



research institute for knowledge systems

Using Spatial Decision Support Systems
in Integrated River Basin Management:
the Elbe River example

空间决策支持系统在综合流域管理中的应用
易北河实例

Drs. Rob Hermans
Director, RIKS





RIKS background RIKS背景

- ◆ RIKS : Research Institute for Knowledge Systems 知识系统研究院
- ◆ Decision Support Systems for policy makers in:
 - Sustainable development 可持续发展;
 - Water management 水资源管理;
 - Urban and rural planning 城市和乡村规划;
 - Ecosystems and natural resources 生态系统和自然资源;
 - Natural hazards: floodings, forest fires 自然灾害: 洪水、森林火灾
- ◆ For local, regional, national and international administrations
服务于地方的、区域的、国家的和国际上的管理部门;
- ◆ Experience – 20 years in almost 30 countries
经验---20年的近30个国家的国际经验
- ◆ Related to Maastricht University, the Netherlands
附属于马斯特利赫特大学，荷兰



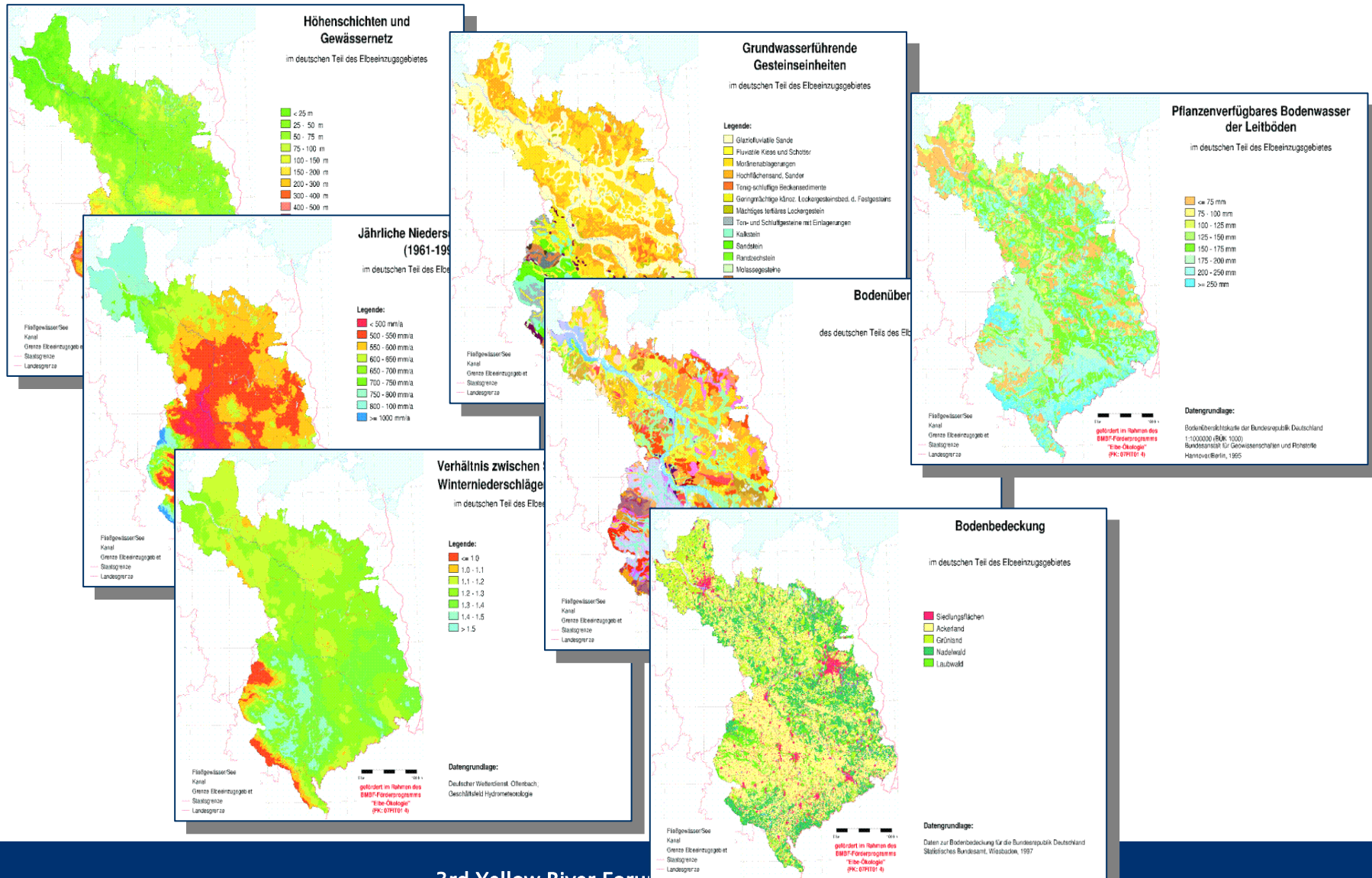


RIKS expertise RIKS 专业技能

- ◆ Dynamic modelling, planning, forecast
动态模拟、规划、预测
- ◆ Generic and universal tools for policy makers
政策决策者们的普遍工具
- ◆ Integration 集成:
 - Integrating large variety of models 集成各种不同的模型
 - Integrating physical and socio-economic processes
集成自然进程和社会经济进程
 - Integrating land use and water management
继承土地利用和水资源管理



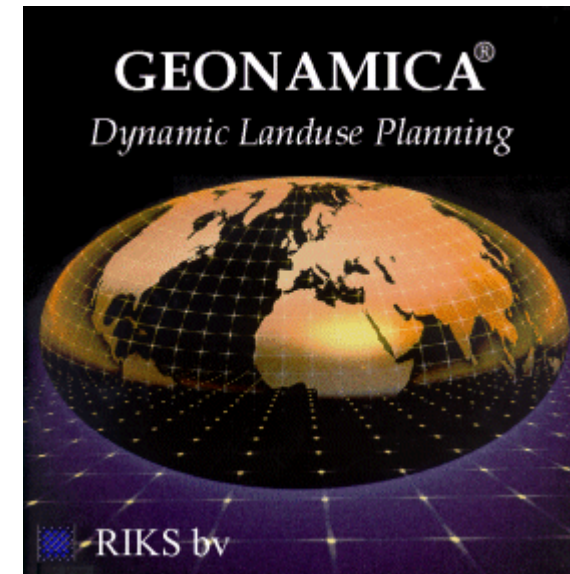
Integration of existing data, knowledge and models 存在的数据、知识和模型的集成





RIKS core tools RIKS开发的核心工具

- ◆ Geonamica[®]
RIKS software integration platform
RIKS软件集成平台
- ◆ Metronamica[®]
RIKS SDSS for Urban and Regional Planning
RIKS城市 and 区域规划空间决策支持系统
- ◆ *Supporting services, tools, training and education*
为服务、工具、培训和教育提供支持





Recent RIKS projects in water management

RIKS近期在综合水资源管理方面的项目

- ◆ River basin management 河流流域管理
Belgium, Germany, Senegal 比利时、德国、塞内加尔
- ◆ Canal Management 运河管理
Panama 巴拿马
- ◆ Coastal Zone Management 海岸管理
Canada, Germany, Indonesia, Spain, Netherlands
加拿大、德国、印度尼西亚、地中海、荷兰
- ◆ Low-lying Coastal Areas and Small Islands 浅海岸区域和小岛屿
Reunion Island, Puerto Rico, St. Lucia
留尼旺岛、波多黎各、圣卢西亚



Integrated water management...

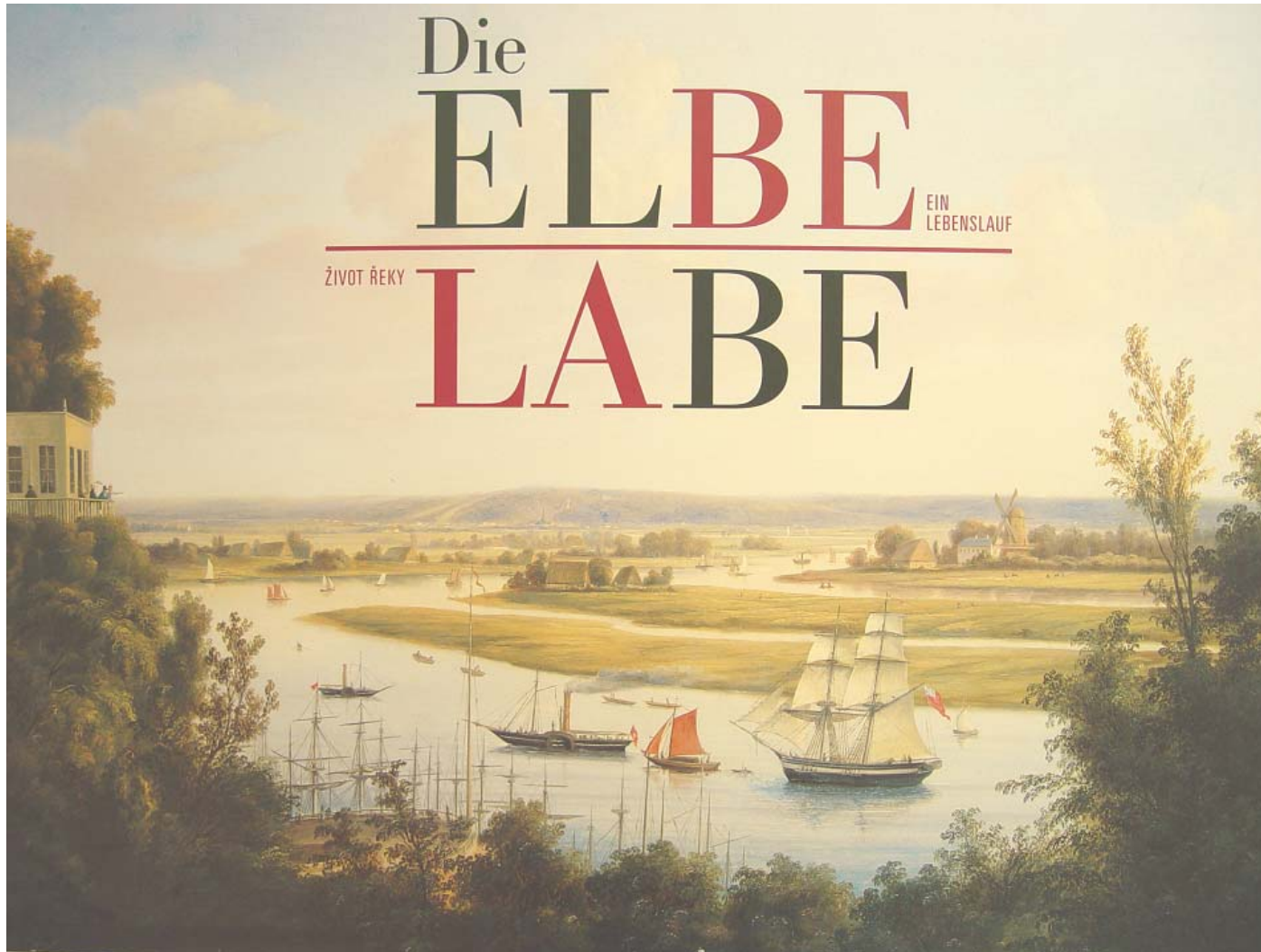
综合水资源管理 ...

- ◆ Is not only about integrated water quality and quantity...
不仅整合水的质量和水量
- ◆ But also about the integration of land use and socio-economic processes
而且整合土地利用和社会经济进程





Future development like this.....
未来发展像这样.....





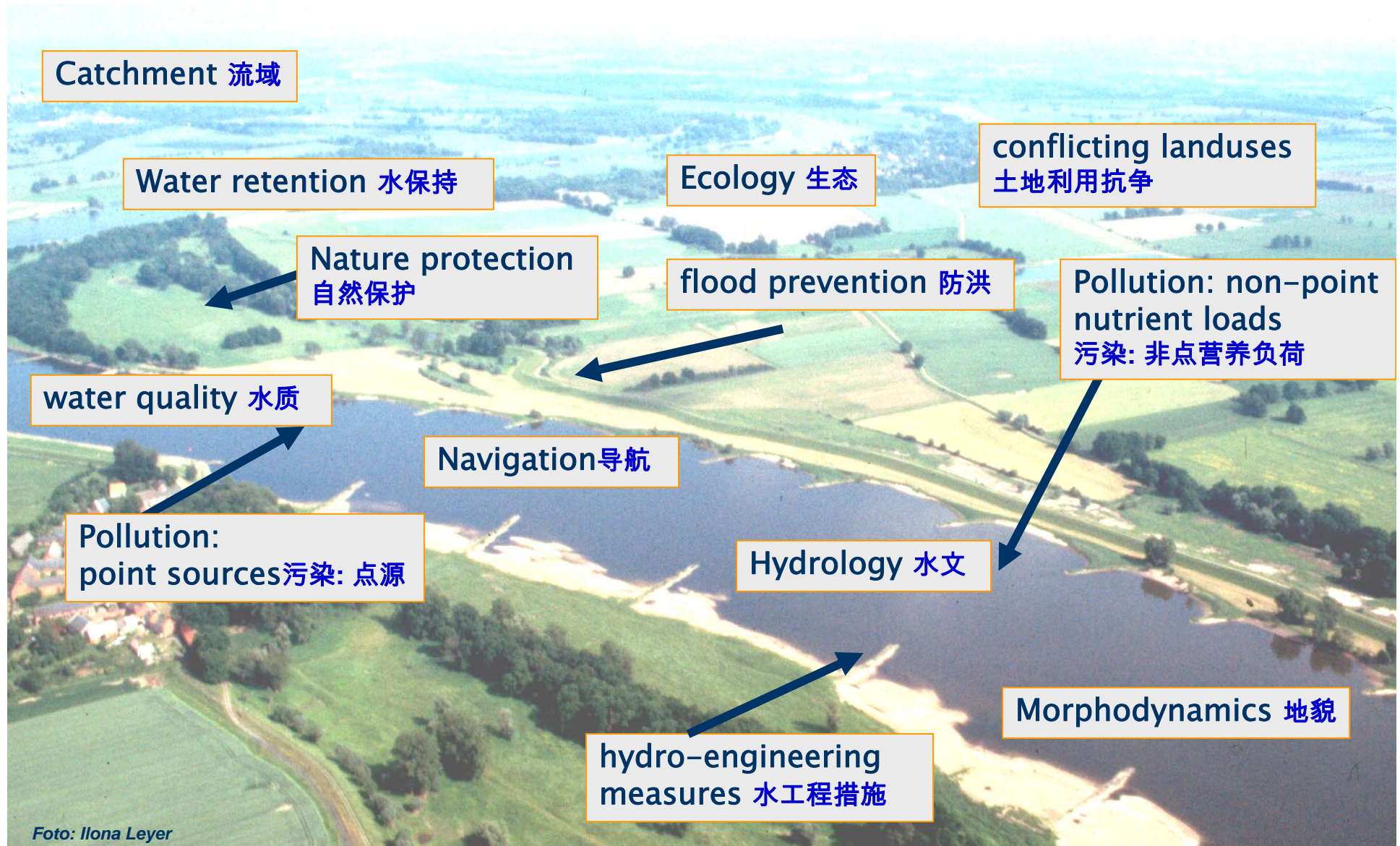
Or this.....? 还是这样.....?





Integrated River Basin Management

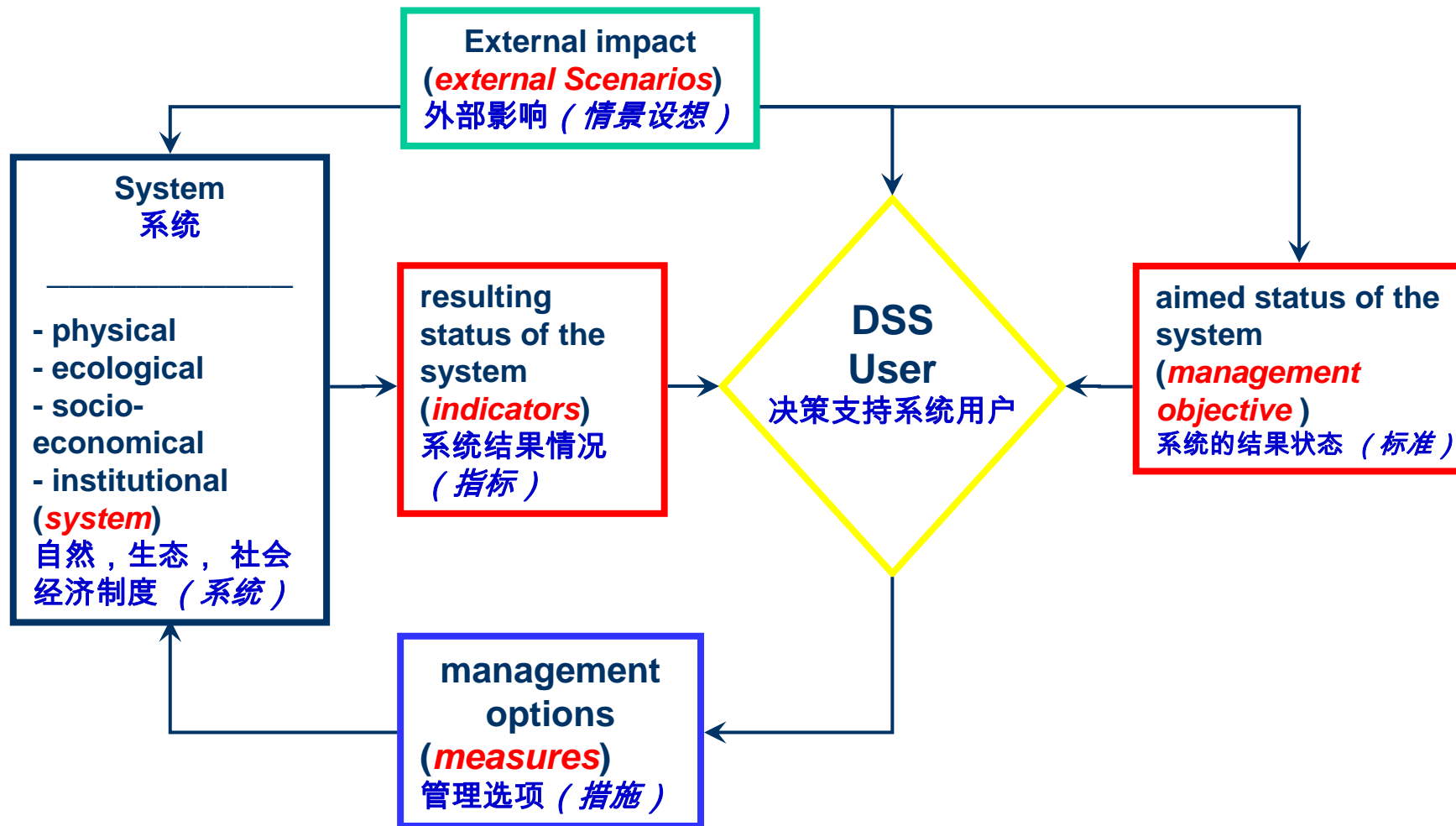
流域综合管理





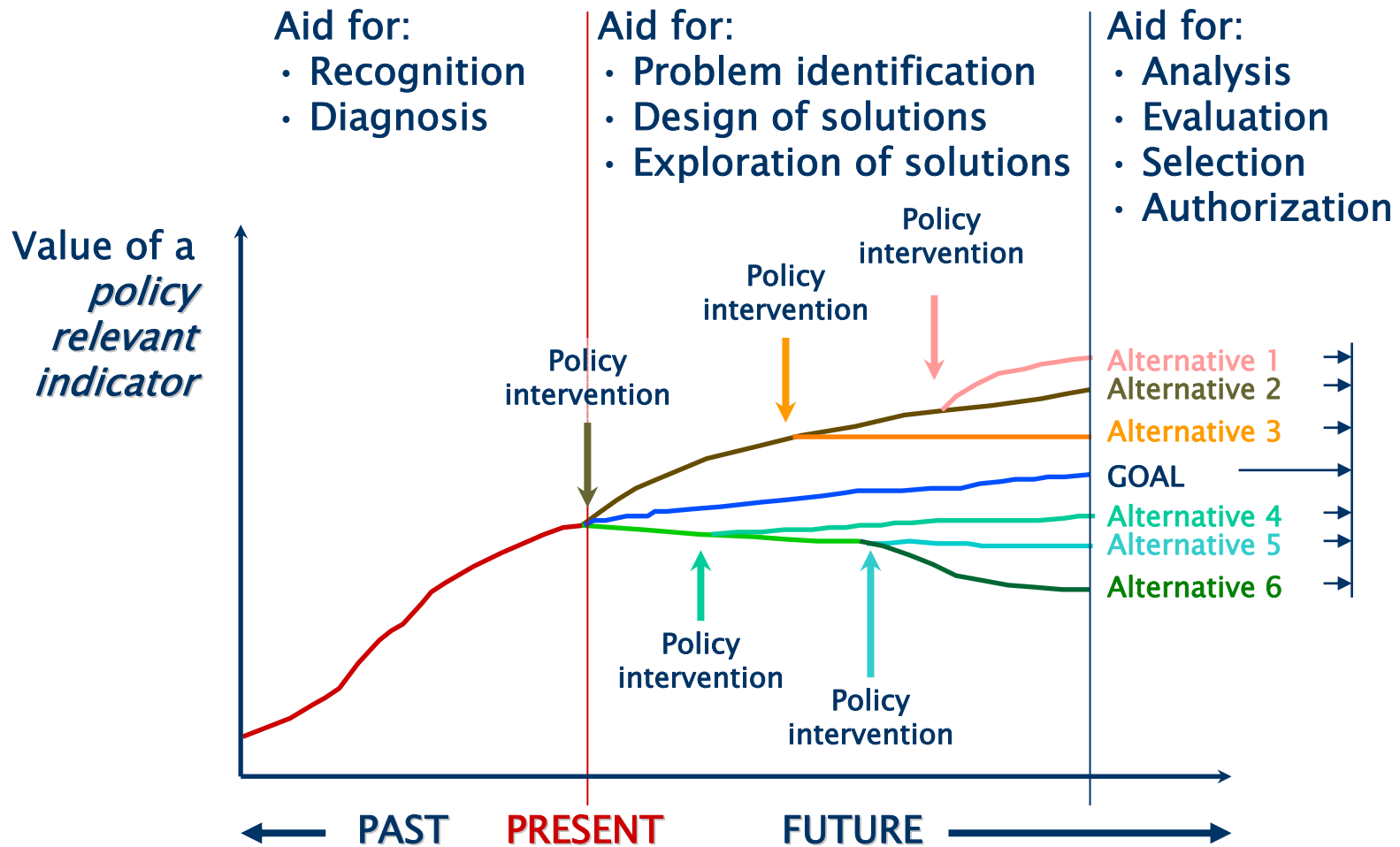
The decision-making context

决策制定的背景环境



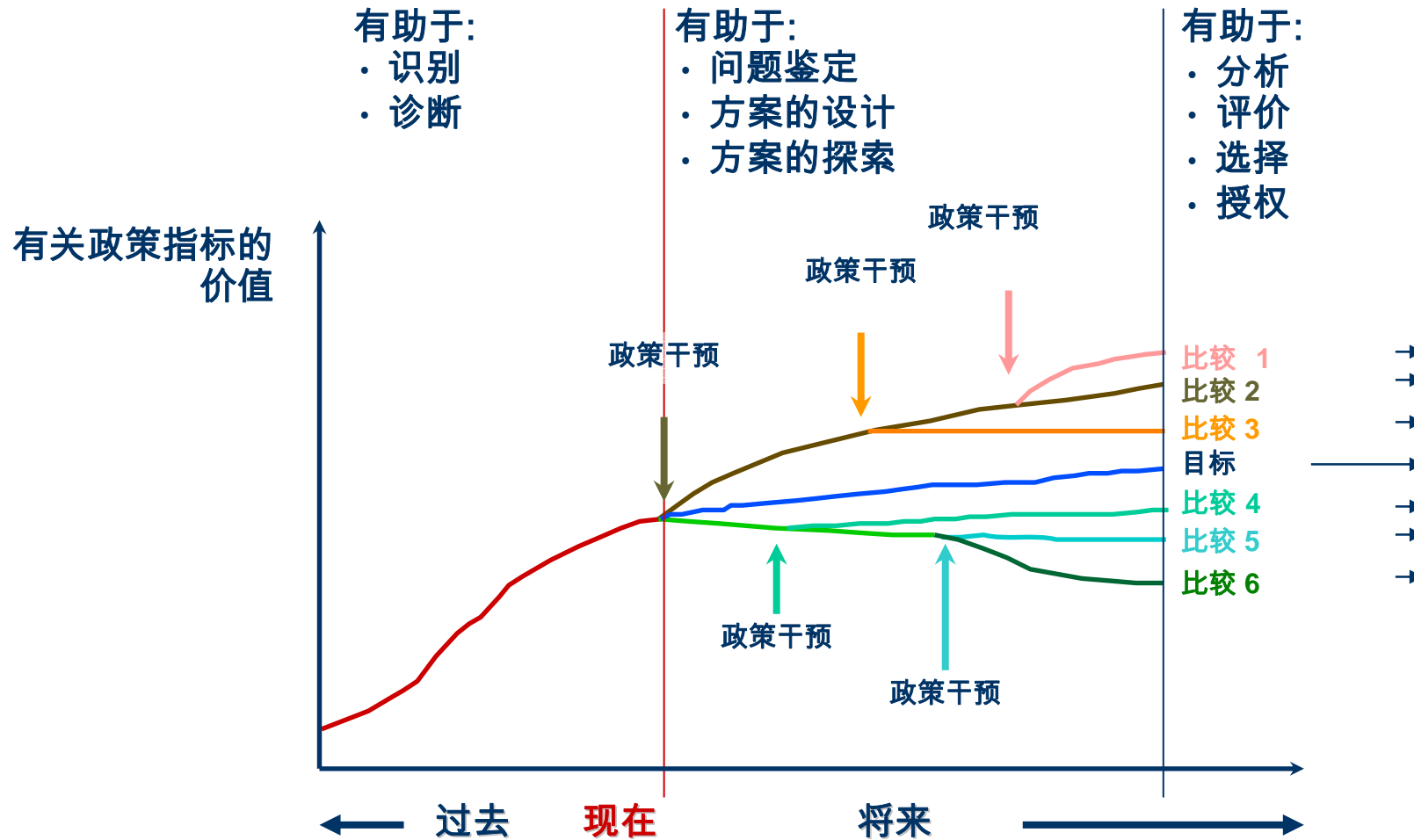


Planning of policy actions



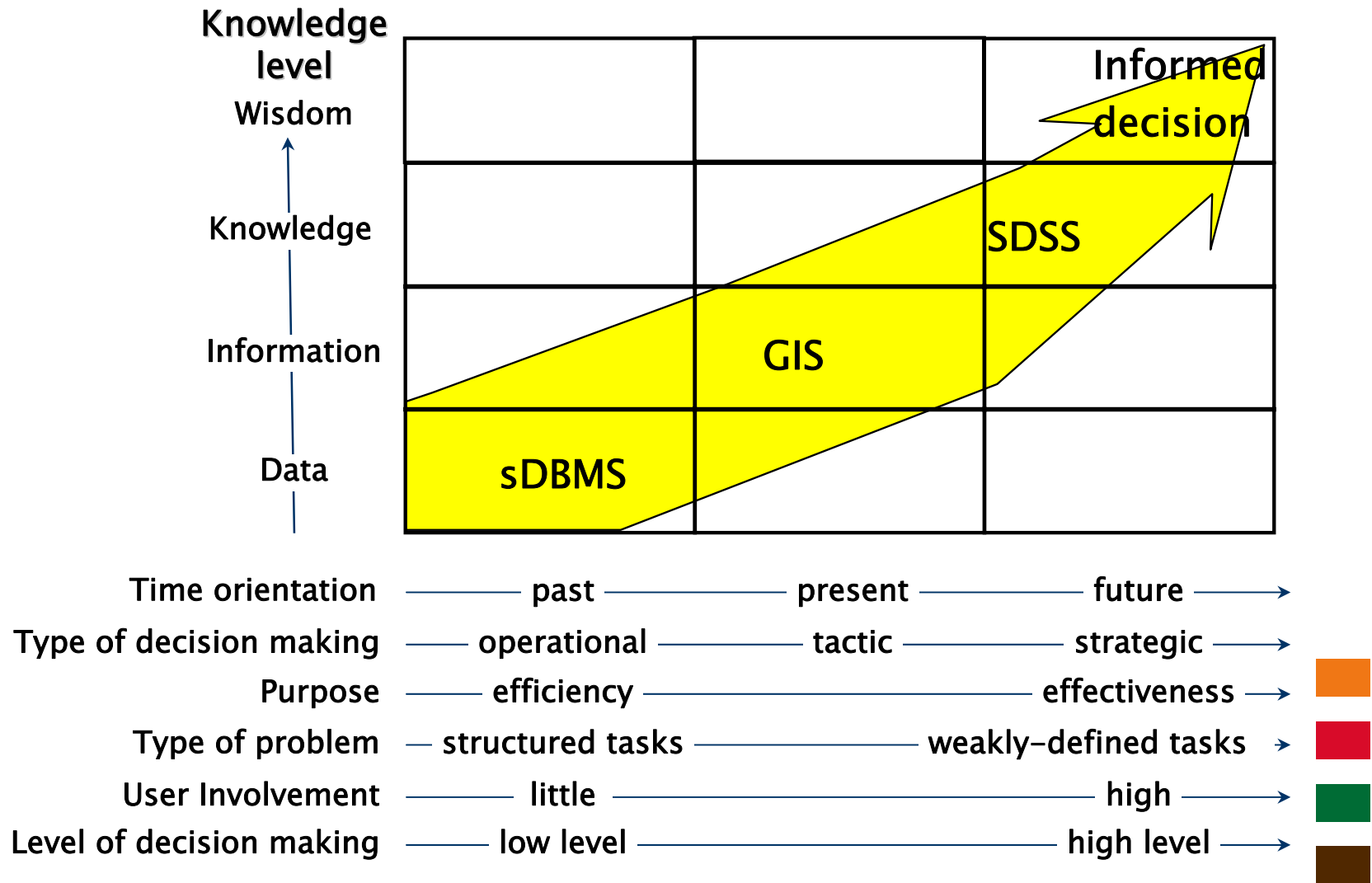


政策行动规划





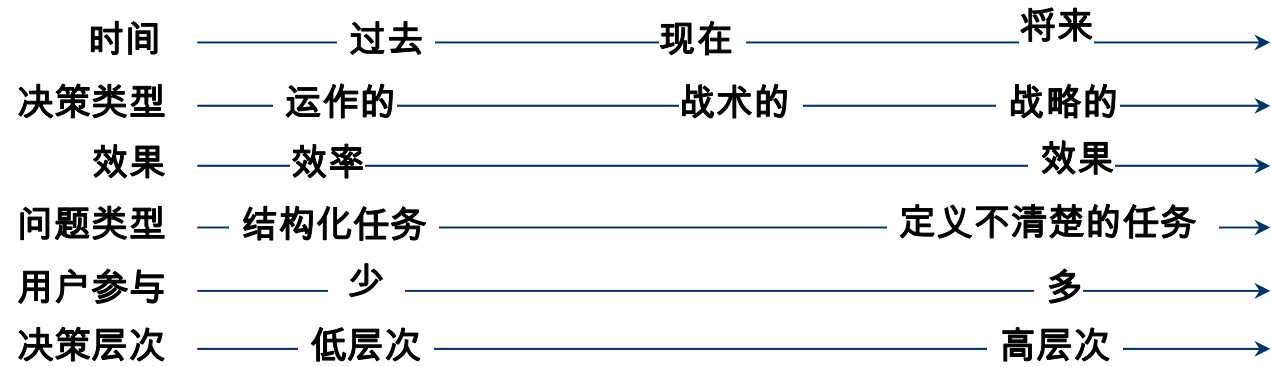
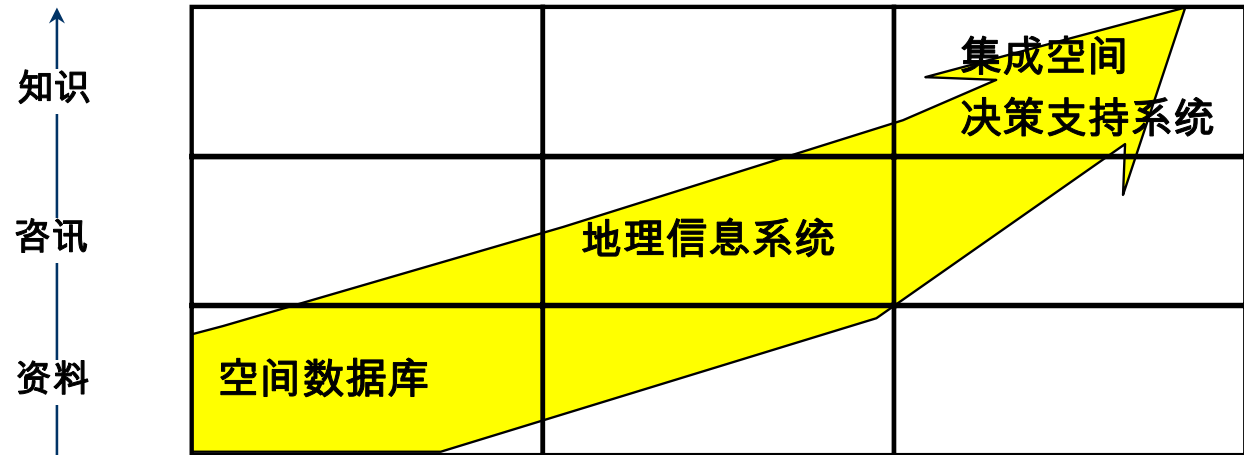
DSS Development





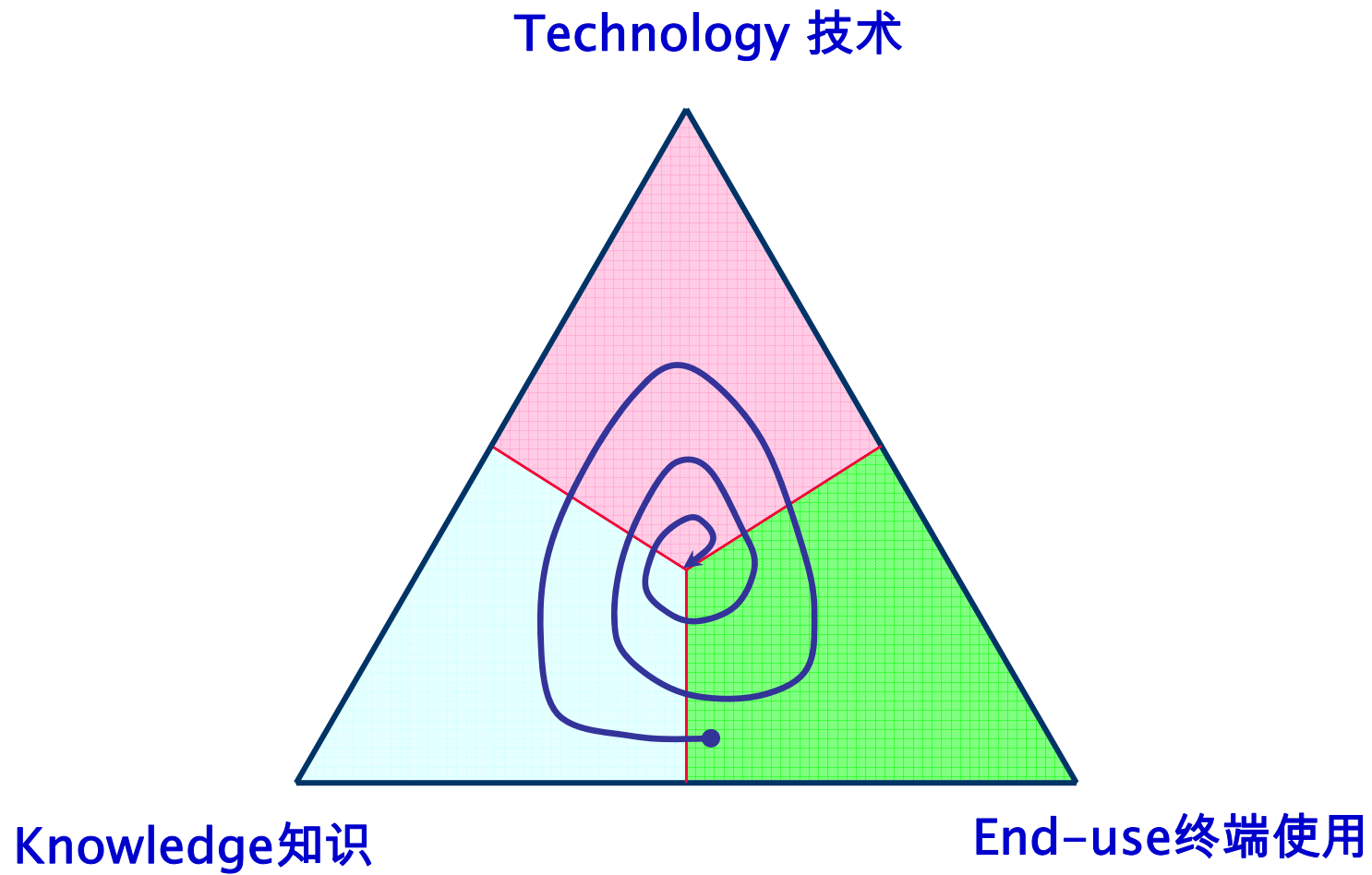
空间决策支持系统的发展

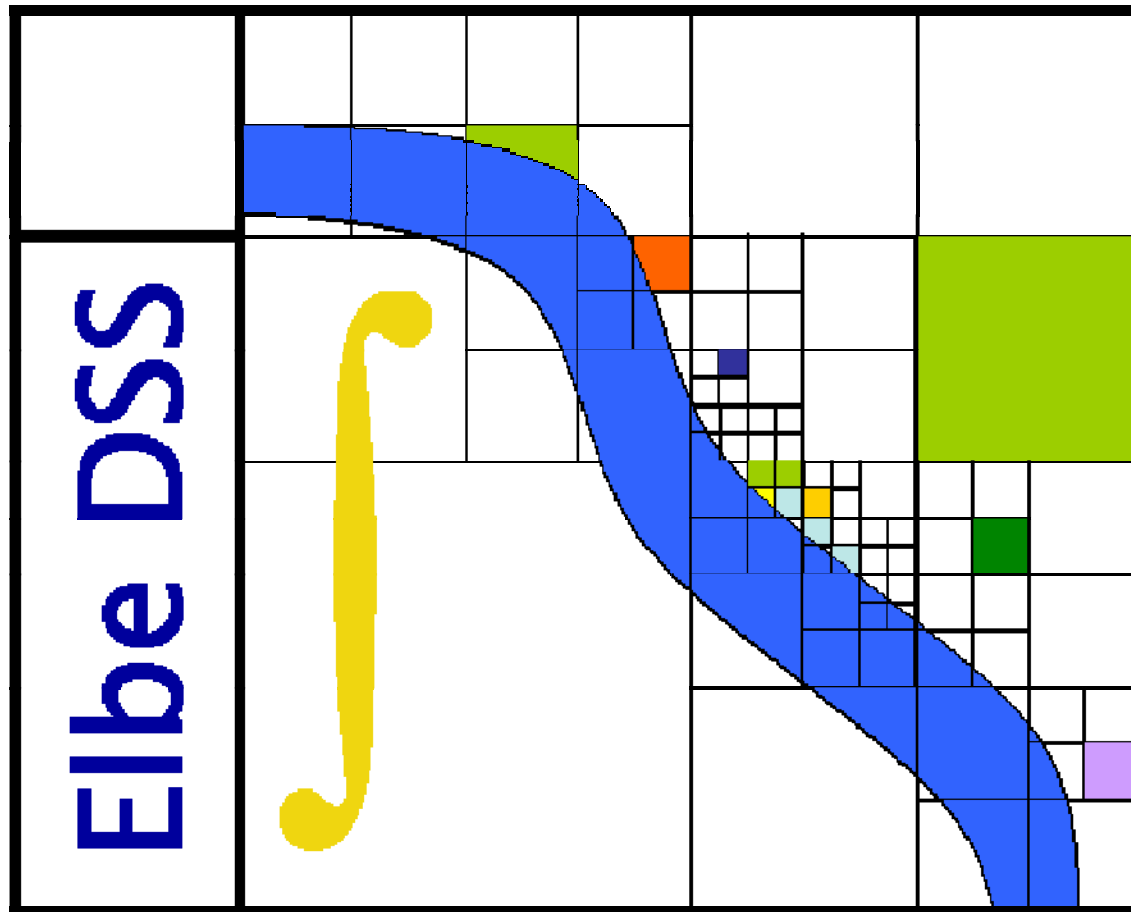
知识层次





SDSS Development 空间决策支持系统的开发





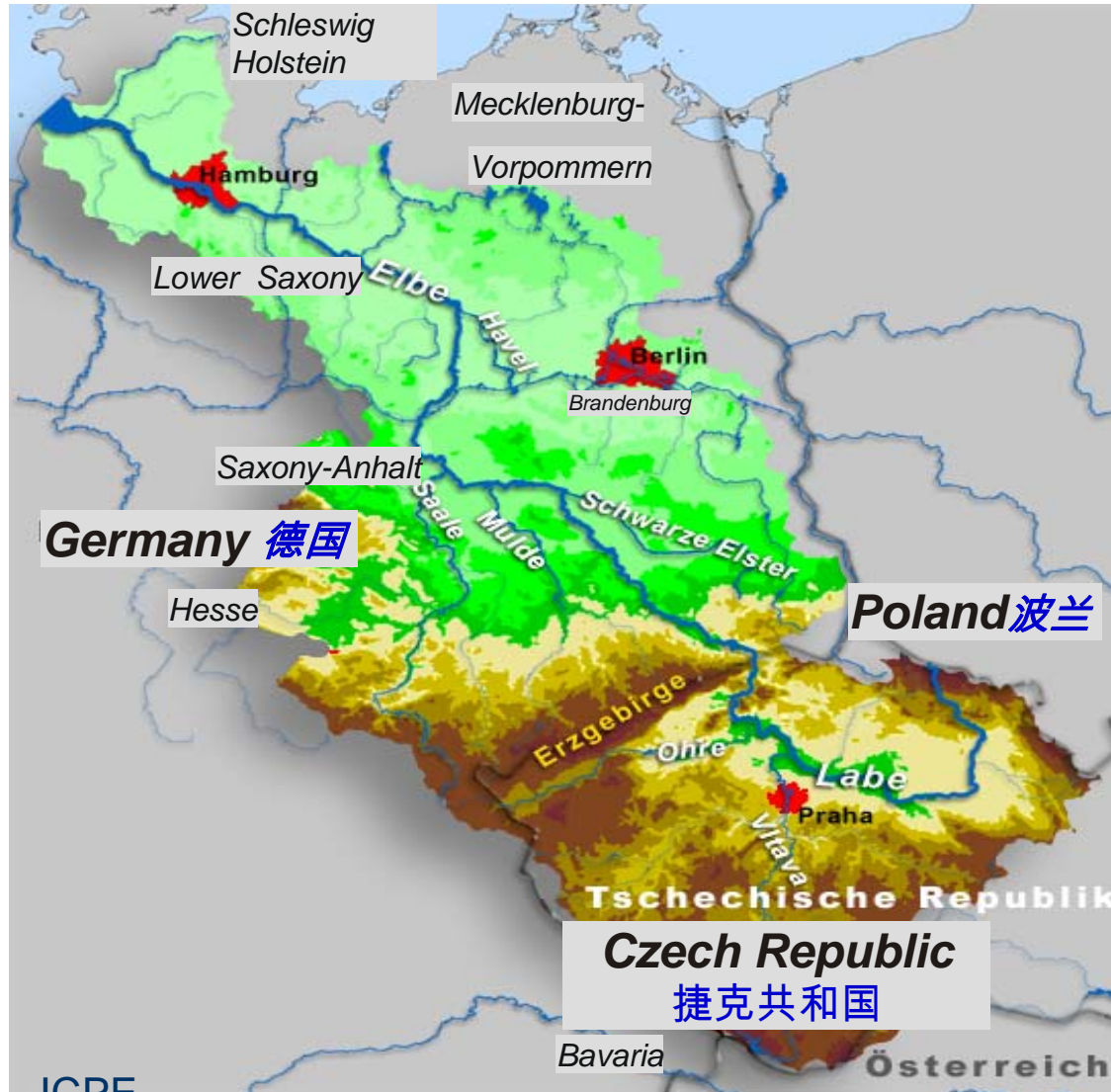


Elbe River Catchment 易北河流域





Elbe River Catchment 易北河流域



Catchment Area 流域面积:

- 148.268 km² (= TOTAL)
- 96.323 km² (= Ger.)
- 50.176 km² (= Czech Rep.)
- 920 km² (= Austria)
- 240 km² (= Poland)

River length 河流长度:

- ◆ Czech part: 365 km
- ◆ German part: 727 km
- ◆ total: 1092 km

Population 人口:

24.9 Mio. (= TOTAL)





Elbe River DSS: end-users and stakeholders involved!

易北河决策支持系统：最终用户和投资者的参与





ElbeDSS: management context

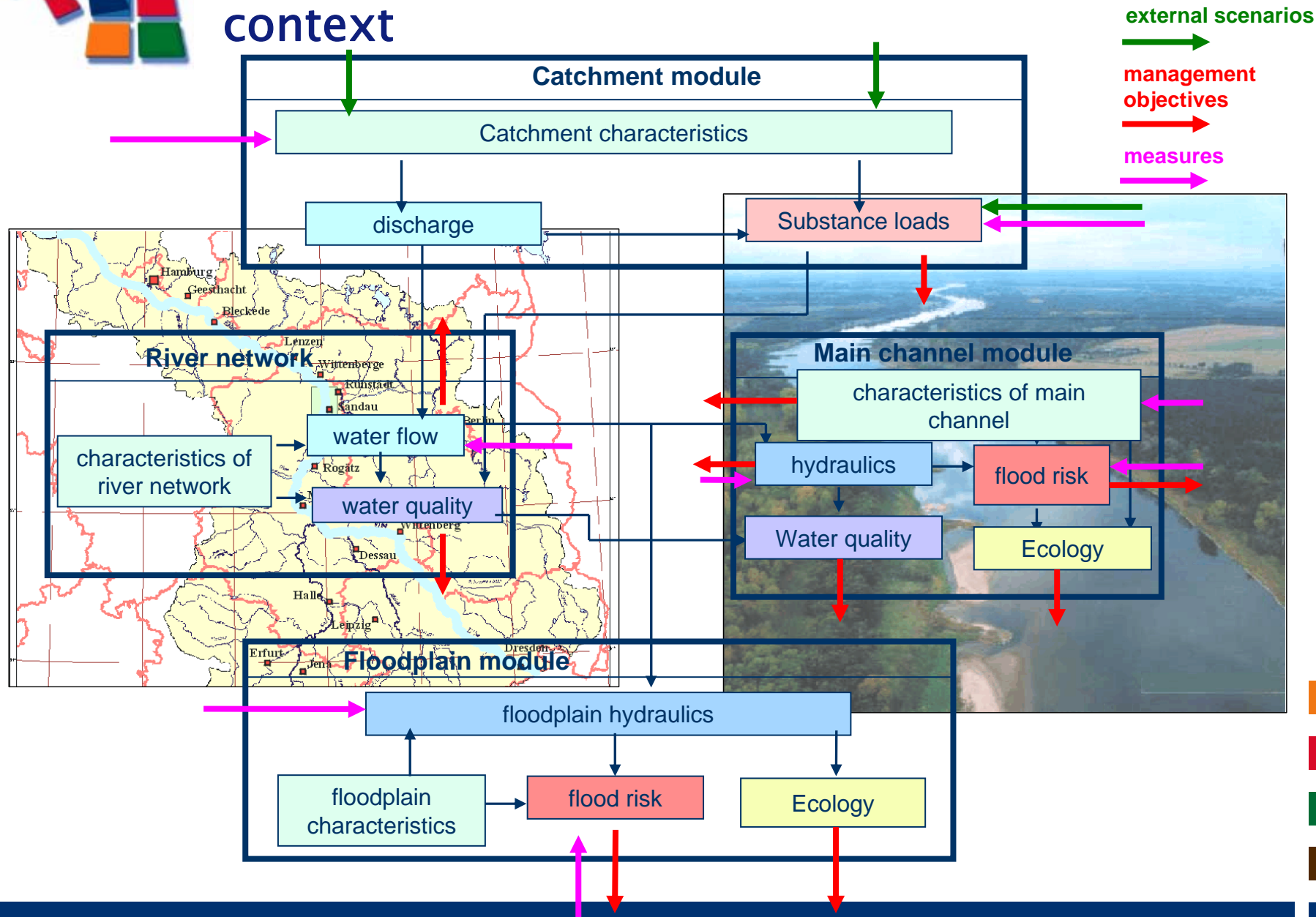
- EU–Water Framework Directive 欧洲水框架指令
- Flood prevention 防洪
- Improving navigability 改善导航性
- Land use planning in the floodplains etc....
河漫滩的土地利用规划

→ Σ Integrated River Basin Management

→ Σ 流域综合管理

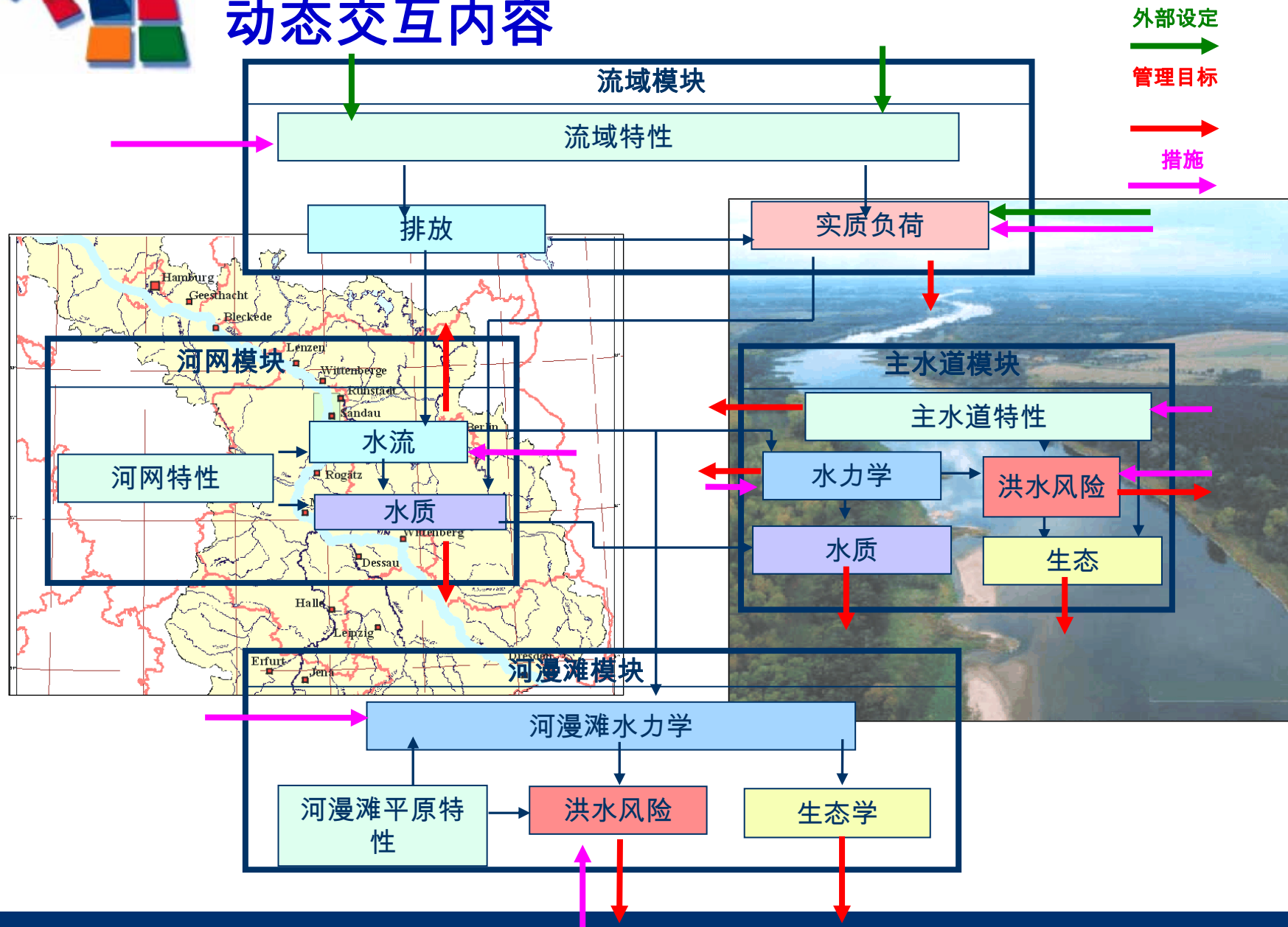


Elbe -DSS: dynamic and interactive context





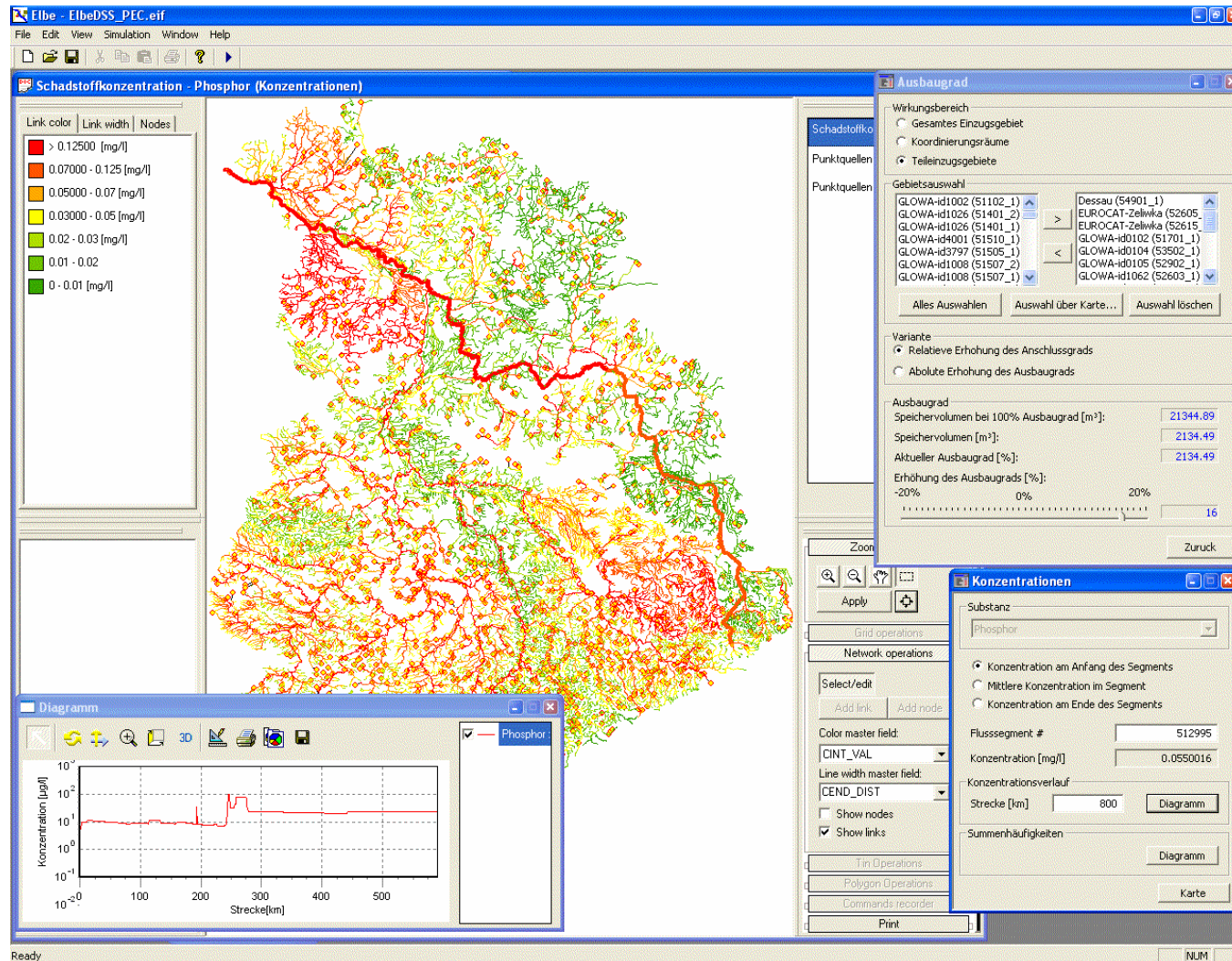
ElbeDSS (易北河决策支持系统) : 动态交互内容





The user interface of the DSS

决策支持系统的用户界面





Open Development Process Online Version Control System

开放式开发进程 在线版本控制系统

Riks Subversion Repository - directory - svn: projects/Elbe - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://svn.riks.nl/viewcvs/projects/Elbe/

Customize Links Free Hotmail My Yahoo! Windows Marketplace Windows Media Windows Yahoo! Mail Yahoo! News Yahoo!

[svn] / projects / Elbe

svn: projects/Elbe

Current directory: [\[svn\] / projects / Elbe](#)

Current revision: [29471](#)

Jump to directory revision:

Files shown: 450

File	Rev.	Age	Author	Last log entry
ElbeResourcesDE/	29470	17 hours	Iuljee	
ElbeResourcesEN/	29471	17 hours	Iuljee	
HBV/	29466	3 days	Rvanhout	- Fix for http://www.riks.nl/bugreporting/bug_view_advanced_page.php?bug_id=0000...
HBVEncryptor/	29405	5 weeks	Rvanhout	Removed old sourcesafe files
res/	29347	7 weeks	Rvanhout	
AbsoluteDamageFunction.cpp	29341	8 weeks	Rvanhout	Moved remotely
AbsoluteDamageFunction.h	29341	8 weeks	Rvanhout	Moved remotely
AskInitDialog.cpp	29341	8 weeks	Rvanhout	Moved remotely
AskInitDialog.h	29403	5 weeks	Rvanhout	Added support for loading resources from satellite dll
AuenwaldAbschnittView.cpp	29341	8 weeks	Rvanhout	Moved remotely
AuenwaldAbschnittView.h	29403	5 weeks	Rvanhout	Added support for loading resources from satellite dll
AuenwaldView.cpp	29341	8 weeks	Rvanhout	Moved remotely
AuenwaldView.h	29403	5 weeks	Rvanhout	Added support for loading resources from satellite dll
AvailablePathData.cpp	29341	8 weeks	Rvanhout	Moved remotely
AvailablePathData.h	29341	8 weeks	Rvanhout	Moved remotely
BackgroundMapsMBB.cpp	29341	8 weeks	Rvanhout	Moved remotely
BackgroundMapsMBB.h	29341	8 weeks	Rvanhout	Moved remotely
BaseMonerisMeasureView.cpp	29341	8 weeks	Rvanhout	Moved remotely
BaseMonerisMeasureView.h	29403	5 weeks	Rvanhout	Added support for loading resources from satellite dll

Done svn.riks.nl



Open Development Process Online Issue Tracking System

开放式开发进程 在线问题跟踪系统

Mantis - All Projects - Mozilla Firefox

http://www.riks.nl/bugreporting/view_all_bug_page.php?page_number=1

Mantis - All Projects

RIKS
research institute for knowledge systems

Logged in as: *bmhahn* (manager) 06-20-2006 08:02 W. Europe Daylight Time

Main | View Bugs | Report Bug | Summary | Docs | Manage | Edit News | My Account | Logout

Reporter: any Assigned To: any Category: any Severity: any Status: any Show: 50 Changed(hrs): 6 Hide Status: Resolved Closed

Search: [] Apply Filter

Viewing Bugs (1 - 50 / 363) [Print Reports] [CSV Export] [First Prev 1 2 3 4 5 6 7 8 Next Last]

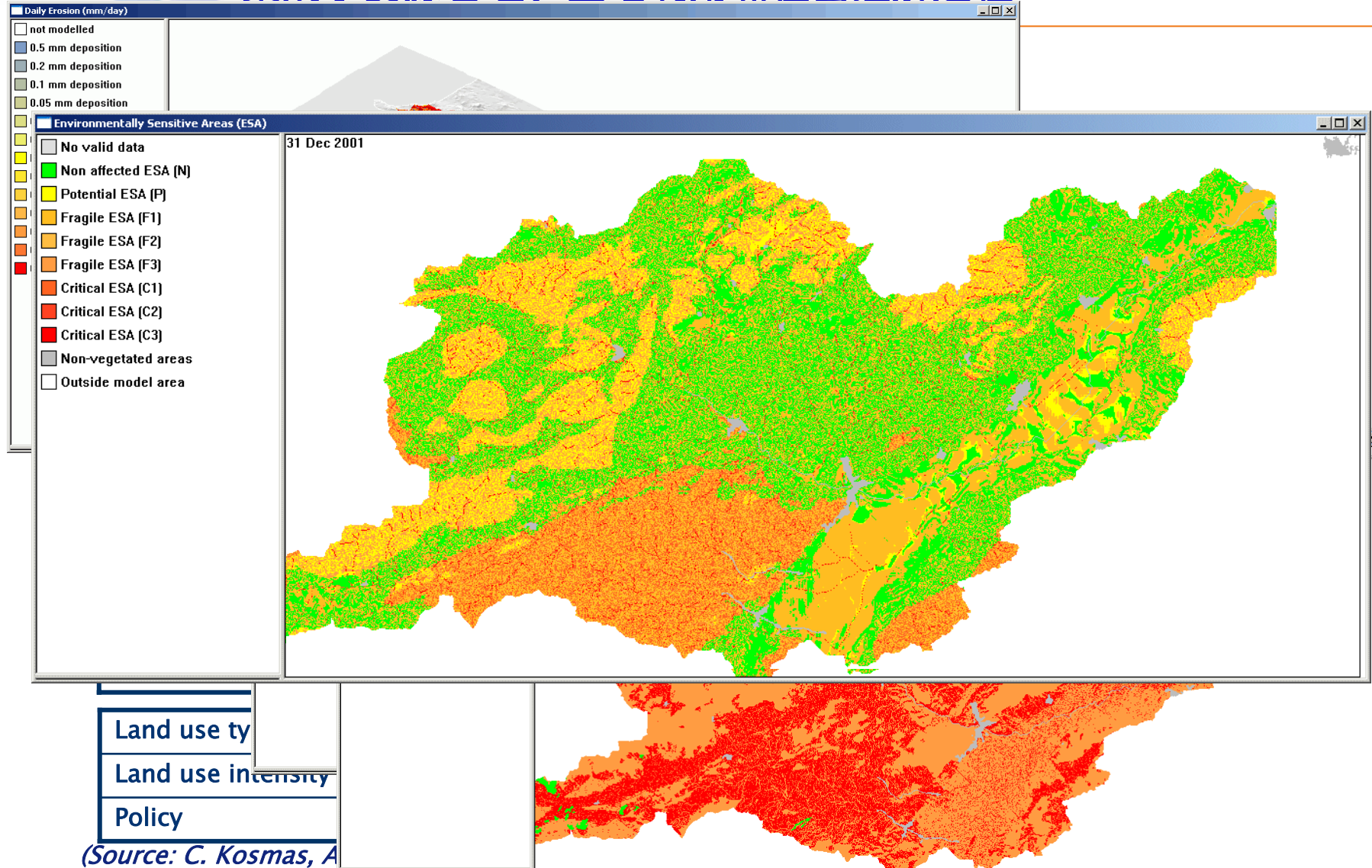
	P	ID	#	Category	Severity	Status	Updated	Summary
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<input type="checkbox"/>		0000395		[Elbe DSS] Hauptstrom::Maßnahmen	major	assigned (rvanhout)	06-16-06	Retentionsflächen no longer selectable
<input type="checkbox"/>		0000388	2	[Elbe DSS] Simulation	major	assigned (rvanhout)	06-16-06	Simulation run does not work
<input type="checkbox"/>		0000394	2	[Elbe DSS] Einzugsgebiet::Entwicklungsziele	major	resolved (bmhahn)	06-16-06	Results differ in Tab "Auswertung" and Tab "Indikator"
<input type="checkbox"/>		0000393		[Elbe DSS] User Interface	minor	new	06-16-06	Wrong scaling of concentration values
<input type="checkbox"/>		0000391	1	[Elbe DSS] Einzugsgebiet::Entwicklungsziele	feature	new	06-12-06	Button "Karte": wrong attributes displayed
<input type="checkbox"/>		0000346	2	[Elbe DSS] Fließgewässernetz::Entwicklungsziele	feature	feedback (amaas)	06-08-06	Verringerung Stofffrachten: wrong unit
<input type="checkbox"/>		0000390	1	[Elbe DSS] Fließgewässernetz::Entwicklungsziele	feature	assigned (bmhahn)	06-08-06	textstrings in userdialog to be corrected
<input type="checkbox"/>		0000387	1	[Elbe DSS] Flussabschnitt::System	crash	resolved (bmhahn)	03-29-06	DSS crash

Done



Integration of water management, land use and socio-economic processes

集成水资源管理、土地利用和社会经济进程

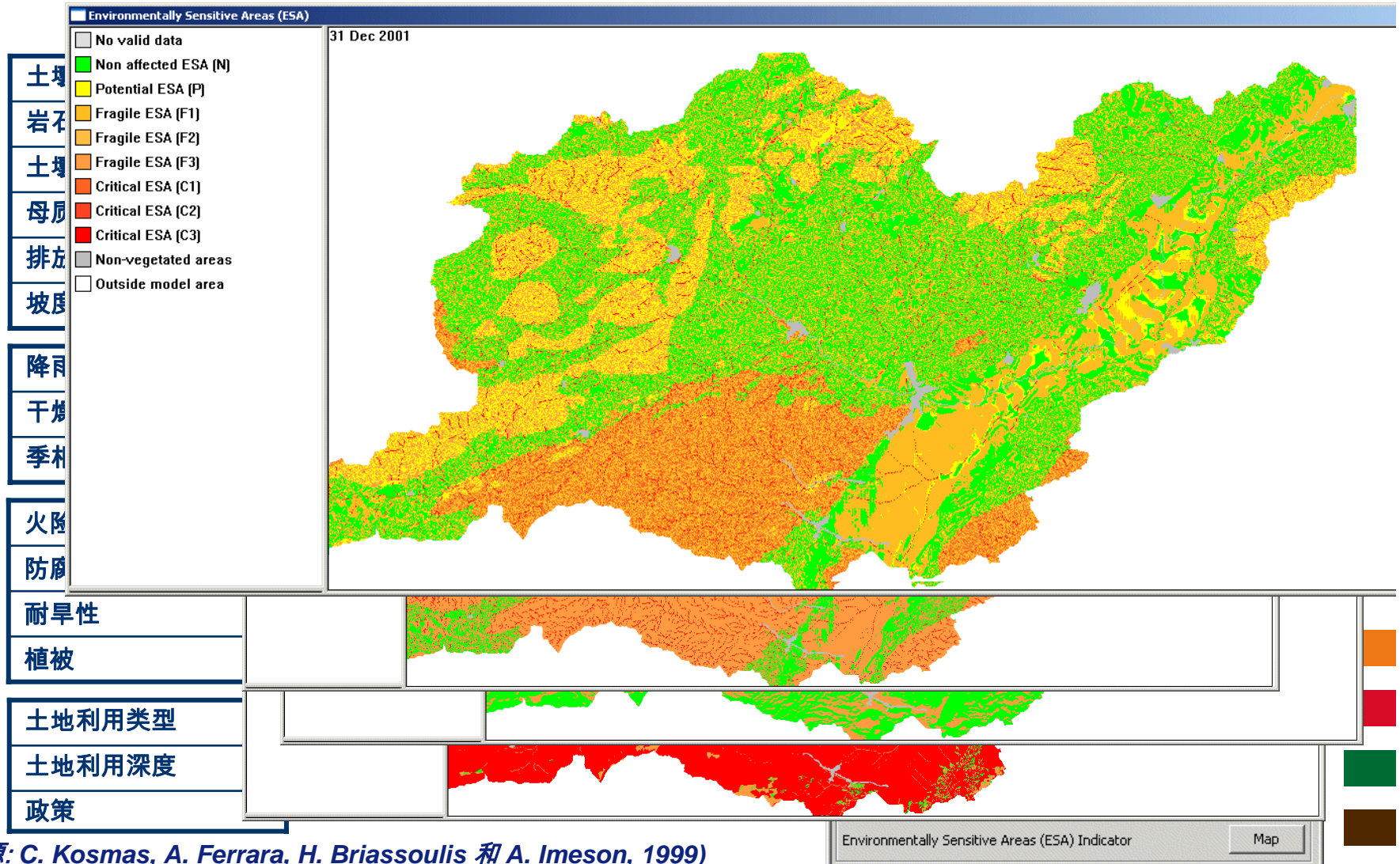


(Source: C. Kosmas, A



Integration of water management, land use and socio-economic processes

集成水资源管理、土地利用和社会经济进程



(来源: C. Kosmas, A. Ferrara, H. Briassoulis 和 A. Imeson, 1999)



Conclusion 结论

◆ Decision support systems for water management

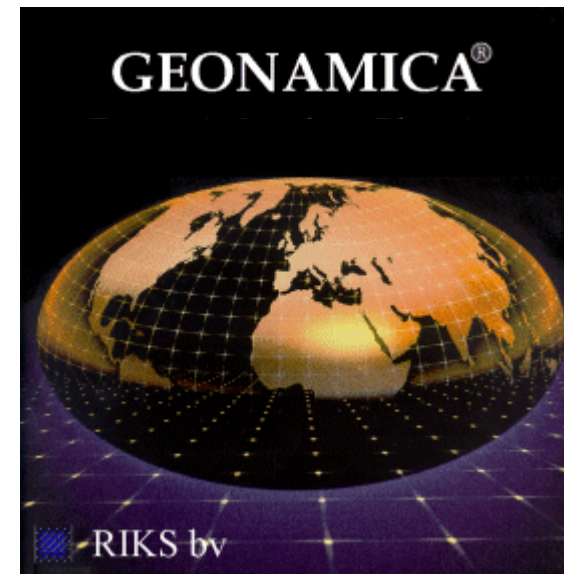
水资源管理的决策支持系统:

- Integrated approaches combining socio-economic and physical processes 整合了社会经济进程和自然进程的集成方法;
- Exploration of the future 探究未来;
- Assessment of different policy alternatives under changing external factors 在外部因子的变化下的不同政策选项评估;
- Policy options can be made explicit, can be analyzed, visualized and evaluated 政策选项能够被明晰的分析、可视和评估.

- ◆ can help to improve the understanding of processes, stimulate discussion and facilitate communication 能够帮助提高理解进程、模拟讨论和便于交流.

Any questions? 问题

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