Rencontres Franco-Helléniques et Internationales, IFA, 16-17 mai 2007

« La démarche SD-MED pour l'application du développement durable au cadre bâti: quelles perspectives d'application à l'échelle de l'aménagement urbain ? »

Le rapport SBC pour la Méditerranée

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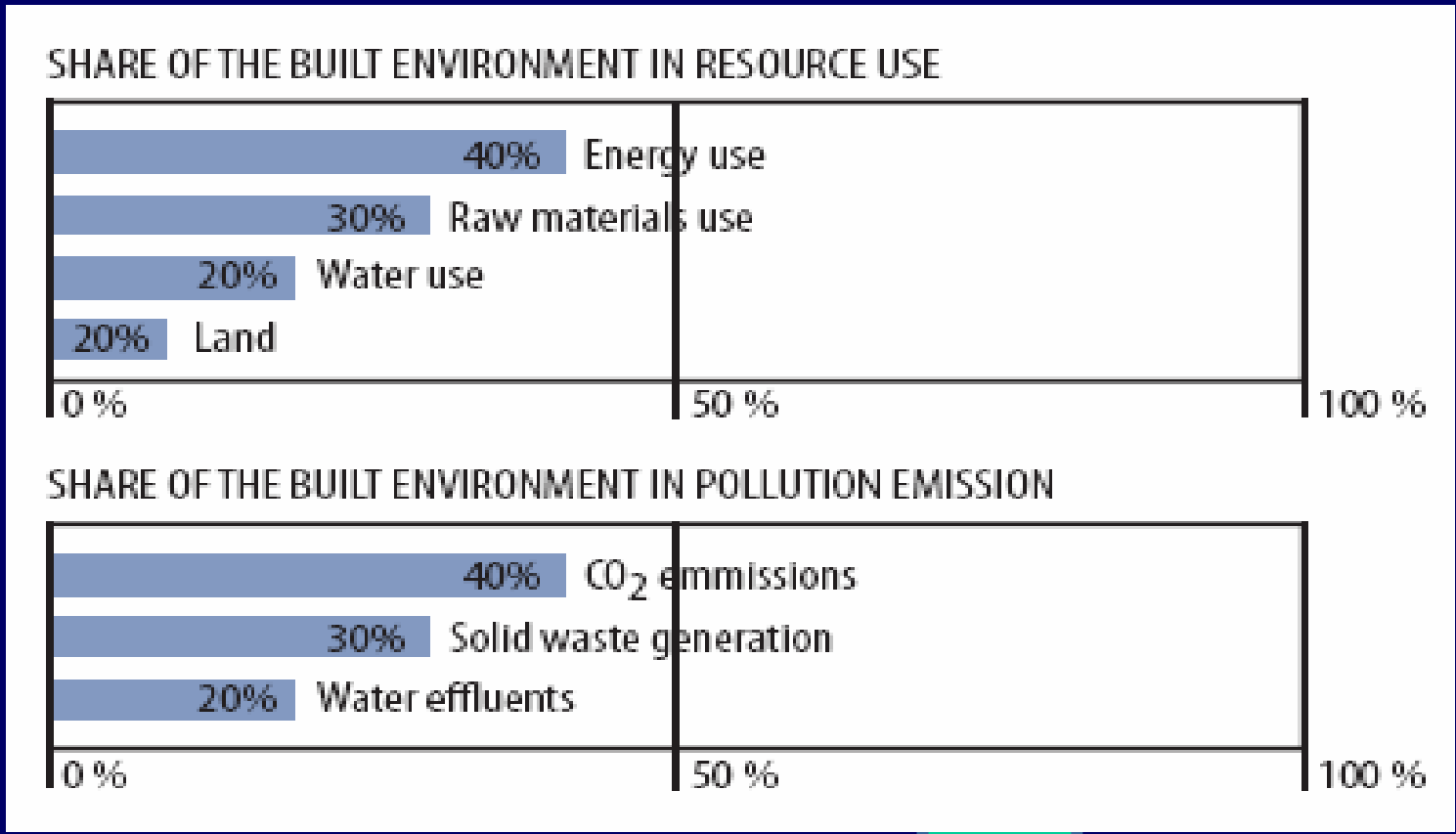
L’ impact du bâti dans l’ utilisation des resources et à la pollution

The built environment



Toutefois, la “construction durable” et l’ “architecture” sont des concepts plus complexes...

- **En matière d’architecture et de conception urbaine,** la région méditerranéenne possède **une longue tradition de savoir-faire exceptionnel**, démontrant une grande ingéniosité à s'adapter au climat (hivers doux et ensoleillés, très hauts pics de chaleur en été). Le choix des agencements, des ouvertures, des matériaux, des patios, des fontaines et des petites rues ombragées a généré un environnement urbain et un héritage architectural en parfait accord avec le climat.

Le point sur la ventilation et la climatisation

- Cependant, plus récemment, l'expansion urbaine et l'évolution du mode de vie ont contribué à l'émergence d'une architecture et d'un développement urbains qui, de par leur conception, **sont trop en décalage avec le climat et conduisent à une surconsommation d'énergie destinée au chauffage et au refroidissement (ventilation et climatisation).**

- Par ailleurs, les gratte-ciels de verre se multiplient dans les villes méditerranéennes malgré leur totale inadaptation à la chaleur estivale.

- Afin d'entrer de nouveau **en harmonie avec son climat,** l'architecture méditerranéenne devrait réintroduire quelques principes simples d'architecture auxquels elle a renoncé trop hâtivement.

Le principe d'architecture durable en méditerranée

- Dans cette région, le principe d'architecture durable repose essentiellement sur la notion d'architecture bioclimatique : il s'agit de **répondre aux nouvelles demandes de confort et de santé** des occupants, tout en réduisant, voire en évitant, des **dépenses énergétiques en technologies actives de chauffage, de ventilation et de refroidissement**.

L' événement SB05MED et ses conclusions

- **National**
- Municipality of Athens and Municipality of Athens Development Agency
- UEHR, Panteion University
- Clean-Up Greece
- Association HQE
- TEI d'Athenes
- Municipalite de Palaion Faliron

- **et**
- ALEX-MED (Bibliotheque d' Alexandrie)
- ONG, associations et reseaux.....

- **International**

- **iiSBE**
- **CIB**
- **UNEP/DTIE**
- **OECD**
- **UIA, Ares Group**
- **UMAR**

Titre : “La construction durable: une action pour le développement durable en Méditerranée”

- **UNE SYNERGIE D’INVERCURE INTERNATIONALE VISANT A L’ARTICULATION DES INITIATIVES LOCALES, NATIONALES, REGIONALES et INTERNATIONALES**
- **Cet événement international, placé sous le haut patronage de Mme le Maire d'Athènes, du Ministre de Développement et de l' Union Centrale des Villes et des Communes Grecques, a eu lieu a Athènes, le 9, 10 et 11 Juin 2005.**
- **Un événement à double titre :**
- **Conférence Euro- Méditerranéenne dans le cadre du Projet LIFE SB-MED qui concerne le renforcement de la transferabilité de l'expertise déjà développée en matière de construction durable, au bassin méditerranéen.**
- **une des réunions régionales préparatoires à la Conférence Mondiale Sustainable Building-SB05 qui a déjà été réalise à Tokyo en Septembre 2005. La contribution de l'événement régional (ATHÈNES) à la Conférence Mondiale (TOKYO) était le**
- **Rapport sur la construction et le bâtiment durable pour le Bassin Méditerranéen**

Faits généraux de la Conférence d' Athènes

Pays : **26 pays, 13 pays Méditerranéens**

- **Grèce, France, Syrie, Italie, Espagne, Serbie, Egypte, Israel, Portugal, Tunisie, Liban, Malte, Authorité Paléstinienne:**
- et **Belgique, Royaume Uni, Suède, Pays Bas, Finlande, Suisse, Hongrie, Roumanie, Lithuanie, Bolivie, Iran, Pakistan.**

A l’initiative de :

- Une Association Franco-Hellénique et Internationale
- L' Association « SD- MED» est une initiative gréco française et internationale, à but non lucratif qui vise au **renforcement de la coopération en matière de développement et de construction durables en méditerranée.**
- L'idée de ce partenariat est conforme à la **politique Française**, suggérée en septembre 2002, lors du Sommet de Johannesburg, sur la **nécessité de coopération dans la région pour favoriser l'émergence d'une vision commune pour l'avenir de la Méditerranée**.
- Notre but est de promouvoir le partenariat euro- méditerranéen conçu par l'Union Européenne comme un partenariat économique, un partenariat au service de l'environnement d'une part, pour affronter les déséquilibres écologiques et partager les dilemmes du développement durable, un partenariat au service de l'Homme d'autre part, structuré autour de l'éducation, de la santé, de l'accès à la culture, du logement.

Nos partenaires institutionnels

Nos partenaires de projet...

L’accent sur la construction durable

- **Nous mettons l'accent sur la construction durable** , considérée pertinente pour **favoriser des partenariats structurés autour du développement durable** et sa mise en oeuvre dans **les projets du bâtiment**, **de la ville, du territoire.**

- Nous mettons l'accent sur la construction durable et de haute qualité environnementale, puisque la Grèce présente actuellement, au delà de son potentiel propre, l'opportunité de devenir un centre de dissémination d'expertise dans la région méditerranéenne , en matière de construction écologique.

La Grèce joue actuellement un rôle stratégique dans le transport du gaz naturel : Le pipeline Gréco-turc (ITG) est déjà en voie de construction - La construction du pipeline « Poséidon » (IGI) vient d'être signée entre la Grèce et l'Italie.

3 Seances plenières et 4 tables rondes

- **Séance Plenière I :** Specific conditions (economic, social, environmental, cultural) defining urban sustainability, Sustainable building (SB) and Sustainable Construction (SC) in the Mediterranean region.
- **Séance Plenière II :** Policies and strategies, perspectives and barriers for implementation of SB in the Mediterranean countries.
- **Séance Plenière III:**(Closing, Synthesis of round tables) Conclusions for the elaboration of the SBC Report for the Mediterranean region, to be presented in SB05 Tokyo.

- **TR I :** Methodologies, policies and standards for sustainable building and sustainable city in the Mediterranean
- **TR II :** Building and city projects, systems and operations, where are we in the Mediterranean ?
- **TR III :** Assessment and evaluation instruments and tools : where are we ?
- **TR IV :** Financial instruments and mechanisms: market development, realities and perspectives.

14 Ateliers Parallèles (1)

- **AP I** Definitions, approaches, methodologies, indicators and standards of Sustainable Building (SB) and environmental quality (EQ) in buildings.
  - **Ia.** Which definitions, which approaches?
  - **Ib.** Indicators, Methodologies and standards, Standardization of durability and sustainability in buildings, national and international progresses (ISO,CEN)
- **AP II** Traditional and modern constructions: Best practices and failures in realized SB projects in the Mediterranean region.
  - IIa. Traditional construction, as a source of knowledge for modern sustainable construction
  - **IIb.** Modern sustainable construction projects : Best practices and failures
  - **IIc.** Sustainable Olympics : experiences, plans and perspectives in hosting cities
- **AP III** Environmental Quality and the Community, user and social groups' participation in sustainable planning and design.
  - **IIIa.** General aspects
  - **IIIb.** Best practices of implementing sustainability in school buildings, Lycees HQE in France. The LIFE Environment SB-MED Project and the school buildings.

14 Ateliers Parallèles (2)

- **PW IV** Sustainable Urban rehabilitation and regeneration; Sustainable urban management.
  - **IVa.** Which models of urban development in the Mediterranean basin?
  - **IVb.** Projects and tools of urban rehabilitation and regeneration - Urban environmental management issues.

- **PW V** Policies and strategies, perspectives and barriers for implementation of SB in the Mediterranean countries.
  - **Va.** National, regional and local policies and strategies for the implementation of SB in the Mediterranean region.
  - **Vb.** Education, training, sensitization and communication issues

- **PW VI** Performance assessment of buildings, Institutional and technical aspects of building performance. Performance assessment tools.

14 Ateliers Parallèles (3)

- **PW VII** Sustainable Use of building stock (SUBS), General and Regional aspects, Sustainable housing-maintenance issues, Evaluation instruments and tools.
- **PW VIII** Financial instruments to achieve energy efficiency, environmental quality and RES in buildings, innovative financial mechanisms (e.g. energy performance contracting, third party financing), Relevant market development .
  - **IVa.** What instruments and methods of financing energy efficiency, environmental quality and RES in buildings? What innovative mechanisms in Europe and in the Mediterranean countries? Examples of energy performance contracting and third part financing schemes. Development of the ESCOs market in the region.
  - **IVb.** Integration of renewable energy sources in buildings, Development of solar systems market.

Conclusions principales de la table Ronde I (methodologies, politiques) :

- **Mediterranean characteristics:** Cultural, technical and environmental specificities (energy, water). Privileged zone of exchange between North and South, with necessity of transfers. Need to establish places, instruments and opportunities of technology transfer.
- **A sensible issue** : need of subsidiarity, local context and various levels' regulations (national, regional-Mediterranean, European- and international)
- **A focal point for discussion:** regulations or market oriented measures. They have been considered complementary. Their respective role has to be examined.
- **Problems and constraints to solve:**
- new jobs, responsibilities, professional skills, relationships between different jobs.
- **Follow-Up of change.** Need of concepts and of simple tools, easily applicable and adapted to the local cultures.
- **Cost of projects.** Necessary progress of investments, cost increase won't be acceptable even if the global cost favors that. Necessity of using innovative financial instruments and tax measures.

Conclusions principales de la table Ronde I (methodologies) :

- The need to enrich **existing project methodologies** (either simple bioclimatic or HQE approaches) with the following parameters:
  - Cooling and indoor air quality (**health issues**)
  - Integrate **urban form parameters** according to the specificities of the Mediterranean urban form (increased urban density, urban canyon, etc)
  - Emphasize on **renewable energy and solar protection** parameters as well as waste management .
  - Integration of **user participation and community involvement** methods in sustainable planning and design (the school case was characteristic).

Conclusions principales de la table Ronde II (application):

- A. Issues, problems and constraints discussed
- A general remark : main constraint for implementation, the inertia of the “old world”
- Factors affecting dramatically the environment in the Mediterranean.
- Scientific and technological knowledge on SB: is it available?
- Industry as well as professionals are not aware of the environmental impact of construction materials.
- The cost and the affordability of sustainable constructions.
- The integration of the global cost concept.

Conclusions principales de la table Ronde II (application):

- **B. Propositions-Recommandations**

- The establishment of a **regional mechanism** that will gather data and knowledge and will propose instruments and tools for design and evaluation to all actors involved in the construction and **will provide information to state and local authorities to facilitate regulatory, volunteer, economic, investment and other policy measures.**
- Integration of **SB design as priority course** in architectural schools
- Development of a mechanism of **information and awareness** raising, to cope with the inertia of the “old world” and prepare the conditions for change.
- **Research coordination and dissemination of available techniques, focus on research for existing buildings and building stock.**
- Multiply and support financially demonstration projects.

Conclusions principales de la table Ronde III (outils d'evaluation):

- **A. Situation actuelle:**

1. Many environmental methodologies and methods for evaluating the environmental performance of buildings are being currently developed in the world, according to the local cultures and organisation.
2. Especially for the Mediterranean it is worth mentioning **VERDE, a software system for assessing the environmental performance of buildings in Spain.** Besides, **a project methodology, called "HQE",** that is high environmental quality has been developed in France presenting a mostly open character: it integrates a great number of parameters, requires a mode of management of the operations inspired by the international standard **ISO 14001,** and consists of a project methodology instead of a simple ex-post certification like in the majority of the other existing methods. Thus, it offers an interesting framework for capitalising experience feedbacks, and for seeking common denominators.
3. In the LIFE SB-MED Project, a study is carried out to elaborate an SB-MED Methodology based on the existing methods and approaches. Furthermore **the SD-MED Association is preparing an SB-MED Assessment tool.**

Conclusions principales de la table Ronde III (outils):

- **B. Conclusions- Recommendations-Proposals:**
- Assessment tools (either rating or labelling) should be simple and friendly to the user. Nevertheless, it has been argued that reference values (benchmarking) and systems would be preferable.
- It was also pinpointed that green city(urban planning, neighbour scale etc) tools have to be developed. There are some experiences in Europe (HQE2R tool, DPL etc), consequently transfer of this knowledge in Mediterranean countries should be supported.
- Besides integration of ecomonic and social aspects in the tools has been proposed, as well as involvement of actors like decision makers, private companies, industrial actors etc.
- It was claimed that case-studies are useful and related training and education programmes have to be developed.
- The need to “work together” was finally revealed.
- The effective use of such tools presupposes the existence of the **appropriate substructure at national or regional level (extensive databases, regulations, statistics)**.

Conclusions principales de la table Ronde IV (outils financiers):

- **Sujets discutes :**

- There were contradictory opinions about the use of novel and innovative financial mechanisms in financing energy efficiency in buildings and application of RES in buildings.
- On the other hand, it was claimed that scarce public resources and funds mainly for rehabilitation of public buildings and other infrastructures lead to the need to implement public-private partnership schemes and third part financing.
- It has been pinpointed that provision of energy services has to be combined with the proper energy management in buildings.
- About development of ESCOs in the Mediterranean, it was stated that the development of ESCOs companies is inhibited by some legislative and market constraints.
- Indirect financial instruments were mentioned. **Share of cost between the user and the community has been also mentioned**, practiced in some cases.

Conclusions principales de la table Ronde IV (outils financiers):

- **Conclusions-Recommandations :**

- **Financial tools have to be complementary with other instruments** or tools like policy tools, training and qualification measures etc.
- Subsidies, meaning that over cost is resulting from SB are not adequate, nor sufficient. We need to identify **best practices of financial instruments to mobilize funds and involve proactive key-players (investors, contractors, ESCOs etc)**

- In the Mediterranean, **we need experience of pilot projects** like it is the case in Germany, UK etc.
- **Efforts and willingness of Mediterranean countries to clarify relevant legal framework** have to be supported since key actors are quite ready in the market.
- Furthermore, Need of broad information of the public has been identified (a kind of information points including financial issues)
- **Raising public awareness and user's participation** has been identified.
- **To attract investors and other key-players we have to be attractive and convince about the profits of SB, about what is good for the user and the community as well** (in terms of value for money)
- Development of ESCOs meaning not only **energy** but **environmental service companies** which implicates the integration of building environmental efficiency assessment and measurements, that is an easy quantification of environmental quality .
- The need to develop **Life Cycle Cost Tools has been mentioned to facilitate not only energy but environmental performance contracting.**

Rapport d' ensemble et action proposée au SB05 Tokyo

- The populations living along the coasts of the Mediterranean Basin are united not only by ancient historical and cultural ties,

  but also by the fact that they belong to the same ecosystem or ecoregion.

  This historical and ecological unity should not however blind us to the many differences, which are all too often simplified in terms of the North-South divide alone.

Développement durable, sens et realité d'un futur commun

- **The future of the Mediterranean basin depends on its people' s ability to conceive a** collective management**, manifest interdependencies linking them, whether** geographical **(the sea),** political**,** economic **(trade),** social **(migratory flows) or** cultural

- Sustainable development can restore the sense of a common future for this region and can provide the opportunity to ensure the convergence of strategies led by various agents.

Le développement durable comme un cas d'epreuve régionale

- The Mediterranean is potentially one of the eco-regions in which the concept of sustainable development could be implemented, as a regional test case, due to :

- its rapid development,
- the scarcity of its natural resources,
- the different levels of development between riparian states
- Certain spectacular developments specific to the region, such as tourism development and competition for the coastal region

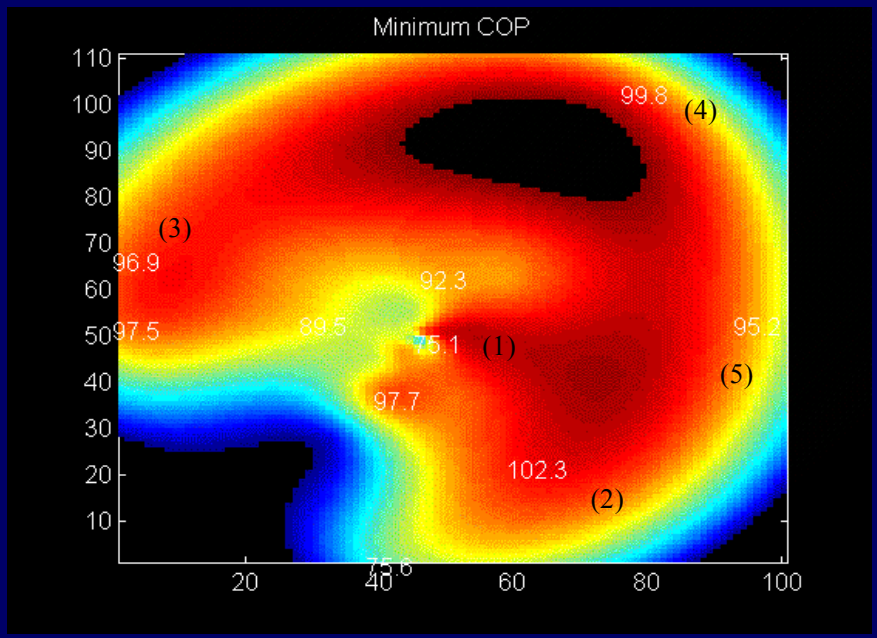
Source : UNEP/Mediterranean Action Plan

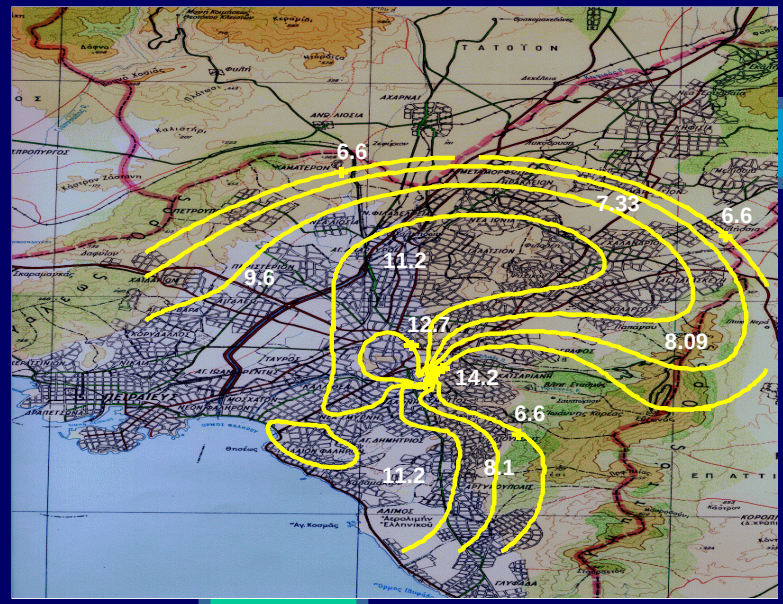
Développement Durable et construction durable

- Sustainable construction is the expression of SD in the construction and the building sector :
  - Specific conditions of the built environment in the Mediterranean basin (1)
  - Techniques and policies in Mediterranean countries regarding sustainability of the built environment (2)
  - Towards an effective implementation of sustainable built environment principles at a macro-regional level.(3)

Conditions spécifiques de l' environnement urbain (1)

- A developing "air-conditioning" culture
- The urban micro-climate conditions





Une mode d'action, pour une application efficace....

- In order to proceed to the elaboration of more effective macro-regional implementation concerning sustainable built environment, **we have to find a solution to the following contradiction:**
  - on the one hand create a **common language**, which will be necessary to exchange experiences and knowledge,
  - on the other hand promote **specific ways to reach environmental performances** according to the geographical, cultural and technical local contexts.

Une mode d'action, pour une application efficace....

- Comment faire en même temps l'universel et le spécifique ?

Une mode d'action, pour une application efficace....

- A general policy framework to achieve sustainability of the built environment at a macro-regional level (the Mediterranean basin) should first of all include the establishment of a mechanism to elaborate methodological bases needed to explore environmental excellency and diversity in different local conditions.

- These bases have to respond to specific problems and needs to help local actors to create their own systems.

An SB observation network for the Mediterranean region ?

- **A Sustainable Building Observation Network** is proposed. This is an already expressed in various relevant congresses (e.g B4E in Maastricht etc) joint proposal of St.Kyvelou and D.Bidou.
- This observatory could be established in the framework of the on-going Mediterranean strategy for sustainable development. Nevertheless it has to keep **its independent, non-governmental and coordinating character.**
- In this way effective participation of all the actors, players and stakeholders will be ensured (international organisations, states, local authorities, construction sector, and mainly NGO's, civil society).
- This observation network could also constitute a framework (see OECD recommendations) in order to : –**regularly monitor the environmental performance** of the building sector in the region–**encourage greener public purchasing strategies** for construction procurement and –**undertake ex-post evaluation of policy instruments.**

- Main medium and long-term targets to be achieved:
  - **the** enhancement of **cultural dialogue and economic solidarity in the** " common sea"
  - **Creation of an intellectual solidarity network so that a new mediterranean identity asset itself** during the XXIst century

Démarche « SD-MED»

Permettant d'appliquer le développement durable au cadre bâti dans l'espace méditerranéen

- The idea of a new **Mediterranean building performance assessment tool was for the first time initiated by a French-Helenic cooperation network (informal SD-MED Network**) in the framework of a LIFE-ENV Project.
- The project, mostly based on the French approach HQE® aimed at shaping a specific Mediterranean methodology, with adaptability at a macro-regional level.
- The Project team of experts (Kyvelou et al., 2006) has agreed on the principle that a new Mediterranean methodology has to be an operational methodology (covering building decision making, design, construction, use of the bulidng and end of the building) based on the concept of *"Efficiency"* from both the *social*, *economic* and *environmental* point of view, that is taking into account modern building sustainability approaches involving all three above major parameters.
- Given the fact that the HQE® process concerns mainly the minimisation of the building environmental impact, the team of experts has examined in all the existing tools how the three above dimensions have been integrated and proposed a method based on the systemic and multi-criterial HQE® process but enriched with *social and economic factors* as well.
- The fact that the proposed method improves the HQE® process has been validated by the HQE Association, which pinpoints the need to extend the Environmental Management System (SME) to a Sustainable Development Management System (SDMM).

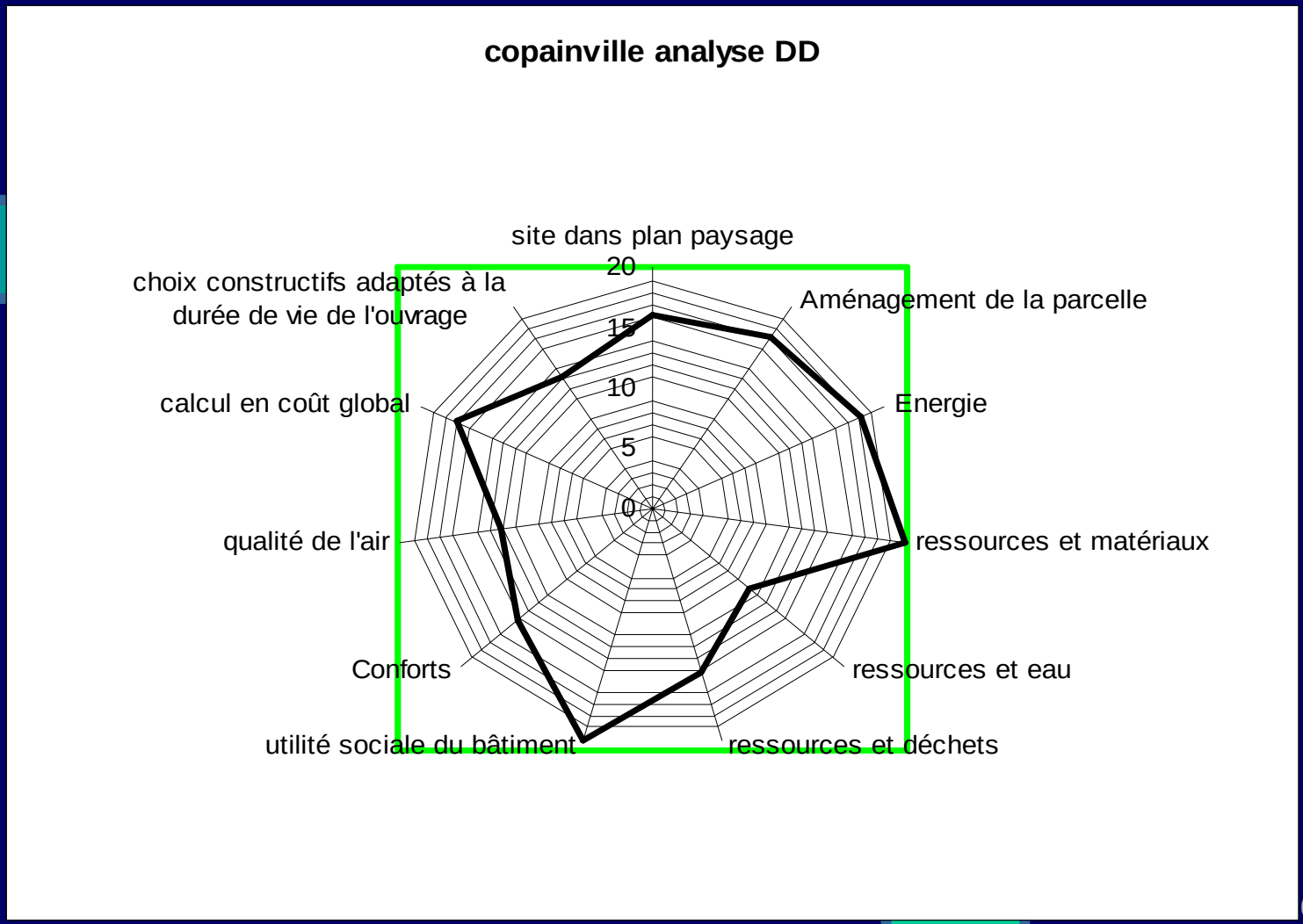
Comparaison Général des outils étudiés

Méthodologie Process	Application géographique	Phases du cycle de vie du bâtiment	Utilisation de l'outil	Résultat
HQE	nationale – France	toutes les phases	simple/ouverte liée aux réglementations françaises	Base-Performant-Très performant
VERDE	internationale - méditerranée	Nouvelles constructions	Tableur	de 0 à 5 pour chaque paramètre
BREEAM	nationale - Royaume Uni	toutes les phases	importation de données à des tiers à des fins d' évaluation	Certification de la performance environnementale : faible, bien, très bien, excellent
GBTool Ou **SBTool**	internationale	toutes les phases	tableur	Complexe échelle allant de -1 à +5 pour chaque EIC (cible)
LEED	Nationale, Etats Unis	toutes les phases	importation de données à des tiers à des fins d'évaluation	Label(performance certifiée à platine)
CASBEE	internationale	toutes les phases	tableur complexe et manuel	Graphiques de notation, Label (bâtiment durable de faible à excellent)

Analyse Comparative des outils existants par rapport aux paramètres principaux

	Site	Environnement intérieur	Energie	Matériaux et ressources	Eau	Transport	Santé	Social	Aspects economiques	Comfort	Gestion	Services	Performance a long terme	Conception / Esthetique	Fonctionnalite
HQE	●	●	●	●	●		●			●	●		●		
VERDE	●	●	●	●	●	●	●	●	●			●			
BREEAM	●		●	●	●	●	●								
GBTool	●	●	●	●	●			●	●				●		●
LEED	●	●	●	●	●									●	
CASBEE	●	●	●	●	●					●		●			

Analyse développement durable pour les bâtiments source: J.Hetzel, 2006



Les 7 Cibles et les 32 Sous-cibles de la démarche SD-MED

A. Critères liés à l' efficience ou efficacité environnementale	
A1. Ressources et impact environnemental	
CIBLE 1. **Minimiser les impacts sur les ressources (ENIC)**	1. **impacts sur les ressources énergétiques** 2. **épuisement des matières premières** 3. **utilisation et gestion de l'eau**
CIBLE 2. **Minimiser les émissions de pollution (ENIC)**	1. **émission dans l'air (CO2)** 2. **effluents dans l'eau** 3. **production de déchets solides**
CIBLE 3 : **Minimiser les impacts locaux et régionaux (ENIC)**	1. **impacts du bâtiment lié à la forme urbaine** 2. **effet de l'îlot de chaleur** 3. **pollution lumineuse nocturne**

Cibles et Sous-cibles de la démarche SD-MED

A. Critères liés à l' efficience ou efficacité environnementale (suite)

A2. Qualité environnementale	
CIBLE 4 : **Améliorer l'environnement intérieur (ENIC)**	1. *Confort acoustique* 2. *Confort thermique* 3. *Comfort Visuel* 4. *Qualité de l' Air* 5. *comfort spatial et d'activité* 6. *Confort Olfactif* 7. *Opportunité adaptive*
CIBLE 5 : **Améliorer la qualité des services (ENIC)**	1. *Fonctionnalité - Controllabilité* 2. *Flexibilité-Adaptabilité* 3. *Durabilité- entretien/ maintenance* 4. *Gestion des déchets*

Cibles et Sous-cibles de la démarche SD-MED

A. Critères liés à l'efficience économique	
CIBLE 6. Améliorer l'efficience économique (ECIC)	1. coût du terrain et de construction 2. coût du cycle de vie (€ /an), coût global 3. coût de gestion des déchets et des émissions (€ /an)
C. Criteres liés à l'efficience sociale	
CIBLE 7 : Améliorer l'efficience sociale (SIC)	1. santé et productivité 2. sécurité pour des utilisateurs de bâtiment 3. accessibilité pour les personnes physiquement handicapées 4. droit au soleil pour les pièces de vie des logements 5. accessibilité des espaces privés ouverts à partir des logements 6. préserver l'intimité visuelle des pièces principales par rapport à l'extérieur 7. accessibilité à la vue des zones de travail (bureaux, bâtiments commerciaux, etc.) 8. participation des usagers 9. création d'emplois

« ***La demarche SD-MED améliore en effet la démarche HQE® qui ne répond que*** *partiellement* ***et non de façon explicite à ces deux enjeux supplémentaires*** …… »

ENJEUX	PREOCCUPATIONS	LES 14 CIBLES													
		01	02	03	04	05	06	07	08	09	10	11	12	13	14
Enjeux environnementaux Protection de l'environnement	Respect des Ecosystèmes	■													
	Préservation et gestion des ressources	■	■	■	■	■			■						
	Réduction des pollutions		■	■	■	■									
	Réduction des déchets			■			■								
	Déplacements	■													
	Gestion des risques naturels et technologiques	■				■							■	■	
Enjeux économiques Gestion patrimoniale	Durabilité adaptabilité		■					■							
	Entretien maintenance		■					■							
	Maîtrise des coûts		■		■	■		■							
	Filières locales	■	■		■										
Enjeux sociaux Qualité de vie	Confort des usagers	■							■	■	■	■		■	
	Respect des riverains	■		■					■	■	■				
	Santé des usagers		■										■	■	■
Enjeux de message	Image														
	Communication														
	Pédagogie de la démarche HQE														

Un nouveau projet SD-MED:

Actuellement, nous développons une approche multicritère pour la gestion du développement durable des territoires (voir Guide de la manifestation, article de J.Hetzel)

- Ville compacte versus ville étalée
  - Une ville étalée peut être durable, tandis qu'une ville compacte peut ne pas l'être...

- Merci de votre attention !
- Pour plus d'info, voir www.sd-med.org