

UNIOR



CABERNET, 4th International Conference on Managing Urban Land

15th October 2014 Elsa Limasset, BRGM

<u>Elsa Limasset</u>, Clément Zornig, Pascale Michel, Hubert Leprond, BRGM, France ; Agnès Laboudigue, Claire Alary, ARMINES Douai; France; Stéphane Fourny, ARTELIA, France; Jean-Luc Collet, Agence Jean Luc Collet, France



Architecte - Urbaniste







The facts

For effective and sustainable regeneration of large and complex brownfield sites:

- Need to balance the intentions in returning the site's beneficial use with the local urban, environmental, social and economic context
- Need to reconnect the site with the surrounding urban setting
- Need to consider multiple spatial scales and multiple temporal scales
- **V** Need to conciliate many stakeholders involved in the decision making process

Much literature/guidance on sustainable planning, sustainable remediation, cost benefit analysis ...

But no guidance on how to fully carry out <u>integrated</u> regeneration of industrial brownfields projects in France





Contents

The REFRIN^{DD} research project The REFRINDD guidance The REFRINDD tool Testing of the tool



The REFRIN^{DD} research project

Major tasks and expected outcomes





REFRIN^{DD} guidance

6 steps generic road map for sustainable brownfield regeneration process





REFRIN^{DD} tool

Based on the 6 steps generic road map guidance





Testing of the proposed REFRIN^{DD} tool on the "ZAC de l'UNION" case study



CABERNET, 4th International Conference on Managing Urban Land, 15/10/2014

The "ZAC de l'Union" site within the Lille Metropolis

Intercommunal site (3 communes)



ZAC de l'Union: important past industrial activities

47 « BASIAS »

sites: abandoned and operational industrial sites, that present risks of environmental pollution

4 « BASOL »

sites: polluted (or potentially polluted) sites requiring preventive or remedial government measures



ZAC de l'Union: a generic approach for managing contamination

- 700 sampling locations,
 45 boreholes, 85 gas
 sampling locations
- Main contaminants: PAH, VOCs, metals, Hydrocarbons, BTEX
- 6 « source » zones to remediate

Generic Remediation Plan giving priority to in situ remediation or on site remediation.



Figure 4 : Localisation des zones sources

ZAC de Union: 1st pilot eco-district within the metropolis

A multi-sectoral approach in regenerating the large and complex brownfield site

- Designing mixed-use neighbourhoods

(320 to 450 000 m² for housing, economic activity, and services);

Integrating sustainability principles all along the redevelopment project;

- Proximity to nature in town;
- Informing and engaging with local people Informer;
- Changing practice with less car usage;
- Encouraging in situ and on situ remediation.



REFRINDD approach tested on the "Les Rives de l'Union"









Sust. Dev. ambitions

REFRINDD tool: MCA questionnaire to collect

sustainable ambitions (on the territory or within the brownfield

regeneration project)



A1	Quelle importance accordez-vous à la maitrise des énergies ?	Aucune importance	•
A2	Quelle importance accordez-vous à la prise en compte du changement climatique ?	Peu d'importance	•
A3	Quelle importance accordez-vous à la prise en compte de la compatibilité des milieux (eaux, sols, air, ambiance sonore) avec des usages futurs, ainsi que la valorisation de déchets et de déblais ?	Très important	•
Α4	Quelle importance accordez-vous à la prise en compte de l'intégrité des écosystèmes, de la biodiversité et des consommations de ressources non renouvelables ?	Peu d'importance	•
B1	^T Quelle importance accordez-vous à la prise en compte de la maitrise des risques sanitaires globaux ?	Important	•
B2	Ve importance accordez-vous à la prise en compte de la maitrise des nuisances pendant un er d'aménagement dans un projet de requalification de friche (pendant sa réalisation)?	Très important	•
B3	l portance accordez-vous à la prise en compte de la perception des risques et acceptabilité du vénagement ?	Peu d'importance	•
B4	Que tance accordez-vous à la prise en compte Paysage, patrimoine et identification à un lieu, une sun projet de requalification de friche pour les futurs usages de la friche une fois	Peu d'im, ance	•
B5	lou de l'intégration urbaine et cohésion sociale	Très importa	
	12 themes or questions on sustainable development	Ambitic local c a	ons from elected officials, public uthorities

Sust. Dev. ambitions

REFRINDD tool: MCA questionnaire to collect

sustainable ambitions here within the brownfield regeneration project

Energy needs	Very important	3
Control on climate change effects	No interest	1
Resources and biodiversity	Very important	3
Compatibility with the environment	Very important	3
Going beyond acceptable risks	Little interest	1
Control over potential nuisance	Little interest	1
Social risk acceptability and engagement	Important	2
Landscape quality, heritage, identity	Important	2
Urban integration and social cohesion	Very important	3
Control on direct financial costs	Very important	3
Costs and indirect financial benefits	Important	2
Control over uncertainties on the project, deadline	Very important	3

Référentiel dynamiq loppement d

Energy needs Control on climate change effects Resources and biodiversity Compatibility with the environment Going beyond acceptable risks Control over potential nuisance Social risk acceptability and engagement Landscape quality, heritage, identity Urban integration and social cohesion Control on direct financial costs Costs and indirect financial benefits Control over uncertainties on the project, deadline



Elected local officials, public authorities Notes = ponderation in the tool MCAs



REFRINDD tool – Planning & Design:

MCA to compare sustainability of remedial options



REFRINDD tool - Planning & Design: MCA to compare sustainability of <u>2 remedial options</u>



weighted sum for each theme

MG2

MG 1

2 remedial options:

MG1: in situ treatment (venting)

- MG2 : off site to landfill

		(in situ)	(off site)
A1	Energy needs	3,1	2,8
A2	Control on climate change effects	4,5	1
A3	Impact on the environment	5	3
A4	Compatibility with the environment, waste	4,1	4
B1	Going beyond acceptable risks	4	4,2
B2	Control over potential nuisance	4,2	2,2
B3	Social risk acceptability , engagement	3	4
B4	Landscape quality, heritage , identity	0	0
B5	Urban integration and social cohesion	0	0
C1	Control on direct financial costs	4,3	2,7
C2	Cost and indirect financial benefits	3,3	3,3
C3	Control over uncertainties on the project, deadlin	1,85	4,7
	Weighted sum taking into account ambitions	2,98	2,73

MG1

MG2



REFRINDD tool - Planning & Design:

MCA to compare sustainability of <u>planning programme options</u> integrating chosen remediation options Step 3 -Planning & Design

100



Efficacité économique								
EE-C3 -	Maitrise des risques, incertitudes, délais						%	
EE-C3-1	Risques financiers, administratifs et juridiques	?	2	Incertitudes sur la demande de ce type de locaux	4	opportunité bien avancée et projet solide et soutenu	15	
EE-C3-2	Maturité des solutions techniques et capacité d'in vovation	?	4	Techniques éprouvées et approuvées	5	Porteur du projet très volontariste sur les ambitions fixées	10	
EE-C3-3	Orga 'sation, pilotage et gestion des imprévus	?	4	Bonne gouvernance	5	Très bonne gouvernance	10	
EE-C3-4	Sensi té aux variations de prix	2	4	Peu d'incertitudes	4	Peu d'incertitudes	5	
EE-C3-5	Argun aire urbain de l'ouvrage à long terme		3	argumentaire solide	5	opportunité à saisir pour renforcer l'identité du site	10	
EE-C3-6	Contra de délais (imposées par un aména, vrs de la reconquête et la revalor des terrains du site)	2	4	Peu de contraintes de délais	1	Contrainte de délais forte imposée par le porteur de l'opportunité	40	
EE-C3-7	Adaptab éversibilité 🤇	?	5	Adaptabilité très forte	3	Reversibilité du projet moins évidente que du tertiaire classique	10	
note po	ndérée	ues	3,7		2,6			
	45 criteria within 12 themes on sustainable development in all MCAs		N prof	otes are given by essional experts (mainly)	relevan consulta	t ants)	21

REFRINDD tool - Planning & Design: MCA to compare sustainability of planning programme options and chosen remediation options

Step 3 -Planning & Design

A2 +

weighted sum for each theme

A1 +

2 planning scenarii relevant:

- SC1: A1 "tertiary facilities" + MG1 "on site treatment"
- **SC2: A2** "opportunity" "major sport group Headquarters (offices, leisure facilities, restaurants) + MG2 "landfill"

A1+MG2 and A2+MG1 not scored as not relevant

	cinculation options	MG1	MG2
A1	Energy needs	2,4	2,3
A2	Control on climate change effects	3,2	3,5
A3	Impact on the environment	3,1	3,8
A4	Compatibility with the environment, waste	3,4	2,8
B1	Going beyond acceptable risks	4,3	4,1
B2	Control over potential nuisance	2	2,2
B3	Social risk acceptability, engagement	4	4,5
B4	Landscape quality, heritage, identity	2,8	4,3
B5	Urban integration and social cohesion	3,5	5
C1	Control on direct financial costs	1,15	1,65
C2	Cost and indirect financial benefits	2,3	3,7
C3	Control over uncertainties on the project, deadline	3,7	2,6
	Weighted sum taking into account ambitions	2,94	3,31

Weighted sum taking into account ambitions



A2 + MG2



A1 + MG1

Main conclusions so far

Scoring remediation techniques and urban programmes were fully carried out on a small sector using some of the tool MCAs.

- However, when looking into both overall envisaged planning programmes, the dig and landfill option (MG2) was retained along with sport group Headquarters (A2) as social and financial benefits were much higher.

The tests are still being carried out on this sector, trying to include other contaminants hot spots to add into the complexity, and adapt the overall approach.

Project perspectives - august 2015

MCAs still being tested on ZAC de l'Union and on 2 other sites:

- Looking to refine lists of criteria
- **Looking into how to evaluate each criteria**
- Optimise the integration of remediation aspects into the planning programme criteria
 - Perform sensitivity analysis
- Integrate as much as possible the complexity of spatial and temporal scales

To come:

- Carry on the development of the prototype tool
- One day work shop November 2014 discuss outputs so far with all types of stakeholders
- Guidance and prototype MCAs tool to be delivered late 2015

L'UNION en 2014







Thank you for your attention













Contact : Elsa Limasset (project coordinator) <u>e.limasset@brgm.fr</u>





Contact : Stéphane Fourny <u>Stephane.FOURNY@arteliagroup.com</u>





COLLET jean luc

Contact : Agnès Laboudigue agnes.laboudigue@mines-paristech.fr Contact: Claire Alary <u>claire.alary@mines-douai.fr</u>

Jean-Luc Collet jlcollet@nordnet.fr