

ENVIRONMENTAL DEFENSE

# GHG reductions and market developments

Environmental Defense Fund

美国环保协会首席经济学家



ENVIRONMENTAL DEFENSE FUND

finding the ways that work

# The Carbon Market<sup>1</sup>

## 碳市场<sup>1</sup>

- Compliance Market 强制市场
  - AAUs; ERUs; CERs
- Clean Development Mechanism 清洁发展机制
  - CERs
- Joint Implementation 联合履行机制
  - ERUs
- Voluntary Market 自愿减排市场
  - VERs

<sup>1</sup> Actually many different GHGs denominated in carbon  
1 碳市场涵盖了许多不同的温室气体，这些气体都由碳表示

# Global Carbon Market

## 全球碳市场

### Transaction Volumes and Values, 2006 and 2007<sup>1</sup>

| Markets                        | Volume (MtCO <sub>2</sub> e) |              | Value (US\$million) |               |
|--------------------------------|------------------------------|--------------|---------------------|---------------|
|                                | 2006                         | 2007         | 2006                | 2007          |
| Voluntary OTC Market           | 14.3                         | 42.1         | 58.5                | 258.4         |
| CCX                            | 10.3                         | 22.9         | 38.3                | 72.4          |
| <b>Total Voluntary Markets</b> | <b>24.6</b>                  | <b>65.0</b>  | <b>96.7</b>         | <b>330.8</b>  |
| EU ETS                         | 1,044                        | 2,061        | 24,436              | 50,097        |
| Primary CDM                    | 537                          | 551          | 5,804               | 7,426         |
| Secondary CDM                  | 25                           | 240          | 445                 | 5,451         |
| Joint Implementation           | 16                           | 41           | 141                 | 499           |
| New South Wales                | 20                           | 25           | 225                 | 224           |
| <b>Total Regulated Markets</b> | <b>1,642</b>                 | <b>2,918</b> | <b>31,051</b>       | <b>63,697</b> |
| <b>Total Global Market</b>     | <b>1,667</b>                 | <b>2,983</b> | <b>31,148</b>       | <b>64,028</b> |

Source: Ecosystem Marketplace, New Carbon Finance, World Bank

# Voluntary versus Compliance Offsets

## 自愿减排与强制减排

- Compliance offsets must be 强制减排必须是：
  - Accepted by regulator 由政府管制方接受认可的
  - Direct reductions (owned by seller) 直接的减排 ( 卖方拥有所有权 )
  - Achieved before registration 获得减排后方可注册
  - Verified by independent 3<sup>rd</sup> party 由独立第三方进行审核
- Voluntary offsets 自愿减排
  - Value based on perceived quality 根据所视的质量确定减排价值
  - No guarantee of regulatory approval 不用获得管制方的批准
  - Indirect reductions can be used to offset indirect emissions  
间接排放可由间接减排抵消
  - Ownership often “asserted” but not necessarily proven  
所有权可以是“声明”所有，不需要证明

# Buyers and Drivers

## 自愿减排的买方和动力

- **Buyers:** 买方

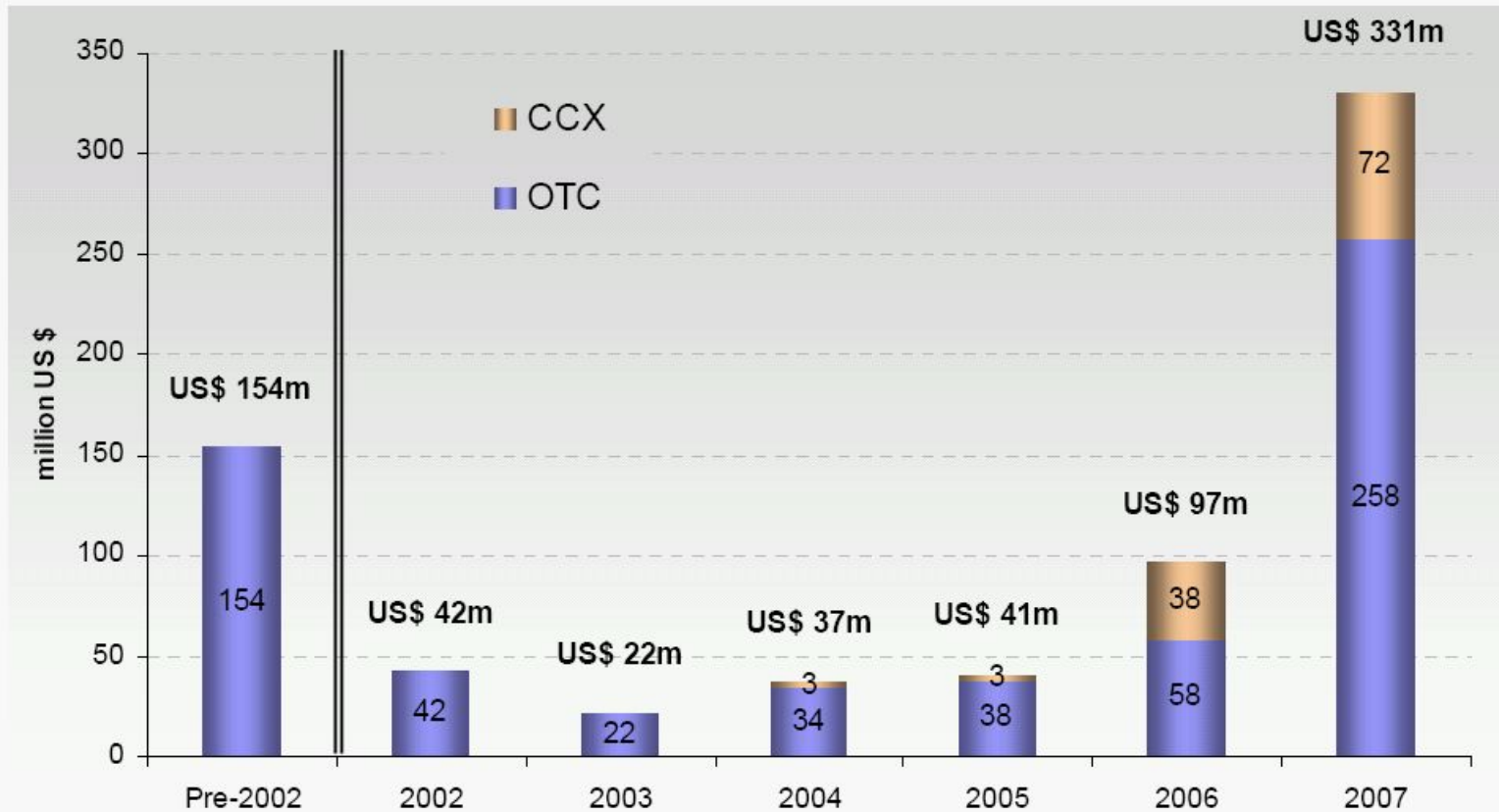
- Corporations 企业
- NGOs 非政府组织
- VER retailers 自愿减排量的零售商

- **Drivers:** 动力

- CSR/branding 企业社会责任/品牌声誉
- Personal retirement 个人撤销
- Anticipation of regulation: possibility of grandfathering 管制预期
- Investment/reselling 投资/再售

# Market Evolution 市场进展

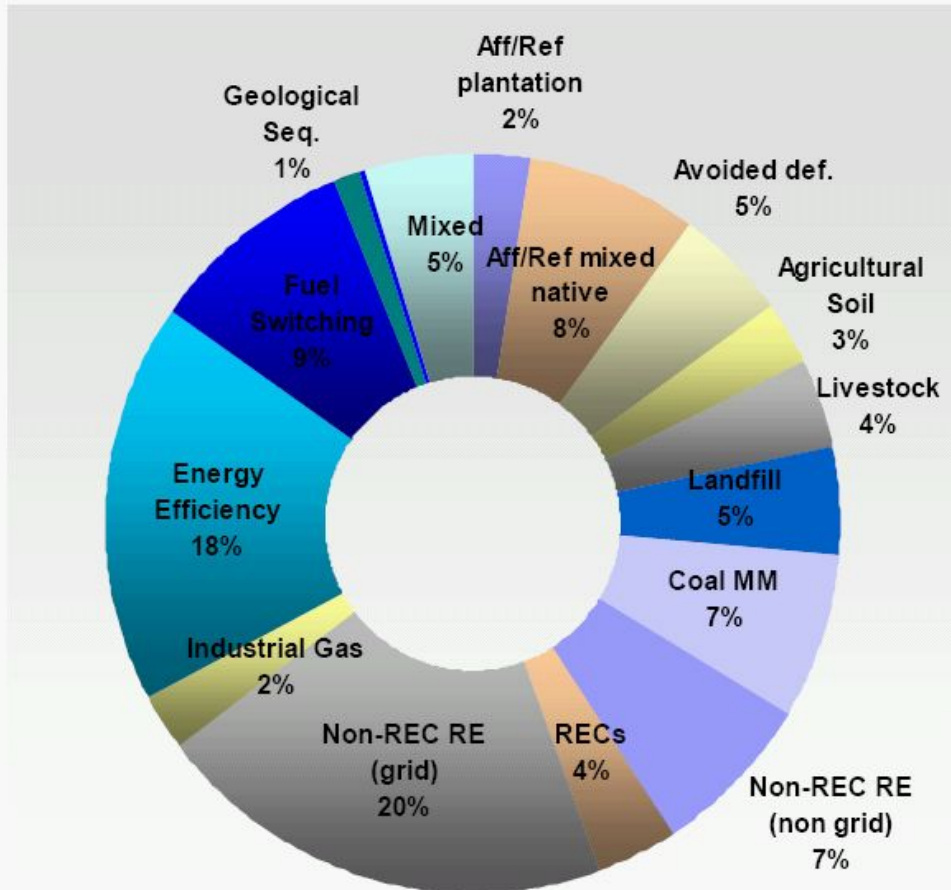
Transaction Values on the Voluntary Carbon Market <sup>2</sup>



Source: Ecosystem Marketplace, New Carbon Finance

# ENVIRONMENTAL DEFENSE FUND

Transaction Volume by Project Type, OTC 2007



Source: Ecosystem Marketplace, New Carbon Finance

## VER Project Types 自愿减排项目种类

< 1/4 land based projects

土地利用项目占有率不到1/4

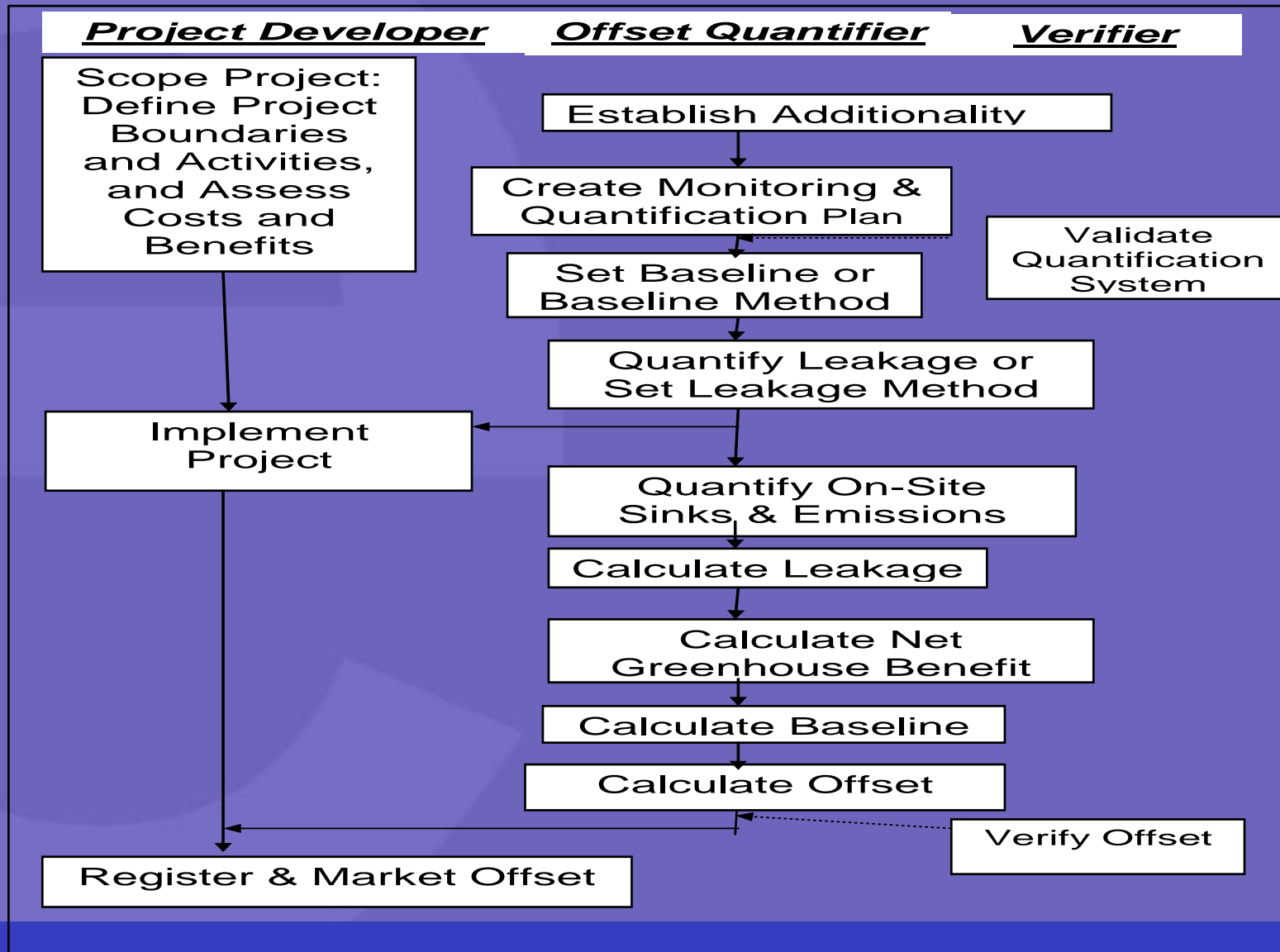
# VER Prices VER价格

Credit Prices by Project Type, OTC 2007





# Project Operation 项目实施过程



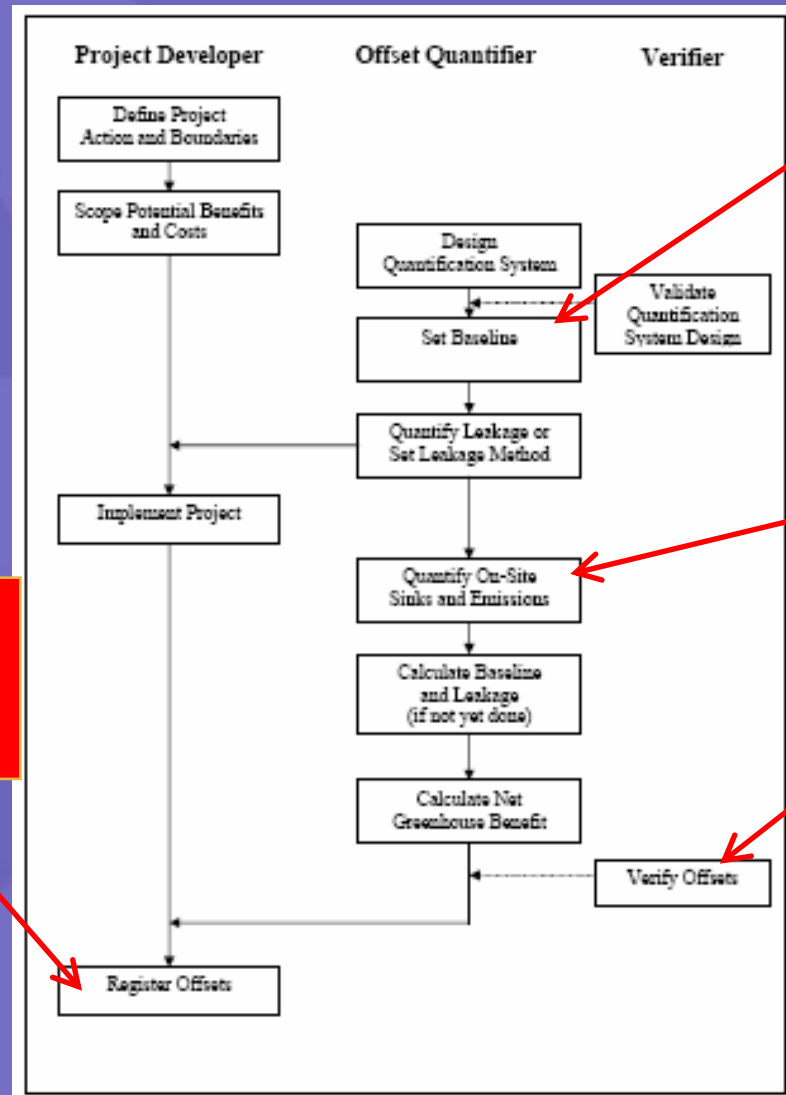
# Key parties in the project

## 项目关键方

- **Project Developer 项目开发者**
  - Identifies and evaluates prospective projects 识别、评估潜在的项目
- **Aggregator 项目集合者**
  - Aggregates farmers 集合农户
  - Supervises the project operation 监督项目实施
  - Coordinates with monitoring and verification organizations as well as the buyer 协调监测、审核组织和买方
  - Backstops project performance
- **Farmers 农户**
  - Produce GHG offset 产生温室气体减排量
- **Verifier 审核方**
  - Audit GHG offset 审查温室气体减排量
- **Buyer 买方**
  - Purchases offset 购买减排量

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## Process for creating credible offsets 产生可靠的减排量的过程



Set baseline

Measure change

Independently verify

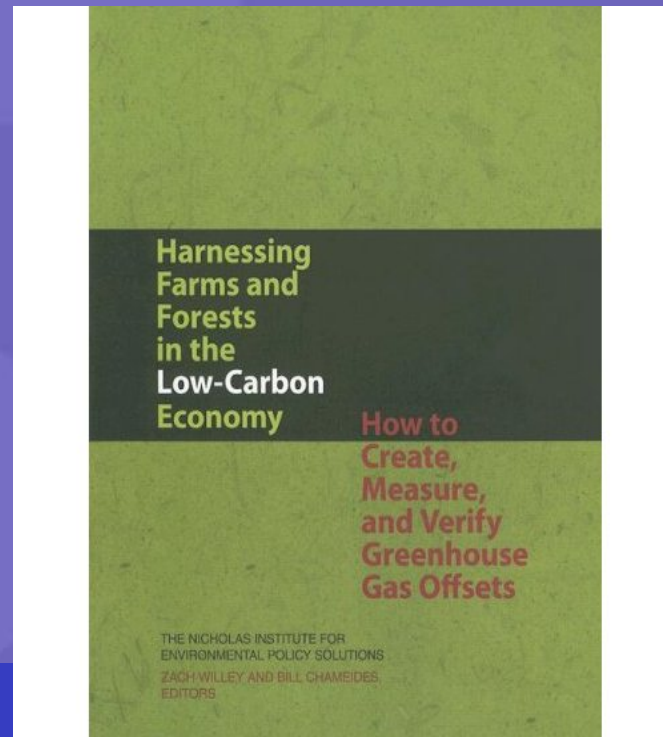
Register offset

# Monitoring and Verification

## 监测与审核

- Duke Standard– Harnessing Farms and Forests in the Low-Carbon Economy, How to create, measure, and verify GHG offsets

### 杜克法则



# Tamarisk Project 红柳项目

- Benefit of Tamarisk and cictanche salsa project 项目收益
  - Reverse the desertification process 防止沙漠化
  - Poverty alleviation, cictanche salsa is a valuable herbal medicine 扶贫，大芸是珍贵的中药材
  - GHG reduction 温室气体减排
- GHG reduction from tamarisk project
  - Biomass increase 增加生物质

# Problems in Project Implementation

## 项目实施中的问题

- Project Developer 项目开发方
  - Initial site identification/scoping 项目地初始识别
  - Identification and engagement of aggregator 识别项目集合者
  - Supporting infrastructure 支持的基础设施
- Aggregator 项目集合者
  - Workload is big 工作量大
    - Many famers participate 许多农户参加
    - Large area for management 管理的区域广泛
  - Performance surety 保证项目实施情况
- Farmers 农户
  - Revenue relatively low compared with necessary project investment 与必须的项目投资相比，收入相对较低

## Issues in Scaling Up 更深层次的问题

- Definitional standards – measurement precision, baselines, additionality, leakage, permanence  
规范性的标准——测量准确性，基准线，额外性，泄漏，永久性
- Measurement & verification service sectors not developed  
测量和审核相关服务行业尚未发展完善
- Qualified aggregators not readily available  
具有相关资质的项目集合者还很少
- Farmers not familiar with CO<sub>2</sub> offsets  
农民对CO<sub>2</sub>减排还不熟悉
- Recognized GHG Registry  
对温室气体注册系统的认知度

## Registries注册

- Ensure that offsets meet a specified quality standard 确保抵消额满足特定的质量标准
- Associate each offset with a unique owner  
每份抵销额只能有唯一的所有者
- Remove expired or retired offsets from the market 从市场上到期扣除或者收回抵消额
- (Optional) provide a central exchange where market participants can execute trades  
( 可选 ) 提供一个交换中心使市场参与者可以进行交易



# Registration Requirements

## 注册系统要求

- Baseline 基准线
- Monitoring, reporting and verification (MRV) protocol 可测量、可报告、可审核
- Attestation letter 证明材料
- Verification statement from auditor/appraiser/quantifier 审核者/评估者/量化者的审核说明

# Where is this all going? 前景展望

- IETA: carbon trading worth >\$60 billion in 2007 vs. \$1 billion in 2004

国际排污交易组织：2007年碳交易价值超过600亿美元，而2004年仅为10亿美元

- Countries at Bali agree on enhanced action for post-2012  
巴厘会议上参会国家一致同意加强后2012年行动
- New elected US president supports domestic cap and trade program

美国新选总统支持总量控制排污交易计划

- “Largest economic opportunity of the 21<sup>st</sup> Century” –  
Venture capitalist John Doerr.

风险资本家John Doerr.: 21世纪最大的经济机遇

For further information see:

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