et au chapitre VI du présent titre, l'Autorité de sûreté nucléaire soumet à l'homologation du ministre chargé de la sûreté nucléaire une décision portant déclassement de l'installation. »

III.-La sous-section 5 de la même section 1 devient la sous-section 6 et la sous-section 5 est ainsi rétablie :

« Sous-section 5

« Catégories particulières d'installations

« Art. L. 593-31.-Les articles L. 593-25 à L. 593-30 s'appliquent aux installations nucléaires de base consacrées au stockage de déchets radioactifs défini à l'article L. 542-1-1, dans les conditions suivantes :

« 1° L'arrêt définitif de fonctionnement est défini comme étant l'arrêt définitif de réception de nouveaux déchets ;

« 2° Le démantèlement s'entend comme l'ensemble des opérations préparatoires à la fermeture de l'installation réalisées après l'arrêt définitif ;

« 3° Les prescriptions applicables à la phase postérieure à la fermeture de l'installation, qualifiée de phase de surveillance, sont définies par le décret mentionné à l'article L. 593-28 et par l'Autorité de sûreté nucléaire ;

« 4° Le déclassement peut être décidé lorsque l'installation est passée en phase de surveillance. »

IV.-Le même chapitre III est complété par une section 3 ainsi rédigée :

« Section 3

« Protection des tiers

« Art. L. 593-39.-Les autorisations mentionnées au présent chapitre sont accordées sous réserve des droits des tiers. Le décret prévu à l'article L. 593-28 est pris sous réserve des droits des tiers.

« Art. L. 593-40.-La vente d'un terrain sur lequel a été exploitée une installation nucléaire de base est soumise à l'article L. 514-20. »

V.-L'article L. 593-16 du même chapitre III est abrogé.

VI.-Le même code est ainsi modifié :

1° Le deuxième alinéa de l'article L. 229-6 est ainsi rédigé :

« Les autorisations prévues aux articles L. 512-1 et L. 593-7, le décret prévu à l'article L. 593-28 et les prescriptions prises pour l'application de ces actes prévues aux articles L. 593-10 et L. 593-29 tiennent lieu de l'autorisation prévue au premier alinéa du présent article. Le décret prévu à l'article L. 593-28 et les prescriptions prévues à l'article L. 593-29 pour l'application de ces décrets tiennent lieu de l'autorisation prévue au premier alinéa du présent article pour les installations nucléaires de base consacrées au stockage de

- déchets radioactifs défini à l'article L. 542-1-1, dans les conditions prévues à l'article L. 593-31. » ;
- 2° A la fin du premier alinéa de l'article L. 592-20, les références : « L. 593-27, L. 593-32 et L. 593-33 » sont remplacées par les références : « L. 593-29 et L. 593-30 » ;
- 3° Au deuxième alinéa de l'article L. 593-7, les mots : « selon les modalités définies aux articles L. 593-29 à L. 593-32 » sont supprimés ;
- 4° A la fin de l'article L. 596-3, la référence : « ou à l'article L. 593-33 » est supprimée ;
- 5° Au premier alinéa de l'article L. 596-22, la référence : « L. 593-27 » est remplacée par la référence : « L. 593-29 » ;
- 6° L'article L. 596-23 est ainsi modifié :
- a) Au premier alinéa, la référence : « L. 593-33 » est remplacée par la référence : « L. 593-31 » ;
- b) Après le mot « environnement », la fin du 2° est ainsi rédigée : «, dans un délai de :
- « a) Deux ans à compter de leur publication, pour les autorisations mentionnées aux articles L. 593-7, L. 593-14 et L. 593-15 ;
- « b) Deux ans à compter de la publication du décret, pour le décret mentionné à l'article L. 593-28 ;
- « c) Quatre ans à compter de leur publication ou de leur affichage, pour les autres décisions administratives mentionnées au I du présent article, ce délai étant, le cas échéant, prolongé jusqu'à la fin d'une période de deux années suivant la mise en service de l'installation. » ;
- 7° L'article L. 596-27 est ainsi modifié :
- a) Le I est ainsi modifié :
- après la référence : « L. 593-14 », la fin du 1° est ainsi rédigée : « ou sans avoir bénéficié de la décision mentionnée à l'article L. 593-28 ; » ;
- après le 1°, il est inséré un 1° bis ainsi rédigé :
- « 1° bis De procéder aux opérations préparatoires à la fermeture d'une installation nucléaire de base consacrée au stockage de déchets radioactifs défini à l'article L. 542-1-1 sans avoir, en application de l'article L. 593-31, bénéficié de la décision mentionnée à l'article L. 593-28 ; » ;
- b) Au 2° du II, les références : « L. 593-26 et L. 593-27 » sont remplacées par les références : « L. 593-28 et L. 593-29 » ;
- 8° Au premier alinéa du I de l'article L. 596-29, après la référence : « 1° », est insérée la référence : «, au 1° bis ».

Article 128

- I. - Dans les conditions prévues à l'article 38 de la Constitution, le Gouvernement est autorisé à prendre par ordonnance des dispositions relevant du domaine de la loi nécessaires pour :
- 1° Renforcer l'efficacité du contrôle en matière de sûreté nucléaire et de radioprotection :
- a) En modulant les pouvoirs de contrôle et de sanction de l'Autorité de sûreté nucléaire et de ses inspecteurs, notamment en dotant l'autorité du pouvoir de prononcer des astreintes et en créant un régime de sanctions pécuniaires ;
- b) En procédant à la réforme et à la simplification tant des dispositions relatives au contrôle et aux sanctions administratives que des dispositions de droit pénal et de procédure pénale applicables en matière de sûreté nucléaire et de radioprotection, en les harmonisant avec les dispositions de même nature prévues au code de l'environnement tout en tenant compte des exigences particulières liées à la protection des intérêts et des principes mentionnés à l'article L. 593-1 du même code et à l'article L. 1333-1 du code de la santé publique ;
- c) En étendant les dispositions mentionnées au b du présent 1° aux activités participant aux dispositions techniques ou d'organisation mentionnées au deuxième alinéa de l'article L. 593-7 du code de l'environnement exercées par l'exploitant nucléaire, ses fournisseurs, prestataires ou sous-traitants, y compris hors des installations nucléaires de base ;
- d) En instituant, au sein de l'Autorité de sûreté nucléaire, une commission des sanctions ;
- e) En prévoyant des dispositions particulières pour les installations et activités nucléaires intéressant la défense ;
- 2° Aménager les compétences, les attributions et les pouvoirs de l'Autorité de sûreté nucléaire, afin qu'elle puisse :
- a) Faire réaliser des tierces expertises, des contrôles et des études dans ses domaines de compétences, aux frais des assujettis, par des organismes choisis avec son accord ou qu'elle agréée, en complément éventuel des missions d'expertise et de recherche effectuées, dans lesdits domaines, par l'Institut de radioprotection et de sûreté nucléaire, qui est également rendu destinataire de l'ensemble des rapports produits par lesdits organismes ;

- b) Exercer, au sein des installations nucléaires de base, certaines des compétences de l'autorité administrative concernant les déchets, les produits et équipements à risques et les produits chimiques ;
- c) Veiller à l'adaptation de la recherche publique aux besoins de la sûreté nucléaire et de la radioprotection ;
- d) Procéder, en concertation avec le ministre chargé de la sûreté nucléaire, à l'évaluation périodique du dispositif normatif en matière de sûreté nucléaire et de radioprotection et présenter les propositions en vue de l'amélioration de ce dispositif ;

3° Compléter, en ce qui concerne les installations nucléaires de base, la transposition des directives 2010/75/UE du Parlement européen et du Conseil, du 24 novembre 2010, relative aux émissions industrielles (prévention et réduction intégrées de la pollution) et 2012/18/UE du Parlement européen et du Conseil, du 4 juillet 2012, concernant la maîtrise des dangers liés aux accidents majeurs impliquant des substances dangereuses, modifiant puis abrogeant la directive 96/82/CE du Conseil, et rendre applicables ces dispositions, avec les adaptations nécessaires, à l'ensemble des installations nucléaires de base ;

4° Instituer un dispositif de contrôle et de sanction gradués des dispositions du chapitre III du titre III du livre III de la première partie du code de la défense et des textes pris pour son application, pouvant comprendre des astreintes et des sanctions pécuniaires ;

5° Soumettre les responsables d'activités nucléaires mentionnées à l'article L. 1333-1 du code de la santé publique à l'obligation de prendre des mesures de protection des sources de rayonnements ionisants contre les actes de malveillance, pouvant inclure des enquêtes administratives individuelles, et en confier le contrôle à l'Autorité de sûreté nucléaire ou aux autres autorités administratives selon une répartition tenant compte des régimes d'autorisation auxquels ces responsables d'activités sont par ailleurs déjà soumis ;

6° Transposer la directive 2014/87/Euratom du Conseil du 8 juillet 2014 modifiant la directive 2009/71/Euratom établissant un cadre communautaire pour la sûreté nucléaire des installations nucléaires ainsi que la directive 2013/59/Euratom du Conseil du 5 décembre 2013 fixant les normes de base relatives à la protection sanitaire contre les dangers résultant de l'exposition aux rayonnements ionisants et abrogeant les directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom et 2003/122/Euratom ;

7° Opérer des ajustements de coordination, de mise en cohérence et de correction formelle au sein du code de l'environnement, du code de la santé publique, du code du travail, du code de la défense et du code des douanes dans les domaines de la sûreté et de la sécurité nucléaires, de la radioprotection et de l'information du public en ces matières.

II. - L'ordonnance est prise dans un délai de dix mois à compter de la promulgation de la présente loi.

Le projet de loi de ratification est déposé devant le Parlement dans un délai de quatre mois à compter de la publication de l'ordonnance.

Article 129

I. - Dans les conditions prévues à l'article 38 de la Constitution, le Gouvernement est autorisé à prendre par ordonnance les dispositions relevant du domaine de la loi nécessaires pour :

1° Transposer la directive 2011/70/Euratom du Conseil du 19 juillet 2011 établissant un cadre communautaire pour la gestion responsable et sûre du combustible usé et des déchets radioactifs ;

2° Adapter la législation existante aux dispositions transposant cette directive, sans remettre en cause l'interdiction du stockage en France de déchets radioactifs en provenance de l'étranger ainsi que celui de déchets radioactifs issus du traitement de combustibles usés et de déchets radioactifs provenant de l'étranger prévue à l'article L. 542-2 du code de l'environnement, et préciser les conditions d'application de cette interdiction ;

3° Définir une procédure de requalification des matières en déchets radioactifs par l'autorité administrative ;

4° Renforcer les sanctions administratives et pénales existantes et prévoir de nouvelles sanctions en cas de méconnaissance des dispositions applicables en matière de déchets radioactifs et de combustible usé ou en cas d'infraction à ces dispositions.

II. - L'ordonnance est prise dans un délai de six mois à compter de la promulgation de la présente loi.

Le projet de loi de ratification est déposé devant le Parlement dans un délai de six mois à compter de la publication de l'ordonnance.

III. - L'ordonnance n° 2012-6 du 5 janvier 2012 modifiant les livres Ier et V du code de l'environnement est ratifiée.

Article 130

I.-Le code de l'environnement est ainsi modifié :

1° Le premier alinéa de l'article L. 597-2 est ainsi rédigé :

« Sont soumises à la présente section les personnes physiques ou morales, publiques ou privées, qui

exploitent soit une installation nucléaire relevant du régime des installations nucléaires de base ou du régime des installations classées pour la protection de l'environnement et entrant dans le champ d'application de la convention de Paris mentionnée à l'article L. 597-1 du présent code, soit une installation nucléaire intéressant la défense mentionnée aux 1° ou 3° de l'article L. 1333-15 du code de la défense et qui entrerait dans le champ d'application de ladite convention de Paris s'il s'agissait d'une installation n'intéressant pas la défense. » ;

2° L'article L. 597-5 est ainsi modifié :

a) Au premier alinéa, les mots : « par l'Etat, » sont supprimés et, après le mot : « conditions », il est inséré le mot : « et » ;

b) Le second alinéa est ainsi rédigé :

« En ce qui concerne les installations intéressant la défense, les victimes qui auraient été fondées à se prévaloir de la convention complémentaire de Bruxelles s'il s'était agi d'une installation n'intéressant pas la défense sont indemnisées, au-delà du montant de responsabilité de l'exploitant, dans les mêmes conditions et limites ; la part de la réparation financée au moyen de fonds publics à allouer par les Etats parties à la convention complémentaire de Bruxelles est dans ce cas prise en charge par l'Etat. » ;

3° La première phrase de l'article L. 597-22 est ainsi modifiée :

a) Les mots : « de l'Etat » sont supprimés ;

b) Après la référence : « L. 597-5 », sont insérés les mots : « est assurée par l'Etat et » ;

4° L'article L. 597-24 est ainsi rédigé :

« Art. L. 597-24.-A l'issue d'un délai de six mois à compter de l'entrée en vigueur de la présente section, tout exploitant ou transporteur est en mesure de justifier que sa responsabilité est couverte dans les conditions prévues aux articles L. 597-4 et L. 597-7 à L. 597-10. » ;

5° L'article L. 597-25 est ainsi modifié :

a) A la première phrase, la référence : « L. 597-7 » est remplacée par la référence : « L. 597-31 » et la référence : « L. 597-4 » est remplacée par la référence : « L. 597-28 » ;

b) A la seconde phrase, la référence : « L. 597-8 » est remplacée par la référence : « L. 597-32 » ;

6° Le premier alinéa de l'article L. 597-27 est ainsi rédigé :

« Sont soumises à la présente section les personnes physiques ou morales, publiques ou privées, qui exploitent soit une installation nucléaire relevant du régime des installations nucléaires de base ou du régime des installations classées pour la protection de l'environnement entrant dans le champ d'application de la convention relative à la responsabilité civile dans le domaine de l'énergie nucléaire signée à Paris le 29 juillet 1960, soit une installation nucléaire intéressant la défense mentionnée aux 1° ou 3° de l'article L. 1333-15 du code de la défense et qui entrerait dans le champ d'application de ladite convention de Paris s'il s'agissait d'une installation n'intéressant pas la défense. » ;

7° L'article L. 597-28 est ainsi modifié :

a) Au premier alinéa, le montant : « 91 469 410,34 € » est remplacé par le montant : « 700 000 000 € » ;

b) Au second alinéa, le montant : « 22 867 352,59 € » est remplacé par le montant : « 70 000 000 € » et les mots : « voie réglementaire » sont remplacés par le mot : « décret » ;

c) Il est ajouté un alinéa ainsi rédigé :

« Le montant fixé au premier alinéa est également réduit, en ce qui concerne les dommages subis dans un Etat auquel la convention de Paris est applicable, dans la mesure où le droit applicable dans cet Etat ne prévoit pas un montant de responsabilité équivalent pour l'exploitant, et à due concurrence de ce dernier montant. » ;

8° L'article L. 597-29 est ainsi modifié :

a) Au premier alinéa, les mots : « par l'Etat, » sont supprimés et, après le mot : « conditions », il est inséré le mot : « et » ;

b) Le second alinéa est ainsi rédigé :

« En ce qui concerne les installations intéressant la défense, les victimes qui auraient été fondées à se prévaloir de cette même convention s'il s'était agi d'une installation n'intéressant pas la défense sont indemnisées, au-delà du montant de responsabilité de l'exploitant, dans les mêmes conditions et limites ; la part de la réparation financée au moyen de fonds publics à allouer par les Etats parties à la convention complémentaire de Bruxelles est dans ce cas prise en charge par l'Etat. » ;

9° A l'article L. 597-32, le montant : « 22 867 352,59 € » est remplacé par le montant : « 80 000 000 € » ;

10° A l'article L. 597-34, le montant : « 228 673 525,86 € » est remplacé par le montant : « 700 000 000 € » ;

11° L'article L. 597-45 est ainsi rédigé :

« Art. L. 597-45.-A l'expiration de la convention de Bruxelles ou après sa dénonciation par le Gouvernement de la République française, l'indemnisation complémentaire prévue au premier alinéa de l'article L. 597-29 est

assurée par l'Etat et ne joue, à concurrence de 145 000 000 €, que pour les dommages subis sur le territoire de la République française. »

II.-Les 6°, 7°, 9° et 10° du I entrent en vigueur six mois après la promulgation de la présente loi.

III.-Les 6° à 10° du I sont applicables en Nouvelle-Calédonie, en Polynésie française, à Wallis-et-Futuna et dans les Terres australes et antarctiques françaises.

IV.-La section 2 du chapitre VII du titre IX du livre V et l'article L. 597-25 du code de l'environnement sont abrogés six mois après l'entrée en vigueur du protocole portant modification de la convention de Paris, signé à Paris le 12 février 2004.

Article 131

L'article 8 de l'ordonnance n° 2012-6 du 5 janvier 2012 modifiant les livres Ier et V du code de l'environnement est abrogé.

Article 132

I.-L'article L. 612-1 du code monétaire et financier est complété par un VII ainsi rédigé :

« VII.-L'Autorité de contrôle prudentiel et de résolution peut être consultée par l'autorité administrative sur le respect des obligations imposées à l'article L. 594-2 du code de l'environnement. »

II.-L'article L. 594-4 du code de l'environnement est complété par un alinéa ainsi rédigé :

« L'autorité administrative peut échanger tout élément relatif à l'exercice de sa mission avec l'autorité mentionnée à l'article L. 612-1 du code monétaire et financier ainsi qu'avec les commissaires aux comptes des exploitants. Les commissaires aux comptes des exploitants sont déliés du secret professionnel vis-à-vis de l'autorité administrative dans le cadre de ces échanges. »

Appendix 7 - Process of incident classification

1. An incident occurs.
2. The operator assesses the incident, referring to specific evaluation grids and proposes a classification for this incident on the INES scale (mostly 0 for small deviations; 1 for anomalies; 2 for incident and up to 7 for major accidents).
3. Meantime, the operator proceeds to the analysis of the incident.
4. If the incident is significant, the operator needs to declare it to the ASN, to the General Council and to IRSN in less than 48 hours.
5. The general council informs CLI's president and other members of the CLI who can, if deemed necessary, ask further questions to the operator.
6. ASN reviews the incident and decides (or not) to ask IRSN for an expertise.
7. IRSN reviews the incident and starts the expertise.
8. If deemed necessary, ASN and IRSN go on the field to investigate the incident (possibly with interviews of actors).
9. IRSN hands its expertise over to ASN.
10. ASN classifies the incident, sometimes increasing the classification done by the operator.
11. The incident is presented in the General Assembly of the CLI with schemes, pictures, and explanations of the incidents.
12. CLI members ask questions and ensues a debate...

Appendix 8 - INES scale

After Chernobyl and in order to better inform the population about nuclear incidents, France decided in 1987 to develop rating scales of nuclear incidents, by analogy with the classification of natural phenomena such as earthquakes, wind or avalanches⁶⁶. The first scale was put in place in 1987 by the CCSIN (French High Council for Nuclear Safety and Information) and when the International Nuclear and Radiological Scale Event (INES) was created in 1991 by the IAEA (International Atomic Energy Agency), ASN played a crucial role. Since 1991, there have been several revised versions of INES: in 2002, ASN proposed to take into account radiation protection events (irradiation, contamination), affecting workers in particular. In 2008, the IAEA published a revised version of the scale enabling events occurring in the areas of transport or leading to human exposure to radioactive sources to be better taken into account.

Today, the INES scale is applied by more than 60 countries and is intended to facilitate the perception by the media and the public of the significance of nuclear incidents and accidents. In order to classify them, those incidents and accidents are ranked from 0 (below scale) to 7 (major accident) and they are considered from their impacts on three different areas (see figure in appendix): (1) the impact on the people and the environment; (2) the impact on the radiological barriers and controls; and (3) the impact on defense-in depth.

⁶⁶ Source: ASN website on INES scale (www.asn.fr)

GENERAL DESCRIPTION OF INES LEVELS	PEOPLE AND ENVIRONMENT	RADIOLOGICAL BARRIERS AND CONTROL	DEFENCE-IN-DEPTH
7 MAJOR ACCIDENT	Major release of radioactive material with widespread health and environmental effects requiring implementation of planned and extended countermeasures.		
6 SERIOUS ACCIDENT	Significant release of radioactive material likely to require implementation of planned countermeasures.		
5 ACCIDENT WITH WIDER CONSEQUENCES	Limited release of radioactive material likely to require implementation of some planned countermeasures • Several deaths from radiation.	Severe damage to reactor core • Release of large quantities of radioactive material within an installation with a high probability of significant public exposure. This could arise from a major criticality accident or fire.	
4 ACCIDENT WITH LOCAL CONSEQUENCES	Minor release of radioactive material unlikely to result in implementation of planned countermeasures other than local food controls • At least one death from radiation.	Fuel melt or damage to fuel resulting in more than 0.1% release of core inventory • Release of significant quantities of radioactive material within an installation with a high probability of significant public exposure.	
3 SERIOUS INCIDENT	Exposure in excess of ten times the statutory annual limit for workers • Non-lethal deterministic health effect (e.g., burns) from radiation.	Exposure rates of more than 1 Sv/h in an operating area • Severe contamination in an area not expected by design, with a low probability of significant public exposure.	Near accident at a nuclear power plant with no safety provisions remaining • Lost or stolen highly radioactive sealed source • Misdeltivered highly radioactive sealed source without adequate procedures in place to handle it.
2 INCIDENT	Exposure of a member of the public in excess of 10 mSv • Exposure of a worker in excess of the statutory annual limits.	Radiation levels in an operating area of more than 50 mSv/h • Significant contamination within the facility into an area not expected by design.	Significant failures in safety provisions but with no actual consequences • Found highly radioactive sealed orphan source, device or transport package with safety provisions intact • Inadequate packaging of a highly radioactive sealed source.
1 ANOMALY			• Overexposure of a member of the public in excess of statutory annual limits • Minor problems with safety components with significant defence-in-depth remaining • Low activity lost or stolen radioactive source, device or transport package.
0 BELOW SCALE	NO SAFETY SIGNIFICANCE		