

# A Comparison of Brownfield Regeneration Policy in England and Taiwan

台英褐地再生政策比較研究

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# About the Talk Today

## 簡報目的



[http://en.wikipedia.org/wiki/Image:Wobbly\\_bridge\\_120600.jpg](http://en.wikipedia.org/wiki/Image:Wobbly_bridge_120600.jpg)

- To Bridge the Understanding of Relevant Contaminated Land Regulations in both Countries  
簡述兩國污染場址相關規範，最爲雙方溝通基礎
- To Facilitate the Discussion and Interaction between the Delegates at both Sides.  
促進雙方代表互動
- Contaminated Land vs. Brownfield  
污染土地與褐地之異同

# Road Map

## 簡報重點



- **Background 背景資訊**
  - **Brownfield and Sustainable Development**  
褐地再生與永續發展之相關性
  - **Current Conditions in Taiwan**  
台灣褐地(污染場址)現況
- **Preliminary Regulatory Comparison 政策比較**
  - **Choice of Template 尋求政策範本**
  - **Regulatory Development 環境政策發展**
  - **Contaminated Land Regimes Comparison**  
污染場址法規比較

# Brownfield and Sustainability

## 褐地與永續發展

- Brownfield 褐地
  - Causing Pollution and Deprivation 造成污染與
  - Various Definition and Common Elements 各種不同定義中的共有元素
- UK 英國
  - Previous Developed Land 已開發過之土地
- Taiwan 台灣
  - Environmental Protection: Brownfield is Contaminated Land  
環境相關領域:受污染之土地
  - Planning: Previously Developed Land  
土地規劃領域:已開發過之土地

	Derelict or underused	contaminated	previously developed	urban	require intervention
CABERNET	√	Δ	√	√	√
UK LUDA	√	-	√	Δ	Δ
US EPA	√	√	√	-	-
ALKER et al (2000)	√	Δ	√	Δ	√

√ essential element in the definition

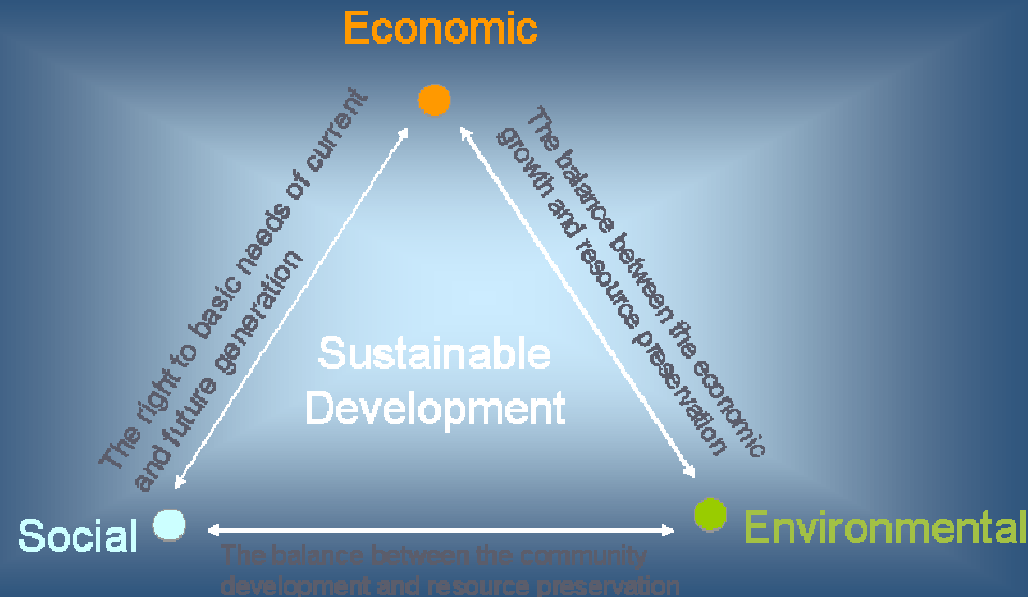
Δ optional element in the definition

- no mention of the element

# Brownfield and Sustainability

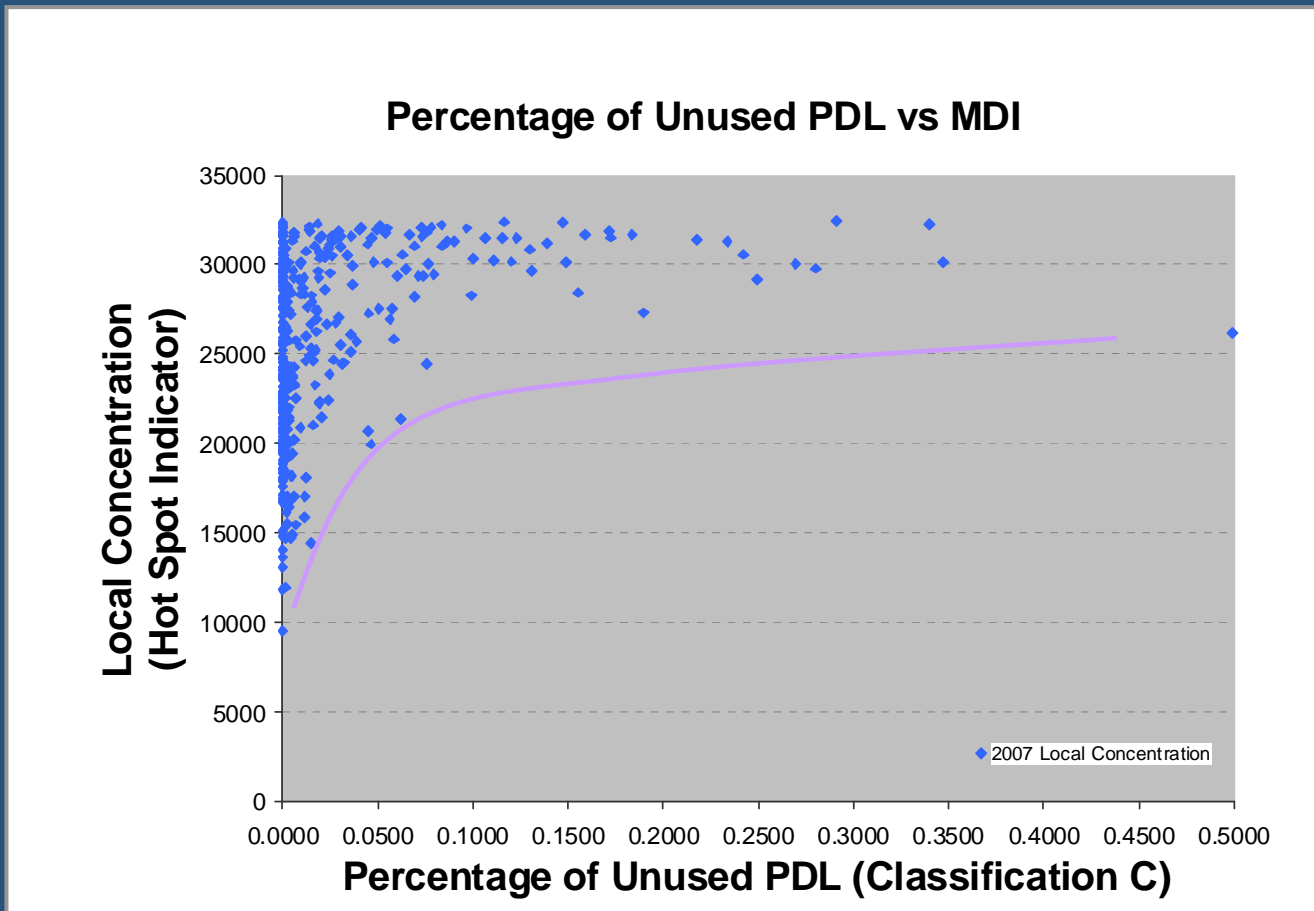
## 褐地與永續發展

- Sustainable Development 永續發展
  - Definition 定義
    - The development “meets the **needs** of the present without compromising the ability of future generation to meet their own **needs**.” (Brundtland Report, 1987)  
永續發展為滿足目前人類需求但不使未來世代追求其需要之能力枯竭之發展模式
  - Three Important Elements (Munasinghe, 2002) 永續發展三要素



# Social Deprivation and Brownfield 社會剝削程度與褐地關係

- Possible Effect of Brownfield on Social Sustainability.  
褐地對社會永續性可能之衝擊

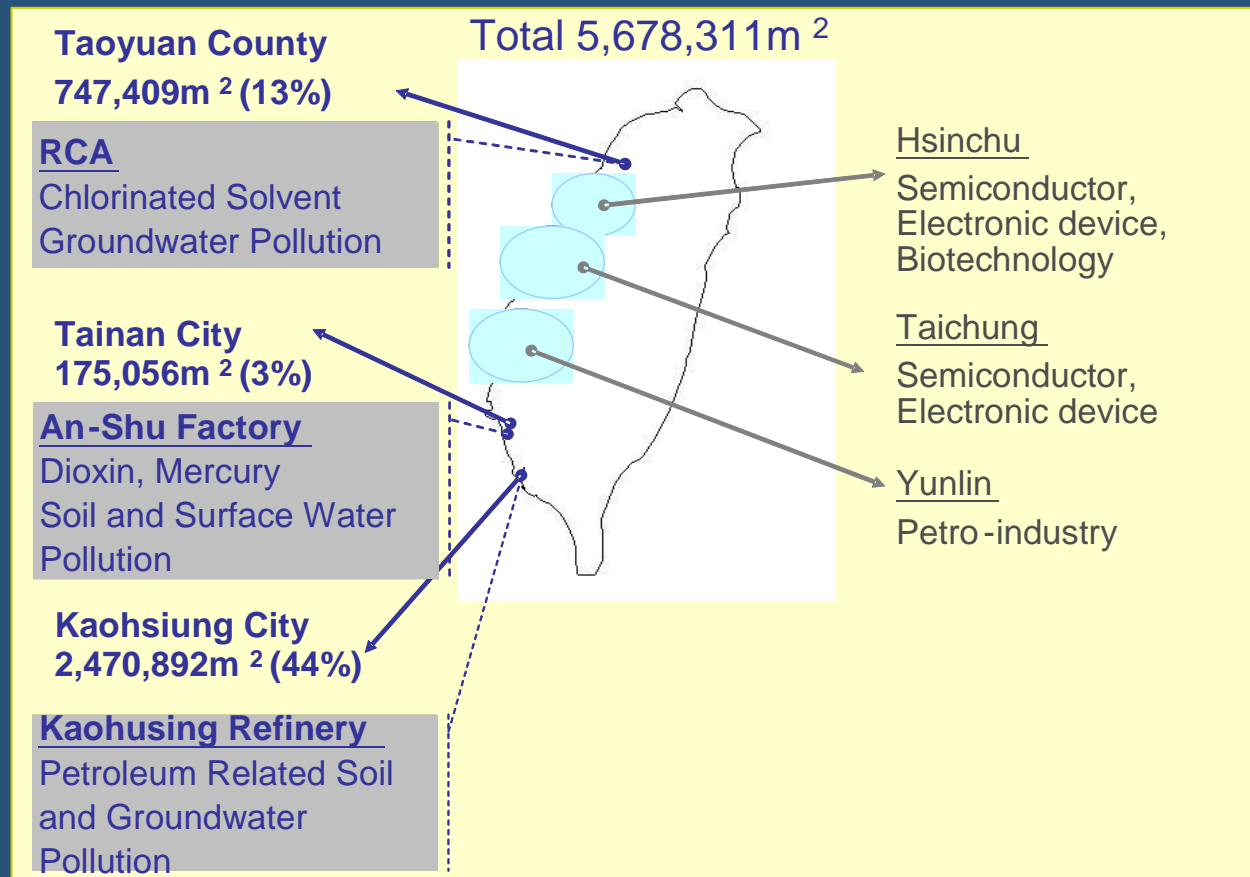


- Regeneration should Improve Sustainability  
褐地再生應促進永續性
  - Land Recycle 土地再利用
    - Revitalize the community 繁榮社區
    - Boost the economy 重振經濟
    - Reduce further damage of greenland 減少自然綠地開發
  - 'Suitable for Use' 符合用途
    - Reduce the cost of redevelopment 降低開發成本
    - Accelerate process 縮短開發時間



# Current Condition in Taiwan

## 台灣現況

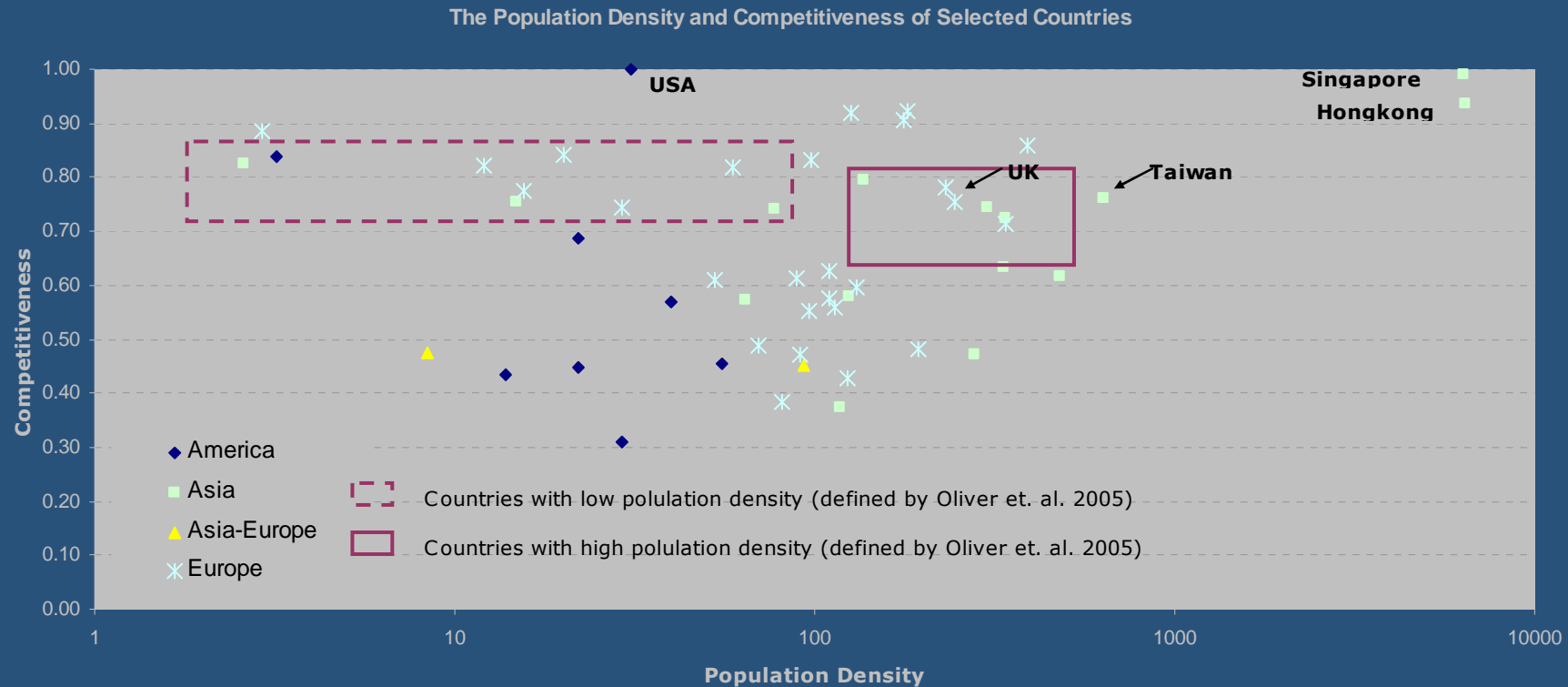


Major  
Contaminated Sites

Potential Future  
Contaminated Sites?

# Differed Regeneration Strategy

## 褐地再生之不同策略

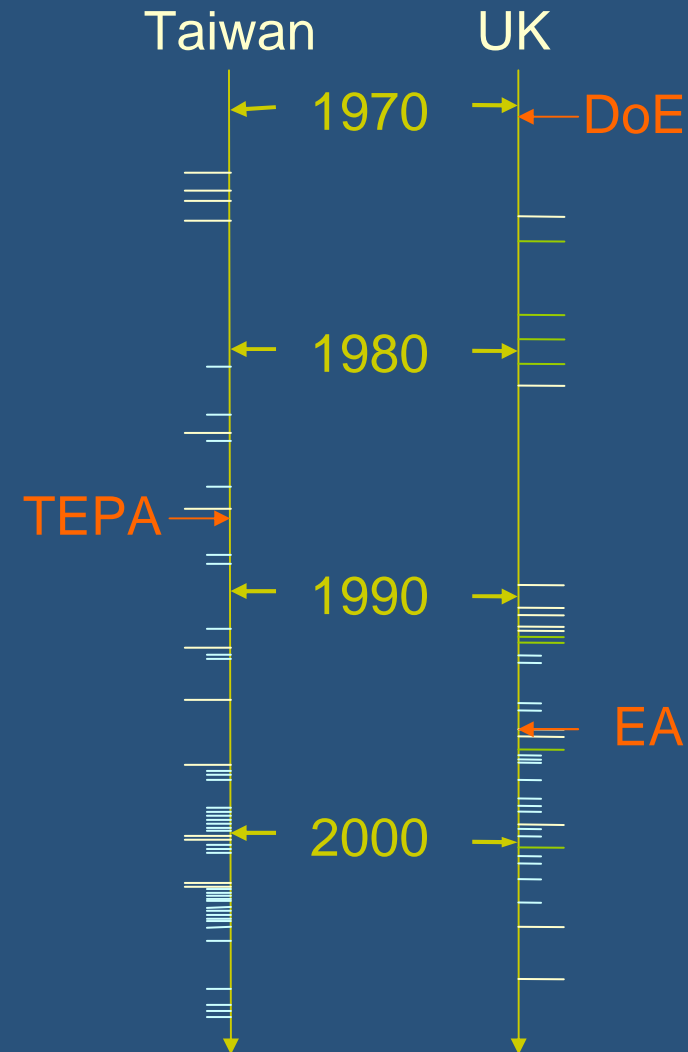


- Countries with lower population densities tend to clean up the contamination to its original nature condition. (Oliver et al. 2005)  
國家人口密度低，傾向恢復污染土地至其原始自然狀態
- Countries with higher population densities tend to clean up the contamination based on the cost effective of redevelopment. (Oliver et al. 2005)  
國家人口密度高，傾向考量未來土地利用之成本效益進行褐地管理

# Current Policies of Taiwan and UK

## 目前台灣與英國之政策

- Similarity 相似性
  - The trend of changing concept in environmental regulation  
環境法規制定概念之演變
    - Command and Control Model to Performance Based  
由指揮控制模式漸變至以績效為準之原則
    - Public Health Issue to Environmental Conservation  
由側重人體健康擴及強調整體環境保育
- Difference 相異性
  - Taiwan moved slower than western countries  
台灣法規發展約晚西方十年左右
  - Public perception of regulation?  
社會大眾對環境保育的觀念或有不同?



# Comparison 法規比較

- The Regimes Compared 比較制度
  - Taiwan: Soil and Groundwater Pollution Remediation Act 2000  
台灣：土壤地下水污染整治法
  - United Kingdom: Environmental Protection Act, 1990, Part IIA  
英國：環境保護法IIA部分
- The Points to Compare 比較重點
  - Inspection 場址調查檢測
  - Determination of Contaminated Land 污染場址認定
  - Liability 整治責任
  - Remediation 整治
  - Risk Assessment 風險評估

# Inspection

## 場址調查檢測

		Taiwan	United Kingdom
When to Inspect	Authority Regularly Inspection	√	√
	General Public Report	√	√
	Land Transaction	√ (Soil Only)	Δ (Test of Liability)
What to Inspect	Chemical	√	√
	Physical	Δ	√
	Biological	Δ (No Standard)	√
	Linkage between Hazard and Receptor	×	√
How to Inspect	Standard Analytical Method	√	×
	Inspection Procedure	×	√ (e.g. BS 10175)

- The consideration of subject to be inspected 檢測目標的選擇
  - Concentration of pollutant or linkage to the receptor  
 污染物濃度亦或是污染物與受體的聯結
- Method of Inspection 檢測方法
  - Emphasis on chemical analysis or Inspection Procedure  
 著重於化學分析或是場址調查程序

# Determination of Contaminated Land

## 污染場址認定



- **Control Site and Remediation Site** 控制場址與整治場址
  - **Control Site: Exceeding Control Standard**  
控制場址：超出管制標準
  - **Remediation Site: Preliminary Assessment**  
整治場址：未通過初步評估
    - **A Scoring System Based on Concentration of Chemicals**  
以污染物濃度記分
    - **Drinking Water Sources, Ecological Protection Areas, Special Scenic Area, Children's Recreational Area**  
其它特殊狀態如飲用水源、特殊保育或景觀區、兒童活動頻繁區域
- **Contaminated Land and Special Site** 污染場址或特殊場址
  - **Contaminated Site: Pollutant Linkage**  
污染場址：受體暴露於污染物之途徑存在 (並可能造成危害)
  - **Special Site: Prestigious Water Resources, Specified Industrial Pollution, Defence Cases, Radioactive Cases**  
特殊場址：飲用水源、特殊工業污染物、軍事用途、輻射污染

# Liability

## 整治責任

- Stakeholders 利益關係人
  - Polluters 污染行為人
    - Polluters Pay 污染者付費
  - Other Relevant Parties 其它相關人
    - Owner 土地所有人
    - Occupier 土地使用者
    - Other Interested Parties (e.g. developer)? 其它?(例如開發商)
- Strict Liability 嚴格責任/無過失責任
  - Legitimacy of Liability 責任歸屬的合理性
  - Six Exclusion Tests in UK 六個排除檢驗
  - To be Blamed or to be Benefit 考量錯誤行為或是獲益程度

# Remediation

## 整治

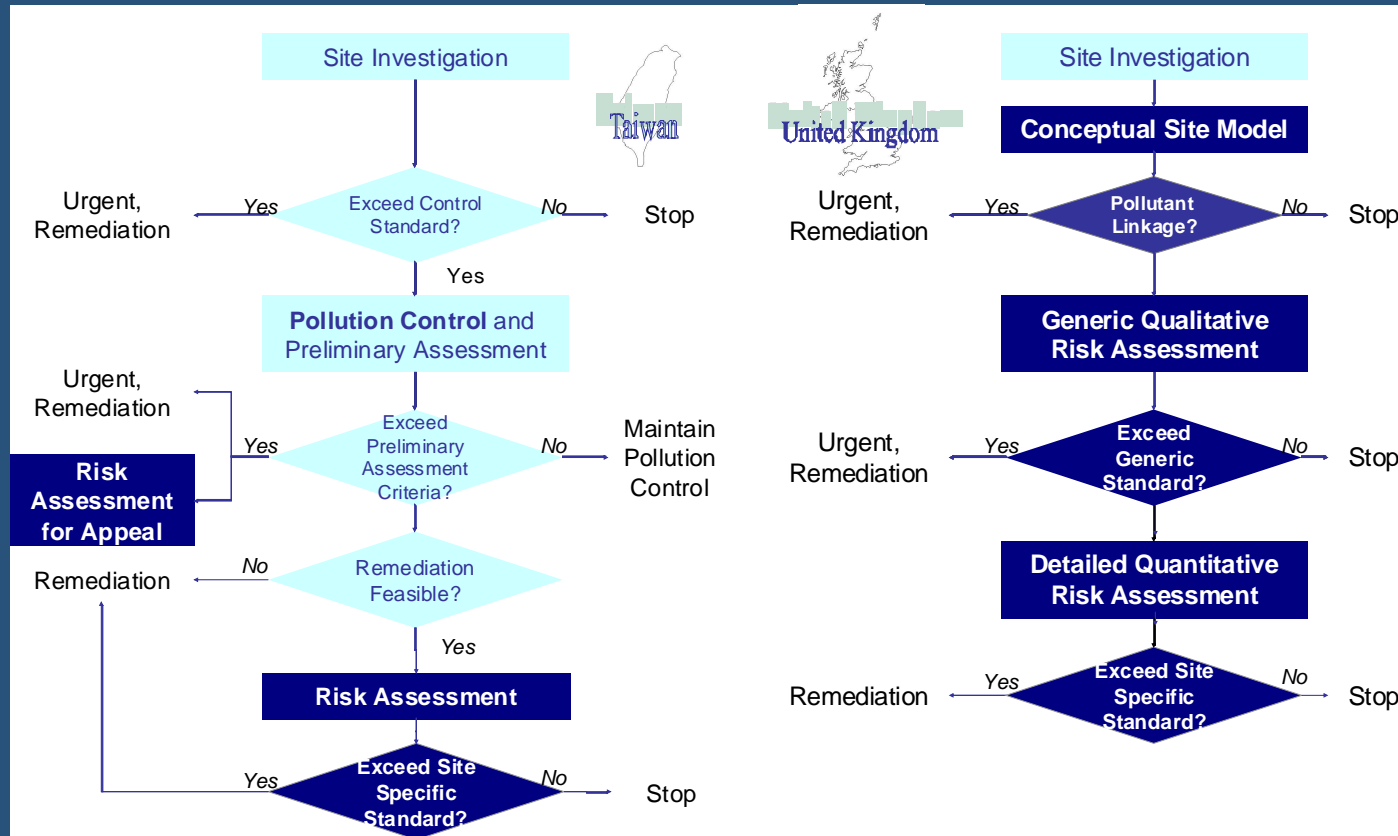


- Remediation Implementation 整治執行程序
  - Taiwan (Remediation Site) 台灣 (整治場址)
    - Remediation is Approved by TEPA, Planned and Implemented by Responsible Party  
整治計畫由責任主(污染行為人或利益關係人)執行，但須先由環保署核准
    - If Responsible Party cannot be allocated, Government may conduct remediation  
若責任主已不存在，政府則可執行整治
  - United Kingdom (Both Contaminated Land and Special Site)  
英國 (污染場址與特殊場址)
    - Remediation Statement 整治聲明
      - Voluntary action of appropriate person 責任主自願整治
    - Remediation Notice 整治通知
      - Agency → Appropriate Person 由環保署通知責任主整治
    - Remediation Declaration 整治宣告
      - Remediated by government 由政府負責整治
- UK Encourage Voluntary Action 英國制度較鼓勵自願整治



# Risk Assessment

## 風險評估



- Risk assessment procedure in Taiwan is optional  
風險評估在台灣為非必要程序
- Risk assessment procedure is the major tool in dealing with the contaminated land issues in a cost effective way in UK  
英國為了促進污染土地在開發之成本效益，大量使用風險概念

# Changing in Progress

## 法規修改動態

- United Kingdom 英國
  - Frequent Revision of Statutory Guidance and Technical Guidance 目前多修改法規相關之技術文件
    - CLR 10 – Update of Modelling, Exposure Assessment 暴露評估模式
    - SR 2 – Update of Toxicological Assessment 毒性評估原理
- Taiwan 台灣
  - Revision both at legislation and guidance level 修改的部份包括法規與技術文件
    - Act Revision – Lower the burden of regeneration 法規修定朝向降低再開發門檻
    - Guidance Revision – better fit parameters and exposure modelling into scenarios in Taiwan 技術文件則以參數本土化為原則

# Questions?

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