HABITAT & CITY 人居&城市

WORLD BEST PRACTICES
全球最佳范例

ASIA-PACIFIC EDITION 亚太版

GLOBAL FORUM ON HUMAN SETTLEMENTS 全球人居环境论坛 联合国经社理事会"特别咨商地位"
SUSTAINABLE DEVELOPMENT GOALS
THE GLOBAL COMPACT WE SUPPORT
UNEP Sustainable Buildings and Climate Initiative National Partner

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Asia-Pacific Forum on Sustainable Development 2017
Successfully Convened in Bangkok, Thailand
2017 亚太可持续发展论坛在泰国曼谷成功举办

联合国副秘书长沙姆沙德·阿克塔尔博士会见 GFHS 代表团（见 P68）
UN Under-Secretary-General Dr. Shamshad Akhtar meeting with GFHS delegation（P68）

- OBSERVANCE OF "WORLD CITIES DAY 2017" -

The 12th Global Forum on Human Settlements &
Sustainable Cities and Human Settlements Awards Ceremony

2017"世界城市日"庆祝活动——
第十二届全球人居环境论坛暨飒飒奖盛典（GFHS – XII）

Date: October 30-31, 2017 时间：2017 年 10 月 30 日 - 31 日
Venue: UN headquarters, New York City 地点：美国纽约联合国总部

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国际视野　绿色平台　高端受众　成功典范

读者群与发行网络：联合国有关机构和国际组织负责人及专家，国内外政府官员、城市市长和商界精英、规划建设、城市管理、建筑与住房、低碳环保、交通等行业的企业家和专业人士。杂志纸质版赠阅、订阅和电子版订阅并重，此外进入深圳等地上千个商务场所、银行网点、休闲会所和高尔夫球场的展示终端，供高端顾客传阅，并可在手机等移动终端上阅读。

最佳范例甄选：本杂志面向全社会甄选人居与城市相关的最佳范例，城市、企业和个人均可申报。由杂志命名后向全球推广。由本杂志总结报道的汶川县水磨镇灾后重建范例经验等已成为可持续重建经典，体现了中国灾后重建的巨大成就和奇迹，广为传播。

杂志理事会：依托本杂志平台，由城市政府、人居环境领域的企业、科研院校等单位和社会各界人士自愿组成的服务联盟。理事会旨在为理事单位提供国内外交流合作及创新创业和提升发展的综合平台，加强能力建设，实现互惠多赢的目标。理事会不定期举行活动。

广告营销：本杂志以高端的国际化定位、前瞻性和实用性相结合的行业资讯以及高端读者群，为广大城市和企业提供了一个塑造绿色品牌、促进产品营销的独特超值的平台。

欢迎订阅　发布广告　加入理事会　提升品牌

Action Comes Uppermost
行动至上

清明谷雨，立夏小满。春生夏长，万物欣欣向荣。

上一届联合国秘书长潘基文最大的贡献之一，莫过于领导联合国、协调国际社会、历经磨难、签署了三个重要协定：《2030年可持续发展议程》、《巴黎气候协定》和《新城市议程》。三大协定体现了人类对近代以来工业化、城镇化的全面反思和觉醒，是全球向可持续发展全面转型的行动纲领，对于保护我们赖以生存的星球、促进人类持久和平和共同繁荣意义重大。

三大议程为地球村的经济、社会、环境、文化、城市生活等方方面面提供了政策指导和行动指南，关键在于各国、各地区、各市、各镇、各社区、各村、各企业、各人贯彻和落实。行动起来，任重道远。今春，我们相继出席了万象亚洲可持续交通论坛和市长论坛、曼谷亚太可持续发展论坛、北京国际绿色建筑大会、香港高层国际海洋研讨会，有关行业和区域都在研究和部署行动事宜。

为此，第 12 届全球人居环境论坛暨颁奖盛典定于 10 月 30 日 - 31 日在纽约联合国总部隆重举办，作为 2017 世界城市日的庆祝活动，目的也只有一个：促进行动。国际绿色范例新城倡议正式向首批创始城市和企业开放，更是为了促进行动。

全球人居环境论坛和《全球最佳范例》杂志将致力于成为四个中心：知识加工中心、信息传播中心、技术推广中心、行动促进中心，也是为了促进上述三大协定的贯彻落实。

本期刊登了德国曼海姆市和南非开普敦市的范例经验，以及丹麦向污水要能源的成功案例，为同行提供了行动参考。

春生夏长，行动至上！

《全球最佳范例》杂志编辑部
二零一七年五月三十一日

Pure Brightness, Grain rain, The Beginning of Summer, Lesser fullness of Grain - All things come to life in Spring, and swell in Summer. Everything is at its best.

One of the former UN Secretary-General Ban Ki-moon's greatest contributions lies in his efforts in leading the United Nations and coordinating the international community to overcome all kinds of difficulties and successfully bring out three major agreements: the 2030 Agenda for Sustainable Development, the Paris Climate Agreement and the New Urban Agenda. The birth of the three agreements indicated that mankind is starting to rethink the model of, and wake up to the problems associated with, industrialization and urbanization. These agendas serve as guidelines of actions for all-round transformation toward sustainable development, and are of vital significance to protect the planet that we live on and promote lasting peace and common prosperity.

The three historical protocols provide both policy and action guidance for the various areas - social, economical, environmental, cultural and urban life on global village, of which the key is to get them implemented at national, regional, city, community, rural, business and individual levels.

Taking action, we still have a long way to go. In Spring, we attended and contributed to the 10th Regional Environmentally Sustainable Transport Forum and Vientiane International Mayors Forum, Asia-Pacific Forum on Sustainable Development in Bangkok, the 13th International Conference on Green and Energy-Efficient Building in Beijing, and International Leadership Conference on“Healthy Oceans – Healthy Coast” in Hongkong. Relevant industries and regions are planning to take practical actions.

As such, the 12th Global Forum on Human Settlements & Sustainable Cities and Human Settlements Awards Ceremony will take place focusing on the urgent sustainability issues as well as commemorating the “World Cities Day 2017” at the headquarters of the United Nations in New York on 30 and 31 October 2017. The only goal is to promote actions. In the meanwhile, International Green Model City Initiative is officially open to first foundation cities and entities for better promotion of actions.

Besides, Global Forum on Human Settlements and World Best Practices Magazine are dedicated to become a center for processing knowledge, spreading information, promoting technology and facilitating action, thus facilitating the implementation of the three agenda.

In this issue, we covered the sustainability experience from city of Mannheim and city of Cape Town, as well as best practice from Danish wastewater plant, in the hope of inspiring the peer industries and cities to take actions on the ground.

All things come to life in Spring, and swell in Summer. Action Comes Uppermost!

By the Editorial Office, World Best Practices Magazine

May 31, 2017

GLOBAL FORUM ON HUMAN SETTLEMENTS
全球人居环境论坛
In Special Consultative Status with ECOSOC

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Theme: Effectively Planning and Managing Urban Spatial Development to Implement 2030 Agenda for Sustainable Development and New Urban Agenda

主题：有效规划和管理城市空间发展，贯彻《2030 年可持续发展议程》和《新城市议程》

第十届全球人居环境论坛开幕现场，联合国经社理事会大厅
Opening of 10th Global Forum on Human Settlements (GFHS - X), ECOSOC Chamber, UN Headquarters

GFHS：国际平台成就国际品牌

International Platform Creating International Brand

为期 2 天的 GFHS-XII 包括闭门会议、开幕式、高层对话、分论坛、建议和总结部分，将深入讨论或涉及以下议题：

- 综合、多中心、均衡的区域开发政策、标准和范例
- 安全、包容、便利、绿色和优质的公共空间
- 提高资源效率，改善城市环境和弹性
- 国际绿色范例新城倡议
- 低碳城市与新能源发展
- 包容性的城市更新
- 可持续旅游
- 智慧城市
- 特色小镇
- 快速城镇化进程中的妇女和儿童等

会议期间将举办现场展示、餐会交流，并组织实地考察学习北美地区可持续城市和绿色社区项目。

2016"纵纵奖"颁奖者与获奖者集体合影
Group shot of the awarders and awardees, SCAHSA 2016

The two-day GFHS – XII will consist of closed consultation, opening ceremony, high-level dialogue, sub-forums, recommendations and summaries, exhibition, awards ceremony, field visits and studies.

Topics to be addressed:

第十一届全球人居环境论坛会议现场
The Opening of 11th Global Forum on Human Settlements

出席闭门会议的中外嘉宾 *The Closed Consultation*

合作组织 Co-organizers：

全球人居环境论坛
Global Forum on Human Settlements (GFHS)

非洲联盟常驻联合国观察团
Permanent Observer Mission of the African Union to the UN (AU)

冈比亚常驻联合国代表团
Permanent Mission of the Gambia to the UN

联合国相关机构
Relevant United Nations Agencies

世界和平联盟
Universal Peace Federation (UPF)

世界城市运动
World Urban Campaign (WUC)

世界非政府组织联合会
World Association Of Non-governmental Organizations (WANGO)

深圳美好城市研究院
Better City Institute (BCI)

- Integrated, polycentric, and balanced territorial development policies, strategies and practices
- Safe, accessible, green and quality public spaces
- Improve city environment and resilience through resource efficiency
- International Green Model City Initiative
- Low-carbon city and new energy development
- Inclusive urban renewal
- Sustainable tourism
- Smart city
- Characteristic town
- Women and Children in the Rapidly Urbanizing World

欢迎报名参加 GFHS - XII!

Warmly welcome to participate in GFHS – XII.

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观澜湖旅游度假区
Mission Hills Resort Destination

观澜湖旅游度假区跨越深圳、东莞、海口三地，由观澜湖集团全资投资兴建和运营管理。自 1992 年底开始规划兴建，现已发展成为集运动休闲、商务休闲、养生休闲、会议旅游、文化娱乐、美食购物、长居短憩 7 大功能为一体的国际绿色休闲旅游度假区和国际交流平台。

Mission Hills Group is the owner and operator of world-class leisure and resort destinations in southern China. Founded in 1992, the Group has expanded the reach of its business into Shenzhen, Dongguan and Haikou and established itself as an international sporting and culture exchange platform as well as a leading leisure destination for sports, commerce, leisure, wellness, culture and retail-tainment as well as commercial and residential developments.

低碳环保生态观澜湖
我们一直在行动

Striding towards a low-carbon, environmental and ecological friendly Mission Hills

MISSION HILLS
觀瀾湖

观澜湖
低碳 · 环保 · 可持续发展

“低碳、环保、生态”的战略方针是观澜湖集团可持续发展的重要目标之一。因此公司制定了《观澜湖低碳、环保、生态的可持续发展框架》，在能源管理、水资源管理、废物管理、碳管理、生态管理、低碳交通、可持续发展采购、可持续发展项目规划、可持续发展赛事等多方面贯彻低碳理念、落实低碳行动，全面发展低碳经济和支持低碳生活。从吃、住、游、购、娱、会、养、赛的每个环节落实节能减排、降低污染，并积极推行和倡导低碳旅游。

Mission Hills Group
Low-carbon · Environmental-friendly · Sustainable Development

“Low-carbon, Environmental and Ecological Friendly” is the key to Mission Hills’ sustainable development strategy. A Mission Hills’ sustainability framework in developing low-carbon, environmental and ecological friendly is established to efficiently manage our energy and water resources, waste recycling, carbon offsetting, ecoloygical protection, low-carbon transportation, sustainable procurement, development and tournament. The Group strides to develop a low- carbon economy and support a low-carbon lifestyle through implementing energy conservation and reduce pollution in the aspects of consumption, living, travel, leisure, entertainment, convention, health care, and tournament and at the same time promote sustainable tourism.

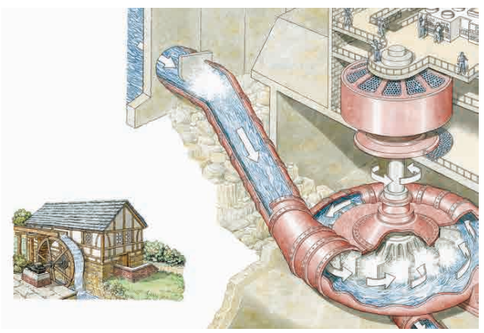
前沿资讯 FRONTIER INFORMATION

专题报道 SPECIAL REPORT

联合国之声 VOICE OF THE UN

技术与观点 TECHNOLOGY & VIEWPOINT

最佳范例 BEST PRACTICE



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前沿·数据

粮农组织：未来六个月可能会有 2000 万人因挨饿而死亡

粮农组织总干事达席尔瓦 4 月 24 日在联合国粮农组织机构理事会开幕式上表示，需要采取紧急行动以拯救尼日利亚东北部、索马里、南苏丹和也门面临饥荒人的生命。如果不采取任何行动，大约 2000 万人可能会在接下来的六个月内饿死。

达席尔瓦指出，饥荒不仅仅可以夺取人的生命，还可以造成社会不稳定，还会使贫穷和援助依赖循环永久化。他表示，自己本月初访问了乍得盆地，贫困家庭农民和农村社区在博科·哈拉姆出没的这个地区难以怀有希望，这些人已经在努力抗击气候变化的影响，缺乏公众投资和机会，特别对于青年来说让人感到绝望。他们的生命和生计受到武装冲突的严重威胁，如果不向他们提供支持，他们将别无选择，要么加入当地的民兵或是踏上移徙之路。

粮农组织理事会第 156 届会议于 2017 年 4 月 24-28 日在该组织罗马总部举行。在为期一周的会议期间，理事会成员将听取有关饥饿危机的程度以及预防灾难所需采取步骤的介绍。理事会还将考虑批准粮农组织的 2018-2019 年工作计划和预算。粮农组织对成员国实现可持续发展目标产生最大影响的预算优先进行考虑。这些优先领域包括减缓和适应气候变化、可持续农业生产、缺水管理以及增强贫困家庭农民的抵御能力。

理事会还将讨论新的会费分摊比例，即成员国每年向粮农组织缴纳的会费。根据建议，大多数经济合作与发展组织成员国将减少会费，而其他国家则要增加。总干事呼吁经合组织成员国通过提供额外的自愿捐款而继续保持作出同样的贡献。粮农组织总干事达席尔瓦表示，自愿捐款对粮农组织至关重要，现在比以往任何时候都更加重要。他表示，过去五年他一直致力于节省更多开支并提高效率。但是预算已经缩减到捉襟见肘的地步，没有再缩减的余地了。

京津冀单位面积煤耗是全球均值 30 倍，院士：须强化能源革命

中国工程院院士杜祥琬在“2016 绿色中国发展论坛”中指出，这些年来我们投资高耗能产业驱动经济增长，走的是传统工业化路线，产能过剩、低环境标准的建设产生了压缩型、复合型的环境污染。

除了资本要素，粗放的城市化增长速度快于环境保护速度也是重要因素。杜祥琬说，我们的汽车数量增长很快，而且很多人攀比大排量的车，油品的质量又比较低。“GDP 很硬，环保很软，污染超过了环境的容量，成了一种非线性爆发的趋势。”

此外还有资源、能源的低效高碳投入。杜祥琬给大家算了一笔账：在京津冀地区，单位平方公里每年消耗的煤炭是全球平均值的 30 倍。中国煤炭的消耗，有一半是用来发电的，剩下一半是直接燃烧的。我们每年的散烧煤有 7—8 亿吨，而一吨散烧煤燃烧产生的污染比发电煤产生的污染要多 5 到 10 倍。“中国现在是资源的价格低，污染的成本低，能源结构高碳很明显。这一结构亟待优化，必须强化能源革命。”

杜祥琬通过对各国人均能耗的比较后分析说，发达国家在发展初期，随着人均 GDP 的提高，人均能耗都在爬升。但是到了人均 GDP 2 万美元时，基本都是人均能耗不再增长，而经济继续发展。可以看到，从人均 GDP 2 万美元发展到 4 万美元，美、加的人均能耗竟是日、欧的两倍。这对我们是有启示意义的：发达国家有两类，高碳型和相对低碳型，低碳发展也可以通向现代化。

“我们现在的单位 GDP 能耗已经是世界平均水平的 1.7 倍了，比美、日要高得多。”杜祥琬认为，我们要费很大的劲才可能把人均高能耗的曲线“扭”下来。我们想要比欧、日的能耗低已经很难了，我们能不比他们高就很不错了。

面对这种形势，我国能源低碳转型的路该怎么走?

杜祥琬提出，我们要走节能、提效之路，改变粗放、高耗能的发展方式，包括对能源总量和能源强度的双控制，做好去产能、去库存工作，防止产生新的产能过剩；要逐步减煤，特别做好散烧煤的替代，这是对我国高碳基础能源必须动的一个“大手术”；要大力度、高质量地发展非化石能源，增加一次能源中的非化石比重，增加电力中的非化石比重；要稳油增气，加强勘探，发展新能源汽车，提高燃油标准。

机构预测：未来十年中国装配式建筑市场规模将超 2 万亿

中国房地产业协会副会长庞元 3 月 29 日在上海举办的“建筑产业现代化研讨会”上表示，未来 10 年中国装配式建筑的市场规模将累计达到 2.5 万亿元，市场发展空间十分巨大。

新近印发的《关于促进建筑业持续健康发展的意见》中指出，“力争用 10 年左右的时间，使装配式建筑占新建建筑面积的比例达到 30%。”庞元认为，《意见》为中国建筑行业的整体改革定调。其中，作为建筑产业升级换代新生力量，发展装配式建筑也是中国供给侧改革的组合拳之一。

上海北孚（集团）有限公司董事长秦少秋表示，装配式建筑是实现建筑产业现代化的有力支撑。“装配式建筑性能优越，顺应绿色制造与节能环保需求。具有建造速度快、节能环保、强度高、自重轻、空间利用率大、隔热性能好等优点。”

“在装配技术的研发、推广和使用上的新突破，推动了公司业务由传统向现代化转型。”江苏省苏中建设集团董事长笪鸿鹄认为，当前中国装配式建筑比例不到 5 %，要在 10 年内达到 30%的比例，等于在现有基础上提高 6 倍，加大推广力度的需求迫切。

庞元认为，中国每年新增建筑面积约 20 亿平方米，如果 30%实施装配式技术，在未来 10 年将有 2.5 万亿元的市场规模，市场发展空间巨大。

Frontier · Focus
前沿·关注

联合国森林论坛关注 2030 年“全球森林战略计划”执行进展情况

联合国图片 /Robert Clamp

为期五天的联合国森林论坛第十二届会议 5 月 1 日在纽约总部开幕。第 71 届联大主席汤姆森（Peter Thomson）在开幕致辞中强调，世界森林的健康是人类在地球上生存与发展的基础；然而，每年有近 1300 万公顷的森林主要由于人类活动而遭到破坏和消失，相当于希腊或尼加拉瓜的国土面积。

联大主席汤姆森指出，此次会议召开的时机非常关键，因为保护森林健康的全球努力目前迫在眉睫。

汤姆森说：“森林是超过 80%的所有陆地物种、包括动物、植物和昆虫的家园。它们能够调节气候、防止土地退化、减少洪水、山体滑坡和雪崩的风险，并保护我们免受干旱和沙尘暴的影响。森林在减缓气候变化最恶劣影响方面也发挥着关键作用，是世界第二大碳库。此外，约 16 亿人 - 相当于全球总人口的四分之一依赖森林来确保粮食安全和营养、收入和生计，并将其作为能源、燃料和其他自然资源的来源，其中包括 7000 万世代守护在山林地区的土著居民……”

汤姆森强调，尽管森林对于平衡全球生态系统、维护人类福祉和实现可持续发展至关重要，但几十年来不可持续地使用和管理方式造成地球上数量惊人的天然森林严重破坏、退化和消失。他表示，联合国大会在上个星期通过了具有里程碑意义的 2017 – 2030 年“联合国森林战略计划”，为可持续管理所有类型的森林和森林外树木、制止和扭转毁林和森林退化以及增加森林面积提供了一个全球框架。

他呼吁广大联合国会员国积极落实执行这一战略计划并采取五大专项行动。第一，在地方、国家、区域和国际层面加大力度，支持可持续利用和保护森林，包括投资于宣传教育行动，以提高公众对森林重要性的认识，帮助人们改变破坏性行为；第二，必须确保将可持续的森林和土地管理纳入国家发展规划和预算进程之中；第三，加强现有伙伴关系并建立新的创新合作机制，将政府、国际组织、民间社会、土地所有者、私营部门、地方社区以及环境、科学和学术机构团结起来，共同制定促进可持续经济发展和环境保护的有效政策计划；第四，作为全面保护森林战略的一部分，帮助森林依赖型社区扩大不基于森林的经济和社会发展机会，并为其提供支持生计的替代来源；最后，积极寻求利用科学、创新和技术的力量来推动解决毁林的根源性问题。

联合国环境署：2016 年世界可再生能源产能再创新高

由联合国环境署、法兰克福学院和彭博新能源金融公司联合发布的《2017 年全球可再生能源投资趋势报告》表明，随着清洁技术的成本持续下滑，尽管这一领域的投资在 2016 年比上年下降了 23%，但世界可再生能源产能当年创下了历史新高。

报告指出，风能、太阳能、生物质能和废物能源、地热能、小型水电和海洋能源在 2016 年使全球电力产能增加了 138 千兆瓦，比前一年增长了 8%。增加的发电量相当于世界上 16 个最大的现有发电设施的总和。

联合国秘书长发言人杜加里克当天在纽约总部举行的记者会上表示，2016 年全球对可再生能源发电的投资大约是化石燃料的两倍。他指出，不包括大型水电站在内的可再生能源电力的总占比从 10.3%上升到 11.3%。这帮助避免了大约 1.7 千兆吨二氧化碳排放量。

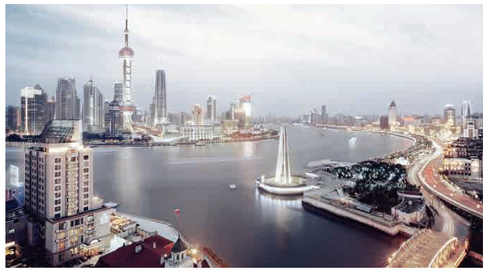
与此同时，2016 年，全球除大型水电外的可再生能源发电总投资为 2400 多亿美元，是 2013 年以来的最低水平，但这主要是由于成本下降造成的：太阳能光伏和风能发电的成本下降了 10%以上。

报告进一步显示，虽然大部分融资下降是由于技术成本下降，但由于种种原因，中国、日本和部分新兴市场的可再生能源投资增长出现放缓态势。

发展中国家的可再生能源投资下降了 30%，而发达经济体的可再生能源投资则下降了 14%。中国的投资下滑 32%至 783 亿美元，打破了 11 年来持续上涨的态势。美国的承诺也下降了 10%。不过，对可再生能源的投资并没有全面下降。欧洲在英国和德国的带动下，投资增长了 3%，达到 598 亿美元。

联合国报告：有效治理将维持亚太经济的增长和质量的提高

联合国亚太经社理事会 5 月 1 日在泰国曼谷总部发布了年度旗舰报告《亚太地区经济和社会调查（The Economic and Social Survey of Asia and the Pacific）》。报告强调，尽管 2017 年的经济前景处于广阔的积极势头，但地区经济体面对全球不确定性和贸易保护主义的上升趋势依然处于脆弱状态；加强有效的治理和改善财政管理对于维持强劲的经济增长并提高其质量而言至关重要。



联合国图片

报告预计，在 2017 至 2018 年间，该地区发展中经济体的增长率将达到 5%或 5. 1%，高于去年 4. 9%的平均水平；中国和印度依然是拉动区域经济增长的“领头羊”。

报告称，中国经济在 2017 年将平稳运行，高附加值产业正在逐渐取代产能过剩部门来驱动生产和就业。同时，由于政府进一步推进“去杠杆”及债务重组努力以在中期内提振产出，经济增速将继续放缓，国内生产总值的增长率预计将从去年的 6.7%下降至 6.5%。与此同时，随着国内消费和基础设施建设支出的不断增加，印度今年的经济增长速度预计将达到 7.1%。此外，受今年国际油价日渐走高的影响，俄罗斯 2017 年的经济增长预计将在去年萎缩 0.2%的基础上提升 1.1%。

报告指出，亚太地区的经济增长依然面临由保护主义和全球不确定性上升带来的风险，如果上述因素出现高于预期的恶化，该地区 2017 年的平均增长率将下降 1.2 个百分点。亚太经社理事会执行秘书阿赫塔尔（Shamshad AKhtar）就此强调，更好的治理以及有效调动和利用财政资源将有助于缓解相关问题，并推动《2030 年可持续发展议程》的落实执行。她表示，由于受到国际市场需求持续疲软和贸易保护主义不断上升的影响，亚太地区经济目前处于稳定和温和增长的态势；要想在未来实现持续和强劲的经济增长，亚太地区国家需要更多地依赖生产力的提高，这需要在公共和私营部门构建更加高效的机构，并进一步改善治理模式；同时，决策者还需要积极解决社会和环境等方面的挑战，以提高当前经济增长的质量。

为应对上述挑战，此次发布的调查报告呼吁亚太国家加强有效治理，通过积极主动的财政政策，针对基础设施、社会保障和资源使用效率等重点领域进行生产性投资；同时，通过与财政政策相辅相成的结构性改革，进一步发掘并扩大潜在的生产能力；此外，区域国家政府应提供适宜的有利政策环境、机构和公共服务，以帮助产品市场高效运转。报告还建议改善太平洋地区的卫生保健服务，促进北亚和中亚地区的经济多元化和多样性，在南亚和西南亚创造更多的体面就业机会，减少东南亚的贫富差距，并加快东亚和东北亚地区的生态创新工作。

第十三届绿建大会在京召开，吕海峰分享范例新城标准

3 月 22 日上午，“第十三届国际绿色建筑与建筑节能大会”进入第二天，由国内著名的生态城市运营商——中国金茂控股承办的“自然生态城市的运营与实践”分论坛在国家会议中心开幕。中国绿建委主任王有为致词，全球人居环境论坛秘书长吕海峰先生做了《国际绿色范例新城标准：可持续城市发展的评估和规划指导工具》的主题演讲，分享了“人居三”上更新后的范例新城标准的精彩内容，及促进贯彻联合国可持续发展目标（SDGs）和《新城市议程》的意义，得到了与会人士的热烈响应。

多位政府官员和知名专家先后发言：湖南湘江新区管委会住建环保局调研员杜杉平分享了长沙梅溪湖国际新城的绿色实践之路，中国城市规划设计研究院副院长李迅分享了关于生态城市的再认识，德国 CLINA 公司 Bechir Chahed 分享了毛细管辐射系统空调技术。论坛最后的环节，六位重量级专家就“自然生态城市运营升级探索”话题展开对话。

论坛以中国生态城市十余年来的发展为背景，以中国金茂的生态城市开发实践为注解，进行了多角度、深层次的探讨交流，总结了很多成功的经验和做法，对未来生态城市的发展将提供有益的启示。

2017 生态交通全球盛典

“生态交通全球盛典 (EcoMobility World Festival)”是富于挑战和远见的城市领导者选择一个城市社区开展一个月的无车出行活动。 该社区的居民将向世界展示一种不用依靠私家车的正常生活，其目的是将未来所期待的低碳、节能、创新、智慧的生态交通模式，通过举办 1 个月的盛典活动，让民众切身感受生态交通所带给社会、经济、健康及居住环境上的好处，核心精神为「一个社区、一个月、绿色低碳交通」。

“生态交通全球盛典 2017”将于 10 月 1 日到 31 日在台湾高雄市哈马星社区举办，届时，该社区的市民将连续一个月完全采用步行、骑行和公共交通出行。高雄市的第一个现代化社区哈马星将成为交通示范区，通过提升各种硬软件设施将本区打造为高雄市生态出行的第一个范例社区。目前，高雄市正在紧锣密鼓地筹办此次盛典，包括改善基础设施，例如在活动期间，将哈马星社区的高架电缆拆除移到地下；兴建轻轨铁路，以便在活动前开始运行；优化公共交通硬件、智能出行软件，提升服务质量等，以提高市民选择包括公共交通在内的绿色生态出行的意愿。

在活动期间，主办城市将举办为期一个月的展览，展示由当地和国际制造商提供的各种城市出行工具，包括电动汽车、自动驾驶汽车等，游客将能够试乘体验这些创新型交通工具。 此外，还将举办以“宜居、共享、智慧”为主题的 2017 生态出行世界大会，各种能力建设研讨会，技术和文化考察活动。高雄市也邀请全世界生态出行伙伴造访高雄，共同见证高雄市转型生态出行城市的决心与成果。

SPECIAL REPORT

专题报道

The Intergovernmental Tenth Regional Environmentally Sustainable Transport (EST) Forum Productively Concluded in Vientiane

第十届政府间可持续交通论坛在万象圆满落幕

老挝副总理宋迪•隆迪（*Somdy Douangdy*）发表主旨演讲
H.E. Mr. Somdy Douangdy, Deputy Prime Minister, Lao PDR making a keynote speech

The Intergovernmental Tenth Regional Environmentally Sustainable Transport (EST) Forum Productively Concluded in Vientiane

第十届政府间可持续交通论坛在万象圆满落幕

本刊编辑部 / By the Editorial Office

由老挝政府公共工程和交通运输部（MPWT）、日本政府环境部（MOE-Japan）、可持续和低碳交通伙伴关系（SLoCaT）、联合国亚太经社理事会（ESCAP）、联合国可持续发展办公室（UNOSD）和联合国区域发展中心（UNCRD）共同组织的第十届政府间可持续交通论坛（简称 EST）暨国际市长论坛于 2017 年 3 月 14 日至 16 日在老挝万象举行，主题为“结合可持续发展目标——2030 年可持续交通路线图”。

老挝副总理宋迪•隆迪（Somdy Douangdy）在开幕式上发表主旨演讲，老挝公共工程和交通运输部部长本占•辛塔翁 (Bounchanh Sinthavong) 博士主持开幕式。论坛聚集了来自 48 个国家的 300 多位国家和城市政府代表以及国际利益相关者，其中包括 EST 论坛的二十五个正式会员国。论坛旨在确定和讨论亚洲 EST 成员国如何通过可持续交通解决方案实现 2030 可持续发展目标。

The Intergovernmental Tenth Regional Environmentally Sustainable Transport (EST) Forum in Asia co-organized by the Ministry of Public Works and Transport (MPWT) of the Government of Lao PDR, the Ministry of the Environment of the Government of Japan (MOE-Japan), the Partnership on Sustainable, Low Carbon Transport (SLoCaT), the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), the United Nations Office for Sustainable Development (UNOSD) and the United Nations Centre for Regional Development (UNCRD), was productively held from 14 to 16 March 2017 in Vientiane, Lao PDR, with the theme of “2030 Road Map for Sustainable Transport ~ Aligning with Sustainable Development Goals (SDGs)”.

The Forum was officially inaugurated by H.E Mr. Somdy Douangdy, Deputy Prime Minister of the Lao PDR, and chaired by H.E. Dr. Bounchanh Sinthavong, Minister of Public Works and Transport, Lao PDR. The Forum was attended by over three hundred participants comprising of national and city government representatives as well as international participants from forty-eight countries, which include twenty-five regular member countries of the Regional EST Forum in Asia.

The forum aims to identify and discuss how Asian EST member countries can contribute to achieving the 2030 Agenda for Sustainable Development through sustainable transport solutions.

老挝公共工程和交通运输部部长本占•辛塔翁博士致词
H.E. Dr. Bounchanh Sinthavong, Minister of Public Works and Transport, Lao PDR delivering remarks

联合国区域发展中心（*UNCRD*）主任 *Chikako Takase* 致词
Ms. Chikako Takase, Director of UNCRD delivering remarks

GFHS 秘书长吕海峰发表演讲
Mr. Haifeng Lu, Secretary General, Global Forum on Human Settlements (GFHS) giving a speech

联合国可持续发展办公室主任尹正秀致词
Mr. Jong Soo Yoon, Head of the United Nations Office for Sustainable Development (UNOSD) making an address

老挝副总理宋迪•隆迪强调：维护现有基础设施，确保用户安全，保持耐久性和适用性，并应对自然灾害需要大量资金。为了有效应对这些挑战，加强城乡连通性也至关重要。老挝目前正在通过公私伙伴关系（PPP）机制来吸引投资，发展和改善交通基础设施。

联合国区域发展中心（UNCRD）主任 Chikako Takase 强调，本届论坛也是十周年纪念。2010 年通过的“曼谷 2020 年宣言”是围绕“避免—转型—改进”方法实现若干目标的主要区域行动之一。 她还指出，论坛创造了丰富的可持续交通方面的知识。

全球人居环境论坛（GFHS）秘书长吕海峰应邀出席了论坛，并发表了“低碳城市新能源发展”的演讲，分享了在巴黎气候协定目标背景下低碳城市与新能源发展面临的机遇和挑战，以及国际绿色范例新城倡议在低碳城市方面的策略，还分享了来自中国的低碳城市案例，为论坛的实质性讨论作出了贡献。

H.E Mr. Somdy Douangdy, Deputy Prime Minister of the Lao PDR emphasized in his keynote speech that the maintenance of existing infrastructure to ensure user safety, to meet durability and serviceability, and tackle natural disasters requires a substantial amount of funding. In order to address these challenges effectively, it is also crucial to strengthen rural-urban connectivity. Lao PDR is currently promoting investments for developing and improving transport

EST 全体会议现场 EST Plenary Session

亚洲是全球人口最多（44 亿人口）、增长最快、城市化规模最大的地区，越来越多的交通事故、拥堵和污染问题是阻碍亚洲社会福利和经济繁荣的关键因素。交通运输部门需要大规模的转型，以提升城市弹性，促进经济繁荣和可持续发展。

与会代表就通过交通领域实现 SDGs 的各种政策选择、体制措施、技术干预、融资机制和伙伴关系进行了深入的讨论。

● 环境可持续交通——连接《2030 年可持续发展议程》、《巴黎气候协定》和《新城市议程》

正如会上展示的一系列良好范例，亚洲国家在响应各种全球共识方面，取得了积极进展。早在 2004 年，印度尼西亚在雅加达建立了一个快速公交系统，其中包括 1350 辆巴士，465 公里的公交专用车道和 288 个车站。 目前正在努力创建一个轻轨系统，预计到 2019 年每天可以为 18 万城市乘客提供服务。

印度也在环境可持续交通方面发挥了重大的领导作用，重点是提高公共交通的可用性、可及性和质量，例如目前提供约 326 公里的城市轨道交通服务，并逐渐实现一卡通行。最近在 177 个城市提供了基本的公交第一的服务，印度已经制定目标，到 2031 年建立 1500 公里里程的快速公交系统（BRT）。目前，在印度已经有 250 公里的快速公交系统在运营中，同时，16 个城市正在建设 300 多公里新的快速公交系统。

infrastructure through the public-private-partnership (PPP) mechanism.

Ms. Chikako Takase, Director of United Nations Centre for Regional Development (UNCRD) highlighted that this Forum is very special by marking the tenth anniversary. She explained that the Bangkok 2020 Declaration adopted in 2010 was one of the first regional efforts to address a number of goals around the Avoid-Shift-Improve approach. She also pointed out that a wealth of knowledge in various aspects of sustainable transport was created by these Forums.

Mr. Lu Haifeng, Secretary General of the Global Forum on Human Settlements (GFHS), was invited to attend the forum and delivered a speech on "New Energy Development in Low Carbon Cities", sharing the opportunities and challenges for the development of low-carbon cities and new energy in the context of the Paris Climate Agreement, and the International Green Model City Initiative in promoting low-carbon cities, as well as presenting Chinese examples on building low-carbon cities, which contributed to the substantive discussions of the Forum.

Asia, being the most populated (with 4.4 billion people) and fastest growing and urbanising region in the world, will require a massive transformation in its transport sector in order to remain on the path of resilience, economic prosperity and sustainability.

● 建设包容和公平的交通运输系统，提升粮食安全，赋权妇女，消除贫困

目前，亚洲三分之二的人口居住在农村，但 80-90%的穷人主要生活在农村地区，因此，改善农村交通至关重要。在不丹、老挝、斯里兰卡和泰国等关注的重点领域之一即是通过综合规划改善交通服务。乡村、家庭和个人都需要更好地获得卫生、教育、信贷和金融、就业、农产品和非农产品服务（以及相关的市场信息）。

估计约有 40%的亚太农村人口（共 7 亿人）无法享有全天候的道路。孤立的农村人口更有可能遭受贫困，同时对妇女、老年人和残疾人造成了不同程度的影响。城乡连通性问题在最不发达国家、内陆发展中国家和小岛屿发展中国家尤其突出。如何使农产品有效流向市场是经济发展面临的重大挑战，是否获得医疗卫生和其他社会福利也大大影响到生活质量。如果要消除贫困，提升农业和生态系统服务，那么必须处理好贫困、社会公平与城乡连通性的关系。

许多 EST 国家正在采取行动，制定城乡一体化综合战略和政策框架。 尼泊尔通过提升道路通达性，在几个村庄实现了近 21%的减贫，这些地区的人均收入增加了 100%以上。但 55%的尼泊尔农村道路仍然无法运作，这急需投资和维护。相比之下，孟加拉国 86%的农村人口与当地中心有更好的连接，使非机动交通更可行，也利于缩小经济差距。

Growing traffic accidents, congestion and pollution have been critical impeding factors hampering social well-being and economic prosperity in Asia.

The forum participants had in-depth discussion on various policy options, institutional measures, technology interventions, financing mechanisms and partnership arrangements in the transport sector for the achievement of the SDGs.

● Environmentally Sustainable Transport – Connecting the dots to SDGs, Paris Climate Agreement and the New Urban Agenda

Asian countries are making progress in "connecting the dots" in their response to the different global agreements as was demonstrated by a range of examples presented in the session. Indonesia has shown early leadership through the construction of a BRT system in 2004 in Jakarta that includes 1,350 buses, 465 kilometres of bus lanes, and 288 stations. Efforts are now being made to create a light rail system that can service an expected 180,000 urban passengers per day by 2019.

India has also shown significant leadership in environmentally sustainable transport with a focus on increasing the availability, accessibility, and quality of public transport, such as currently providing some 326 kilometres of urban rail services and moving towards a single transit card. Recently some 177 cities have been provided a

会员国代表 *Representatives from member states*

国际市长论坛 *International Mayors Forum*

总之，要动态地考虑城乡之间的交通网络，允许城市人口向农村“逆向迁移”。

● 道路安全对可持续发展的重要性

道路交通事故和伤害是亚洲 EST 区域的主要公共卫生问题，是造成死亡的主要原因。2013 年亚洲 EST 区域交通事故造成的死亡人数近 70 万人，占全球道路交通事故死亡人数的一半以上，大部分出现在中国（38%）和印度（30%）。

2010 年 EST 国家道路交通事故总成本估计为 7350 亿美元，其中近一半在中国。在亚洲 EST 地区，估计平均有 3.3%的国内生产总值因交通事故而受到损失，南亚地区最高（超过 4%）。

实现 SDG 目标 3.6 可以为 EST 国家每年挽救超过 34 万人的生命，并每年减少 3500 多亿美元的经济负担，相当于 GDP 增长超过 1.5%。

改善道路安全的行动可以分为四个方面: 执法、教育、工程设计和应急响应。

实现可持续发展目标和其他国际协议的关键在于与地方实实在在的活动建立直接联系，例如 2016 年不丹政府在联合国区域发展中心技术支持下进行的轻轨交通可行性研究，这体现了行动的纵向一体化，避免重复，协调利益。这需要得到强有力的政策框架的支持，这些政策框架既可以指导交通部门的创新，也可以利用创新的融资方式。 这种垂直整合将为简化数据收集和报告进度提供一个有价值的框架，以便为未来的规划、设计和实施提供信息。

basic first service bus system and India has set the target of constructing 1,500 kilometres of bus rapid transport (BRT) systems by 2031. India has 250 kilometres of BRT in operation with 16 cities currently constructing some 300 kilometres of additional systems.

● Achieving Greater Food Security, Women Empowerment, Poverty Eradication through Improved, Inclusive and Equitable Transport System

Currently, two-thirds of the population of Asia lives in rural areas, but 80-90% of the poor live in these rural areas of the region’s major countries, making improved rural access a key priority. If poverty is to be eliminated, and if agricultural and ecosystem services are to be enhanced, then poverty, social equity, and their relationship to rural-urban connectivity must be addressed.

The Forum noted that poverty and lack of access to transport are correlated, with movement of agricultural product to markets a major economic development challenge, and access to health care and other social institutions dramatically affecting quality of life.

Comprehensive and integrated planning leading to improved access was identified as a key area of focus by Bhutan, Lao PDR, Sri Lanka, and Thailand. Villages, families and individuals – including both men and women – require better access to health, education, credit and finance, labour markets, markets (and market information) for their agricultural and non-agricultural inputs, products and services.

对不丹公共交通方案的调研发现，智慧政策可以在很多领域发挥关键作用，例如财政政策，即设想从进口化石燃料向利用王国丰富的水力发电转移，为其交通运输提供清洁动力。不丹各政府机构还通过与企业、地方政府和国际专家紧密合作，确保充分了解和考虑对现在和未来的投资。

与会各国还审查和评估了他们在实施“曼谷 2020 年宣言”（2010-2020）目标的进展和最佳做法、举措和成就，为 EST 成员国如何通过可持续交通解决方案和行动实现可持续发展目标提供了重要的经验教训和见解。

● 万象国际市长论坛

作为第十届 EST 论坛的组成部分，万象国际市长论坛于 15 日举行。与会人士分享了实现智慧、弹性、低碳和可持续城市的政策、战略和最佳做法，讨论了综合规划、可持续发展目标的地方化、实施《新城市议程》、公众参与城市规划与发展、融资、城市基础设施、保护城市文化和自然遗产等议题，以支持可持续发展目标第十一条：建设安全、包容、有复原力的可持续城市和人居环境。

融资在促进可持续城市转型方面仍然是一个重大挑战。在这方面，需要增加透明度、实施问责制和加强监督。

● Rural-Urban Connectivity in Achieving Sustainable Regional Development

An estimated 40 per cent of Asia Pacific’s rural population (totaling 700 million people) does not have access to an all-weather road. Isolated rural populations are more likely to be trapped in poverty, which disproportionately affects women, the elderly and the disabled. LDCs, LLDCs and SIDS in particular suffer from a lack of rural-urban connectivity.

A number of EST countries are taking steps to develop integrated rural and urban national transport strategies and policy frameworks. Nepal has achieved poverty reduction by almost 21% in several villages after introducing access roads, with per capita income increasing more than 100% in these areas; yet 55% of Nepal’s rural roads remain inoperable, stressing the need for investment and maintenance. In comparison, 86% of Bangladesh’s rural population is connected to local centres, making non-motorised transport a more feasible and sustainable means to decrease economic disparity.

In summary, it is necessary to think of rural-urban networks in more dynamic terms, and to allow for the “reverse migration” of urban populations back to rural areas.

地方政府代表 *Representatives from local governments*

实施绿色、清洁的文化遗产保护政策和项目，维护和扩大城市休闲区、公园、古迹等公共空间，一般属于市政府和地方政府管辖，但在制定与城市更新项目相关的政策过程中，公众参与至关重要，这有利于确保公众最大限度地享有城市发展计划和项目的成果。

为了保护投资，并通过提高城市复原力保持发展收益，城市必须有基准数据和有效的资产管理系统，以了解当前的状况、功能、风险等级以及资产和系统的脆弱性。灾后评估应指导未来的行动，加强城市弹性。应用风险指引规划和设计积极提升城市复原力。同时，健康的城市治理和制度体系、能力建设和技术有助于确保发展项目在规划设计和实施过程中合规，并具有质量可靠性。

闭幕式上，300 多位与会代表共同通过了“实施《2030 年可持续发展议程》、促进可持续城乡交通万象宣言”。来自亚非地区的 29 位市长和市政府代表还签署了《京都议定书》和通过环保可持续交通实现亚洲弹性、智慧、宜居城市的附录。老挝公共工程和交通运输部部长本占 • 辛塔翁博士说，这是城市对可持续发展目标第十一条的重要承诺，意义深远。

第十一届亚洲可持续交通论坛将于明年在蒙古举办。

● Role of Road Safety in Achieving Sustainable Development

Road traffic accidents and injuries are a major public health problem and a leading cause of fatalities in the Asia EST region. The total number of fatalities due to road accidents in the Asian EST region in 2013 was almost 700,000, representing just over half the road fatalities globally. The majority of fatalities were incurred in the People's Republic of China (38%) and India (30%).

The total resulting cost estimate for road accidents in the EST countries in 2010 is $735 billion, of which almost half in the People's Republic of China. In the Asian EST region it is estimated that some 3.3% of GDP is lost on average, with the highest value (more than 4%) for the South Asia region.

Realising SDG Target 3.6 could yield for EST countries a saving of more than 340,000 lives annually and a reduction of the burden on the economy with more than $350 billion per year, equivalent to a growth in GDP of more than 1.5%.

Actions to improve road safety can be categorised into four areas, namely: enforcement, education, engineering, and emergency response.

A key element of achieving the SDGs and other international agreements will be to cultivate direct links to tangible local activities, like the LRT pre-feasibility study undertaken in 2016 by the Government of Bhutan with the technical support of UNCRD, to provide vertical integration of efforts to avoid replication and align interests. This will need to be supported by strong policy frameworks that both inform and guide the application of innovation in the transport sector, and enable innovative financing approaches to be harnessed. Such vertical integration will provide a valuable framework to streamline data collection and reporting on progress both to inform future planning, design and implementation.

The investigation into mass transit options for Bhutan has uncovered a number of areas where smart policy can play a key role, for instance fiscal policy that envisions a shift away from importing fossil fuels and moves towards harnessing the Kingdom’s abundant hydroelectric energy potential to power its transport system. Bhutan is also shining a light on how investment for the good of the present and the future can be well informed and considered through the wide involvement of multiple government agencies working closely with business, local government, and international experts.

The participants have also reviewed and evaluated

健康的城市治理和制度体系、能力建设和技术有助于确保发展项目在规划设计和实施过程中合规，并具有质量可靠性。

Robust governance and institutional systems, capacities and technologies are required to ensure reliable and effective quality assurance and compliance in the planning design and implementation of development initiatives.

their countries’ progress, initiatives and achievements in best practices in addressing the Goals of the Bangkok 2020 Declaration (2010-2020) as well as drawn vital lessons and gained insights into the directions of the EST member countries moving toward the SDGs through sustainable transport solutions and actions.

● The Vientiane International Mayors Forum held on 15 March 2017 as an integral part of the 10th EST Forum

The Mayors Forum discussed a number of other sustainable urban development issues, such as integrated planning, localising SDGs, addressing the New Urban Agenda, public participation in urban planning and development, financing, urban infrastructure, conservation of urban cultural and natural heritage, among others in support of SDG 11, which is entitled Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable.

Financing remains a significant challenge in facilitating a sustainable cities transformation. In this regard, ways to increase transparency, accountability and monitoring is needed.

Implementing green and clean city policies and projects of conservation of cultural and natural heritage, and maintaining and expanding urban recreational zones, parks, built monuments and other public spaces typically falls under the authority of city administrations and local governments. Public consultations in the process of formulating those and other urban renewal related projects is essential to ensure the widest possible local public ownership of urban development programmes and projects.

In order to protect investments and sustain development gains through resilience it is essential to have in place baseline data and an effective asset management system to understand the current

为了保护投资，并通过提高城市复原力保持发展收益，城市必须有基准数据和有效的资产管理系统，以了解当前的状况、功能、风险等级以及资产和系统的脆弱性。灾后评估应指导未来的行动，加强城市弹性。应用风险指引规划和设计积极提升城市复原力。

In order to protect investments and sustain development gains through resilience it is essential to have in place baseline data and an effective asset management system to understand the current condition, functionality, level of risk exposure and vulnerability of assets and systems and information on the users. Post-disaster assessments should guide future actions to strengthen resilience. Applying risk-informed planning and design strengthens resilience proactively.

condition, functionality, level of risk exposure and vulnerability of assets and systems and information on the users. Post-disaster assessments should guide future actions to strengthen resilience. Applying risk-informed planning and design strengthens resilience proactively. Robust governance and institutional systems, capacities and technologies are required to ensure reliable and effective quality assurance and compliance in the planning design and implementation of development initiatives.

At the close, more than 300 participants adopted the Vientiane Declaration on Sustainable and Rural Transport towards Achieving the 2030 Agenda for Sustainable Development. In addition, 29 mayors and city authorities and representatives from the Asian and African region signed the Kyoto Declaration and Its Addendum on the Promotion of EST towards Realising Resilient, Smart and Livable Cities in Asia. This was a remarkable demonstration of the commitment of cities towards Sustainable Development Goal No. 11, which calls for making cities and human settlements safe, resilient, inclusive and sustainable, Dr. Bounchanh Sinthavong Minister of Public Works and Transport, Lao PDR said.

The 11th Regional EST Forum in Asia next year will be hosted by Mongolia. WBPM

VOICE OF THE UNITED NATIONS

联合国之声

World Cities Report 2016 (Excerpts Part I)

2016 年世界城市报告（摘录上）

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联合国人类住区规划署 2016 年首次发布
First published 2016 by United Nations Human Settlements Programme (UN-Habitat)

第一、从人居二到人居三：城市发展二十年

● 要闻速览

1. 现在，世界各地的城市面临比 20 年前更大的挑战和变化。

2. 城市在经济、社会和文化生态方面的运作方式与二十世纪旧式的城市模式截然不同。

3. 过去 20 年一直持续的城市问题包括城市增长、家庭模式变化、在贫民窟和非正式住区生活的城市居民人数不断增加以及提供城市服务领域面临的挑战。

4. 与这些持续性城市问题相关的是城市治理和财政方面的新趋势：新出现的城市问题包括气候变化、社会排斥和日益加剧的不平等、不安全和国际移徙人数剧增。

● 政策要点

1. 管理得当的城市化能够促进社会和经济发展、提高公众的生活质量。

2. 目前的城市化模式在许多方面是不可持续的。

3. 世界范围的许多城市对于城市化相关的挑战问题尚未做好应对准备。

4. 需要一个新的议程来有效应对这些挑战，并利用城市化带来的机会。

5. 新城市议程应促进环境可持续、有适应力、具有社会包容性、安全、无暴力和经济上有成效的城市和人居环境。

1. From Habitat II to Habitat III: Twenty Years of Urban Development

● Quick Facts

1. Urban areas around the world are facing enormous challenges and changes than they did 20 years ago.

2. Cities are operating in economic, social, and cultural ecologies that are radically different from the outmoded urban model of the 20th century.

3. Persistent urban issues over the last 20 years include urban growth, changes in family patterns, growing number of urban residents living in slums and informal settlements, and the challenge of providing urban services.

4. Connected to these persistent urban issues are newer trends in the urban governance and finance: emerging urban issues include climate change, exclusion and rising inequality, rising insecurity and upsurge in international migration.

● Policy Points

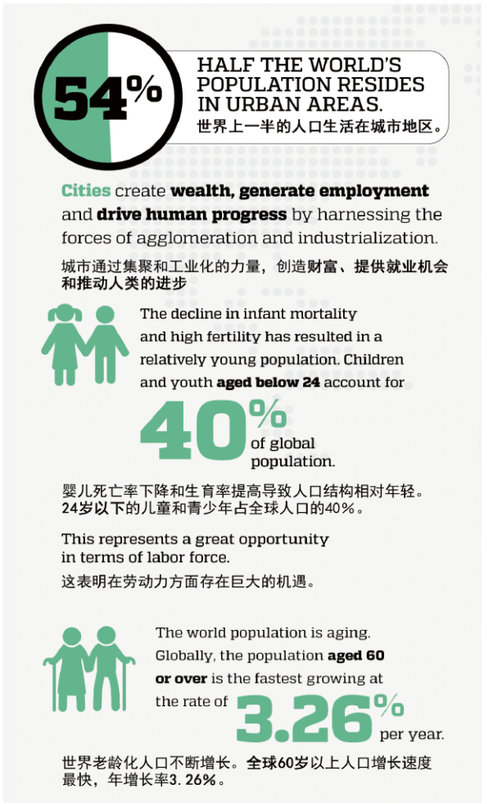
1. When well-managed, urbanization fosters social and economic advancement and improved quality of life for all.

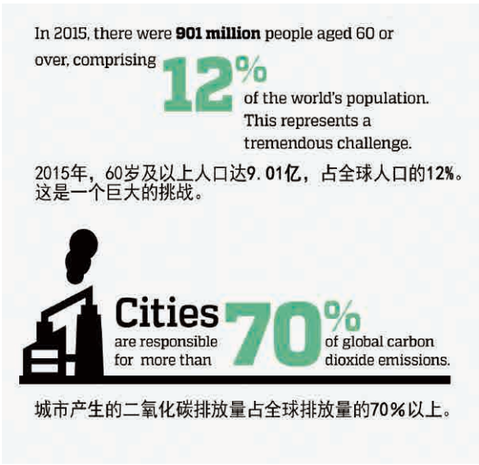
2. The current model of urbanization is unsustainable in many respects.

3. Many cities all over the world are grossly unprepared for the challenges associated with urbanization.

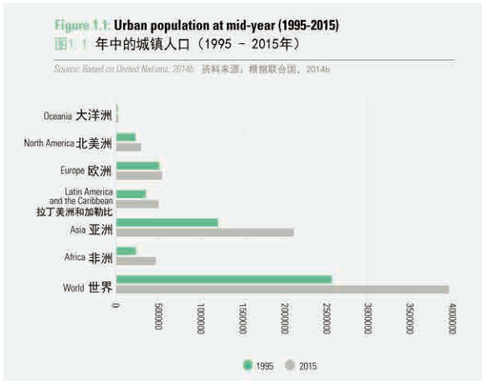
4. A new agenda is required to effectively address these challenges and take advantage of the opportunities offered by urbanization.

5. The new urban agenda should promote cities and human settlements that are environmentally sustainable, resilient, socially inclusive, safe and violence-free and economically productive.



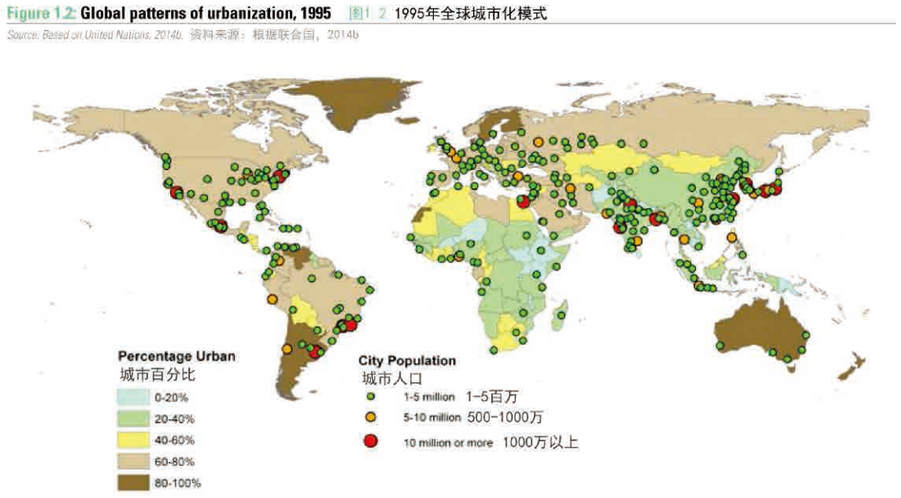


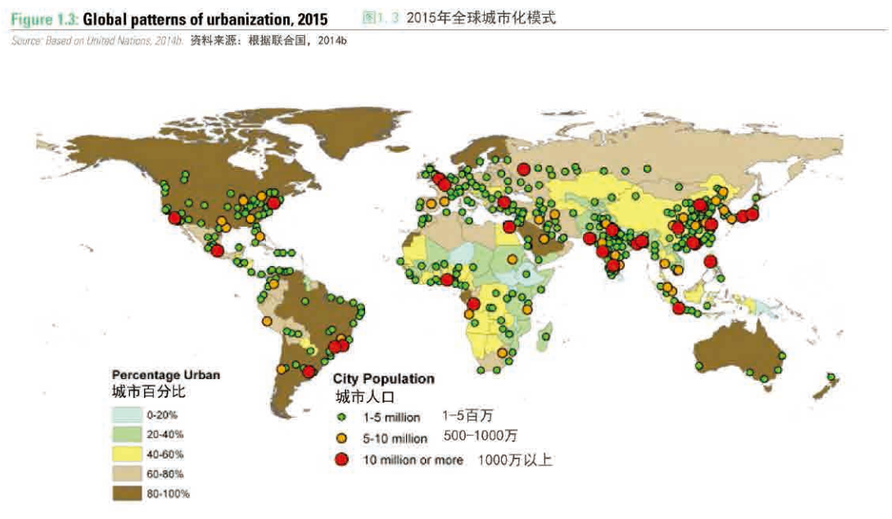
能否实现可持续、有适应力和包容性的城市取决于良好的治理，其包括：
Cities that are sustainable, resilient and inclusive are dependent upon good governance that encompasses:



Although large and very large cities are in some ways the leading edge of urbanization, because of their influence and economic importance, they are not the fastest growing, nor do they represent the majority of the urban population. The fastest growing urban centres are the small and medium cities with less than one million inhabitants, which account for 59 per cent of the world's urban population and 62 per cent of the urban population in Africa.

The enormous growth of cities largely through rural-urban migration, and the challenge of organizing adequate housing placed the emphasis on large-scale public schemes to build low-cost, affordable housing.





城市已经成为解决可持续经济增长、发展与繁荣，促进发达国家和发展中国家的创新、消费和投资的积极力量。城市已经成为人类、社会经济和环境脆弱性增长的节点，其中不平等、无计划的扩张和空气污染问题已成为最明显的表现。因此，一成不变的经济发展方式不能支持未来几十年城市发展的步伐。

Cities have become a positive and potent force for addressing sustainable economic growth, development and prosperity, and for driving innovation, consumption and investment in both developed and developing countries. Cities have turned into nodal points of mounting human, socioeconomic and environmental vulnerabilities, of which inequality, sprawl and air pollution have become the most visible manifestations. It therefore follows that a business-as-usual approach will not be enough to keep up with the pace of urban growth in the next coming decades.

虽然特大城市和大城市在某种程度上处于城市化的前沿，尽管其影响力和经济重要性，但它们不是增长最快的城市，也不能代表大多数城市人口。增长最快的城市集中在人口低于一百万的中小城市，它们占世界城市人口的59%，而占非洲城市人口的62%。

城市的增长主要是由于农村人口向城市的迁移，而在适当住房方面的挑战重点是大规模建设低成本经济适用房的公共计划。

● 提供城市服务方面面临的挑战

在审查结果中，出现了三个趋势。首先，随着国家经济水平的提高，他们倾向于提高获得基本服务的城市人口比例。然而，这一趋势在区域上是不均衡的，撒哈拉以南非洲、大洋洲和南亚在城市供水方面比较落后，而亚洲、南北非以及拉丁美洲在这方面则取得大幅改善。第二个趋势是越来越多地尝试寻求解决基础设施问题的创新方法。在大多数国家，公共管理依然是提供基本服务的主要方式；1990 年代以来，通过权力下放措施，地方政府的作用得到了加强。在基本城市服务提供方面，第三大趋势是普通公共服务仍然很薄弱。

● 城市与气候变化

在 1950 年至 2005 年间，城市化水平从 29％上升到 49％，而全球化石燃料燃烧产生的碳排放量增加了近500％。

● The Challenge of Providing Urban Services

Among the results reviewed, three trends emerge. First, as countries have improved their economic levels, they have tended to improve the proportion of their urban population able to access basic services. However, this trend has been uneven regionally, with Sub-Saharan Africa, Oceania and South Asia falling behind in urban water provision, while Asia, North and South Africa, and Latin America have improved considerably. The second trend is the increasing number of attempts to find innovative ways of dealing with the infrastructure challenge. Public management remains the dominant approach to basic service delivery in most countries; and the role of local governments has been reinforced since the 1990s by decentralization initiatives. The third general trend in the supply of basic urban services is that common public services are still very poor.

● Cities and Climate Change

Between 1950 and 2005, the level of urbanization increased from 29 per cent to 49 per cent, while global carbon emissions from fossil-fuel burning increased by almost 500 per cent.

The design and use of the built environment is a critical area for climate change mitigation; the built environment consumes about one-third of the final energy used in most countries, and absorbs an even more significant share of electricity.

建成环境的设计和使用是减缓气候变化的关键所在；在大多数国家，建成环境消耗三分之一的最终能源，而电力消耗的比例甚至更高。

● 不平等与排斥

不平等已成为一个主要的新城市问题。30 年以来，大多数国家的贫富差距一直居高不下。人居署对 48 个选定城市的分析表明，参照国际标准，发达国家的城市收入差距并不是很高。在发展中国家的三个主要集群中，非洲表现出最高水平的持续性城市不平等；拉丁美洲呈现出高收入和相对较高不平等水平并存的混合模式；而亚洲则显示最低水平的城市不平等。

城市地区不平等水平日益上升，其表现之一是：过去二十年来封闭式小区越来越普遍。虽然封闭式小区的兴起部分原因是为了应对日益严重的犯罪和安全问题，但是带来的后果性危害更大，导致公共空间使用量不成比例，加剧两极分化和城市空间私有化及分割化，以及基于收入水平的社会群体隔离。

第二、城市化是一股强大的变革力量

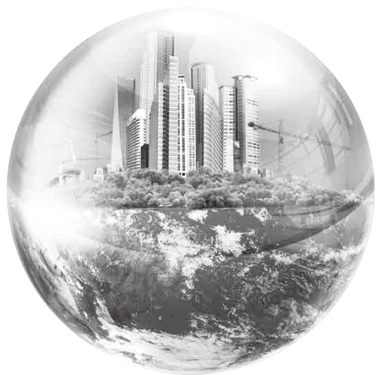
● 要闻速览

1. 过去二十年，城市已成为世界生产、创新和贸易的经济平台。

2. 城市提供了巨大的就业机会（正式和非正式），创造了私营部门大量的新增就业机会。

3. 城市化通过提高生产力、创造就业机会、提高生活品质和大规模投资于基础设施和基础服务，帮助了数以百万的人口脱离贫困。

4. 城市化的变革力量部分是由于信息和通信技术的快速部署而促成的。



● Inequality and Exclusion

Inequality has become a major emerging urban issue, as the gap between the rich and the poor in most countries is at its highest levels since 30 years. UN-Habitat's analysis of 48 selected cities shows that urban income inequality in developed countries is not high by international standards. Of the three main clusters of developing countries, Africa shows the highest levels of persisting urban inequality; Latin America shows a mixed pattern with high incomes but relatively high levels of inequality; while Asia shows the lowest levels of urban inequality.

One of the physical manifestations of increasing levels of inequality in urban areas is that the phenomenon of gated communities has become more evident in the last two decades. While the rise of gated communities have in part, been in response to growing crime and security concerns, they have far greater ramifications, leading to disproportionate and more intense consumption of public space, increasing polarization, privatization and segmentation of urban space, and segregation between income and social groups.

2. Urbanization as a Transformative Force

● Quick Facts

1. Over the last two decades, cities have emerged as the world's economic platforms for production, innovation and trade.

2. Urban areas offer significant opportunities for both formal and informal employment, generating a sizeable share of new private sector jobs.

3. Urbanization has helped millions escape poverty through increased productivity, employment opportunities, improved quality of life and large-scale investment in infrastructure and services.

4. The transformative power of urbanization has in part, been facilitated by the rapid deployment of Information and Communications Technology.

● Policy Points

1. Cities have become a positive and potent force for addressing sustainable economic growth, development and prosperity and for driving innovation.

2. Realizing the gains of urbanization will depend on how urban growth is planned and managed, and the extent to which the benefits accruing from urbanization are equitably distributed.

城市创造全球 GDP 的 **80%**。
城市对国民收入的贡献大于其所占的人口比例。
巴黎拥有 **16%** 的法国人口，但创造的 GDP 占全国的 **27%**。
金沙萨拥有刚果民主共和国 **13%** 的人口，创造的 GDP 占全国的 **85%**。
马尼拉拥有菲律宾 **12%** 的人口，但创造的 GDP 占全国的 **47%**。

80% of global GDP is accounted by cities.
Contribution of cities to national income is greater than their share of national population.
Paris is **16%** of the population of France, but accounts for **27%** of GDP.
Kinshasa is **13%** of the population of DRC but accounts for **85%** of GDP.
Metro Manila is **12%** of the population of Philippines but contributes **47%** of the GDP.

● 政策要点

1. 城市已经成为解决可持续经济增长、发展繁荣和推动创新的一股强大的推动力量。

2. 能否收获城市化的成果将取决于如何规划和管理城市增长以及在多大程度上能够公平分配城市化带来的收益。

3. 需要从部门干预转变到战略性城市规划和更全面的城市政策平台，这在城市形态转变中起着至关重要的作用。

4. 当信息与通信技术（ICT）的部署不均衡时，可能造成数字鸿沟，这反过来可能加剧不平等，其特点是富裕的居民小区设施完善，而低收入者社区则面临公共设施不足的问题。

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3. The need to move from sectoral interventions to strategic urban planning and more comprehensive urban policy platforms is crucial in transforming city form.

4. When ICT is deployed unevenly, it can create a digital divide, which can exacerbate inequality, characterized by well-connected affluent neighbourhoods coexisting with under-serviced residents in low-income neighbourhoods.

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城市化提高生产率、创造就业机会来帮助数以百万的人口脱离贫困，通过完善教育和卫生改善公民的生活质量、进行大规模的公共投资及提供不断完善的基础设施及服务。

在中国，大规模经济增长引发的城市化在 1981 年至 2010 年期间帮助 6.8 亿人口脱离了极端贫困，并将赤贫率从 1980 年的 84%降至了 2013 年的 10%。仅仅中国就占了全球减贫人口的四分之三。

● 城市空间形态的演变

更为分散的城市化形态郊区化、城郊化或城市化扩张在过去二十年中已经形成了一个重大的趋势。需要从部门干预转变到战略性城市规划和更全面的城市政策平台，这对于转变城市形态至关重要。

城市越紧凑，生产力和创新度越高，而人均资源使用量和排放量就越低。精明增长是一种规划方法，其重点是振兴内地城市区和老郊区，修复棕地、发展新郊区，将它们设计为城镇中心、贯彻公共交通和行人导向和以汽车为辅的理念，建设采用清洁能源和绿色技术的兼具住宅、商业和零售作用的混合性功能建筑。

● 城市在可持续发展中的重要作用

功能更紧凑、交通更便利和低碳交通出行的城市在未来 15 年的城市基础设施建设投入中可节省 3 万亿美元。

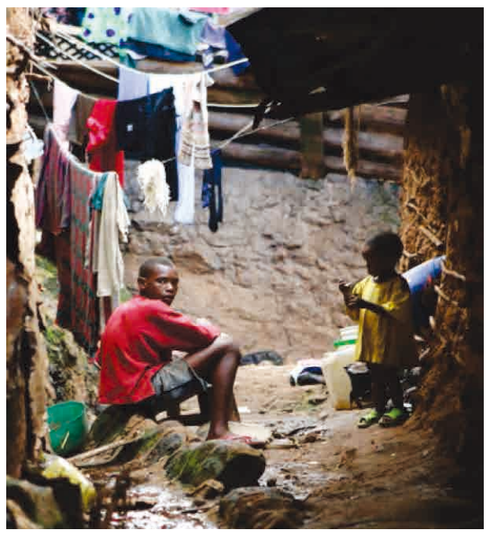
城市的能源需求占全球能源需求量的 70%以上，它们一直在推动可持续能源议程发展方面发挥核心作用。目前全球可再生能源供应的份额为 11%。可再生能源具有巨大的多样性来源，研究表明可再生能源的潜在贡献率将达到世界能源供应总量的 60%。

创造弹性城市的一个关键方面是建设有能力消化极端天气事件造成的冲击和压力的有形基础设施。可持续、有适应力和包容性的城市通常是良好治理的结果，包括有效的组织领导、良好的土地利用规划、管辖权协调、包容性的公民参与和高效的筹资。

● 互联城市的变革力量

在过去二十年中，城市化的变革力量部分原因是由于信息和通信技术（ICT）的快速发展以及城市数据革命所推动，这为决策提供了便利，并推动全球城市向智慧城市转变。然而，如果信息和通信技术在城市中的部署不均衡时，可能会造成数字鸿沟，这反而会加剧原有的不平等，其特点是富裕的居民小区设施完善，而低收入者社区则面临公共设施不足的问题。

智慧城市可以在繁荣、可持续性、适应力、应急管理或有效和公平的服务提供方面做出更好的决策。据估算，全球智慧城市市场将每年增长 14%，从 2012 年的 5068 亿美元将增长到 2019 年的 1.3 万亿美元。在接下来的二十年中，美国的城市政府将投资约 41 万亿美元来升级其基础设施并利用物联网。中国的城市预计在未来 20 年将增加 3.5 亿人口，并且 2015 年智慧城市投资预计将超过 1590 亿美元，到 2024 年预计将达到 3200 亿美元。2014 年，印度宣布计划建设 100 座智慧城市来应对该国不断增加的人口及其对城市基础设施带来的压力。



Urbanization has helped millions escape poverty through higher levels of productivity, employment opportunities; improved quality of life via better education and health; large-scale public investment and access to improved infrastructure and services.

In China, urbanization occasioned by massive economic growth helped pull 680 million people out of extreme poverty between 1981 and 2010, and reduce the rate of extreme poverty from 84 per cent in 1980 to 10 per cent in 2013. China alone accounts for three-quarters of the global reduction in poverty.

● Evolving Spatial Form of Cities

More dispersed patterns of urbanization in the form of suburbanization, peri-urbanization, or urban sprawl have constituted a significant trend over the last two decades. The need to move from sectoral interventions to strategic urban planning and more comprehensive urban policy platforms is crucial in transforming city form.

The more compact a city, the more productive and innovative it is and the lower its per capita resource use and emissions. Smart growth is an approach to planning that focuses on rejuvenating inner city areas and older suburbs, remediating brown-fields and, where new suburbs are developed, designing them to be town centred, transit and pedestrian-oriented, less automobile dependent and with a mix of housing, commercial and retail uses drawing on cleaner energy and green technologies.

● The Essential Role of Cities in Sustainable Development

More compact, better-connected cities with low-carbon transport could save as much as US$3 trillion in urban infrastructure spending over the next 15 years.

As cities represent more than 70 per cent of global energy demand, they have been playing a central role in moving the sustainable energy agenda forward. The current global share of renewable energy supply is 11 per cent. The diversity of renewable energy resources is vast and research indicates a potential contribution of renewable energy reaching 60 per cent of total world energy supply.

A critical aspect of the creation of resilient cities is the construction of physical infrastructure that has the capacity to absorb the shocks and stresses created by extreme weather events. Sustainable, resilient and inclusive cities are often the outcome of good governance that encompasses effective leadership; land-use planning; jurisdictional coordination; inclusive citizen participation; and efficient financing.

● The Transformative Power of Connected Cities

Over the last two decades, the transformative power of urbanization has, in part, been facilitated by the rapid deployment of Information and Communications Technology (ICT), and by a revolution in city data to inform decision-making and propel a global movement to smart cities.

When ICT is deployed unevenly in cities, it can create a digital divide— which can exacerbate inequality, characterized by well-connected affluent neighbourhoods and business districts coexisting with under-serviced and under-connected low income neighbourhoods.

A smart city can guide better decision-making with respect to prosperity, sustainability, resilience, emergency management, or effective and equitable service delivery. Estimates show that the global smart city market will grow by 14 per cent annually, from US$506.8 billion in 2012 to US$1.3 trillion in 2019. Over the next two decades, city governments in the US will invest approximately US$41 trillion to upgrade their infrastructure and take advantage of the Internet of Things. With China's cities projected to grow by 350 million people over the next 20 years, investment in smart cities is expected to exceed US$159 billion in 2015 and US$320 billion by 2024. In 2014, India announced plans to build 100 smart cities in response to the country's growing population and pressure on urban infrastructure.

> 在大多数城市，住房占城市土地面积的 70%以上，这决定了城市的形态和密度，也提供了就业机会并促进增长。
>
> Housing accounts for more than 70% of land use in most cities and determines urban form and densities, also providing employment and contributing to growth.

第三、住房发展情况

● 要闻速览

1. 过去 20 年来，住房并不是国家和国际发展议程的核心。

2. 实施的有利住房政策未能促进足够的经济适用住房的建设。

3. 政府的大多数干预措施都侧重于帮助中产阶级在其负担能力范围内实现居者有其屋。

4. 贫民窟的挑战仍然是发展中国家城市贫困的一面。自 1990 年以来，所有发展中国家城市贫民窟居民的比例有所下降，但人数逐渐增加。

● 政策要点

1. 如果新的城市未来是可持续发展，则需要采取将住房置于城市政策中心的新方法。

2. 联合国人居署提出了一项将住房置于新城市议程中心的战略，力求重新确立住房在实现可持续城市化中的重要作用。

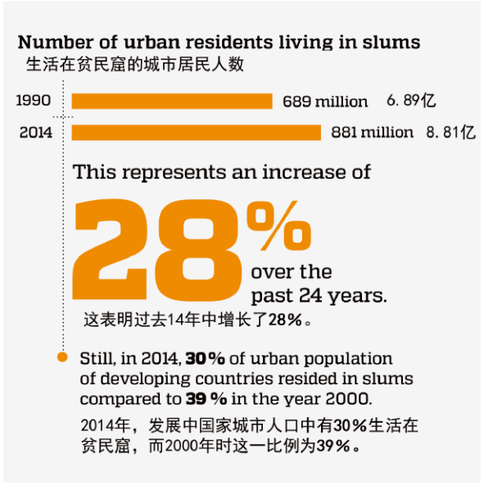
3. 在国家层面，该目标是将住房纳入国家城市政策，也纳入人居署对有计划城市化战略思考。

4. 在地方层面，在适当的管理框架、城市规划和财政的范围内必须强化住房的重要性，并将其作为城市和公民发展的一部分。

在大多数城市，住房占城市土地面积的 70%以上，这决定了城市的形态和密度，也提供了就业机会并促进增长。

1996 年以来，城市人口以前所未有的速度增长，许多城市的住房供应量发生短缺，这也不足为奇。据人居署估计，目前在发展中国家城市里生活在贫民窟的人口有 8.81 亿人，而在 2000 年这一数字为 7.92 亿人——尽管当局也一直也在采取有利贫民的做法。到 2025 年，城市新增的 16 亿人口也将需要适当的经济适用房。中产阶级的居者有其屋计划已被系统地“启用”，但是越来越多的贫穷公民一直“没有能力”获得适当住房，只能居住在单间室或非正式住房，更不用说纯粹的无家可归者了。在南亚，住房短缺特别严重，缺口达 3800 万套。

这反映出长期存在的偏倚供应。今天，在赞比亚，非正式部门提供 60-70%的城市住房，在利马提供 70%，在加拉加斯提供 80% 的新住房而在加纳提供高达 90%的城市住房。如果我们城市的“新未来”是可持续的，那么 10 亿贫民窟居民的住房条件也必须变得可持续。



2010 年，有 9.8 亿城市家庭缺乏体面的住房。另有估计显示，到 2025 年全球需要 10 亿套新房，每年估计需要投入资金 6500 亿美元，总额高达 9 -11 万亿美元。另外，质量短缺远远大于数量短缺；在拉丁美洲，这一比例分别为 61%和 39%。

过去二十年来，住房吸引了大量投机性投资行为，导致房价上涨。

● 消除城市贫困：改善贫民窟居民的生活

在发展中国家许多城市，贫民窟挑战仍然是贫困、不平等和社会剥夺问题之一。改善贫民窟居民的生活已被公认为是世界范围内消除贫困的重要手段之一。

世界不同地区的集体行动表明，能够改善贫民窟居民的生活条件。在 2000 年至 2014 年期间，有 3.2 亿人摆脱了贫民区生活状况，这表明改善工作是可能的也是可

3. The Fate of Housing

● Quick Facts

1. Over the last 20 years, housing has not been central to national and international development agendas.

2. The housing policies put in place through the enabling approach have failed to promote adequate and affordable housing.

3. Most involvement by governments has focused on helping the middle class to achieve home-ownership in a formal sector that only they can afford.

4. The slum challenge continues to be one of the faces of poverty in cities in developing countries. The proportion of slum dwellers in urban areas across all developing regions has reduced since 1990, but the numbers have increased gradually.

● Policy Points

1. If the emerging future of cities is to be sustainable, a new approach that places housing at the centre of urban policies is required.

2. UN-Habitat proposes a strategy that places housing at the centre of the new urban agenda and seeks to reestablish the important role of housing in achieving sustainable urbanization.

3. At the national level, the goal is to integrate housing into national urban policies and into UN-Habitat's strategic thinking on planned urbanization.

4. At the local level, the importance of housing must be reinforced within appropriate regulatory frameworks, urban planning and finance, and as part of the development of cities and people.

Housing accounts for more than 70% of land use in most cities and determines urban form and densities, also providing employment and contributing to growth.

With urban populations expanding at unprecedented rates since 1996, it is perhaps unsurprising that many cities are falling short in housing supply. UN-Habitat's estimates show that there are 881 million people currently living in slums in developing country cities compared to 792 million in the year 2000 – and all the while the enabling approach has been in force. By 2025, it is likely that another 1.6 billion will require adequate, affordable housing. Middle-class formal home-ownership has been systematically "enabled", but ever-growing numbers of poor citizens have been durably "disabled" from access to adequate housing, remaining confined in single-room or informal housing, not to mention sheer homelessness. In South Asia, housing shortfalls are particularly acute amounting to 38 million dwellings.

Reflecting long-standing biased supplies, today the informal sector provides 60-70 per cent of urban housing in Zambia, 70 per cent in Lima, 80 per cent of new housing in Caracas, and up to 90 per cent in Ghana. If the "emerging futures" of our cities are to become sustainable, then the housing conditions of one billion slum residents must become sustainable, too.

In 2010, as many as 980 million urban households lacked decent housing. Another estimate shows that one billion new homes are needed worldwide by 2025, costing an estimated US$650 billion per year, or US$9-11 trillion overall. In addition, shortages in quality are much larger than those in quantity; in Latin America, 61 and 39 per cent respectively.

Over the last 20 years, housing has attracted a lot of speculative investment driving prices up.

● Ending Urban Poverty: Improving the Lives of Slum Dwellers

The slum challenge continues to be one of the faces of poverty, inequality and deprivation in many cities in developing countries. Improving the lives of slum dwellers has been recognized as one of the essential means to end poverty worldwide.

Collective action in different parts of the world has shown that living conditions in slums can be improved. The fact that 320 million people were lifted out of slum-like conditions between 2000 and 2014 demonstrates that it is possible. Although the proportion of the urban population residing in slums today is lower than it was some two decades ago, the absolute number of slum dwellers continues to increase. Sub-Saharan Africa

行的。虽然今天生活在贫民窟的城市人口比例低于二十年前，但贫民窟居民的绝对人数仍在不断增加。仅撒哈拉以南非洲就占 1990 年至 2014 年间发展中国家贫民窟居民新增总人数的 56%。

贫民窟的改造方法越广泛、越具有参与性和综合性，其成功的可能性就越大。参与式贫民窟改造计划（PSUP）在 38 个国家 160 个城市运作，为至少 200 万贫民窟居民提供了支持框架。改善现有劣质社区的住房和服务是改善贫民窟居民生活的一个明显方式。随着人口迅速增长、贫困程度高和城市普遍不平等，很显然住房与城市化是分不开的，住房应该是人在城市的一个迫切的社会经济需要。

第四、不断扩大的城市鸿沟

● 要闻速览

1. 今天的世界比起二十年前更加不平等：全世界 75% 的城市收入差距水平都高于二十年前。

2. 为不同个人能力和不同文化背景的人们提供机会，这在历史上曾经是城市发展的动力，如今这一动力在世界许多地区都停滞不前。

3. 今天太多的城市未能为所有人创造可持续的空间，这不仅仅是指物理空间，而且还包括在市政、社会经济和文化领域。

4. 低收入非技术工人集聚在隔离的地区，这犹如一个贫困陷阱，带有严重的工作限制、性别差距大、生活条件恶化、社会排斥和边缘化以及高犯罪率。

alone accounts for 56% of the total increase in the number of slum dwellers among developing regions between 1990 and 2014.

The broader, more participative and integrated the approach to slum upgrading, the more successful it is likely to be. Participatory Slum Upgrading Programme (PSUP) is operational in 160 cities in 38 countries, providing enabling frameworks for at least two million slum dwellers. Improving housing and services in existing poor-quality neighbourhoods is an obvious way significantly to improve the lives of slum dwellers. With rapid population growth, high levels of poverty and pervasive urban inequality; it is evident that housing is inseparable from urbanization and should be a socioeconomic imperative.

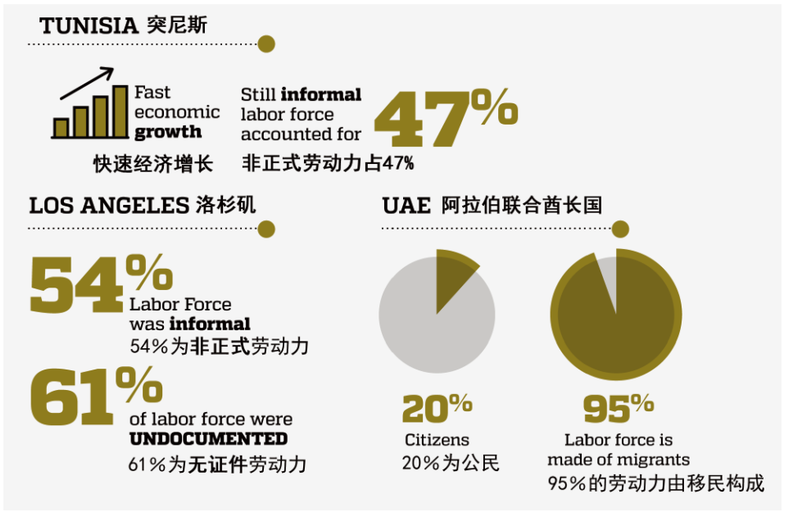
4. The Widening Urban Divide

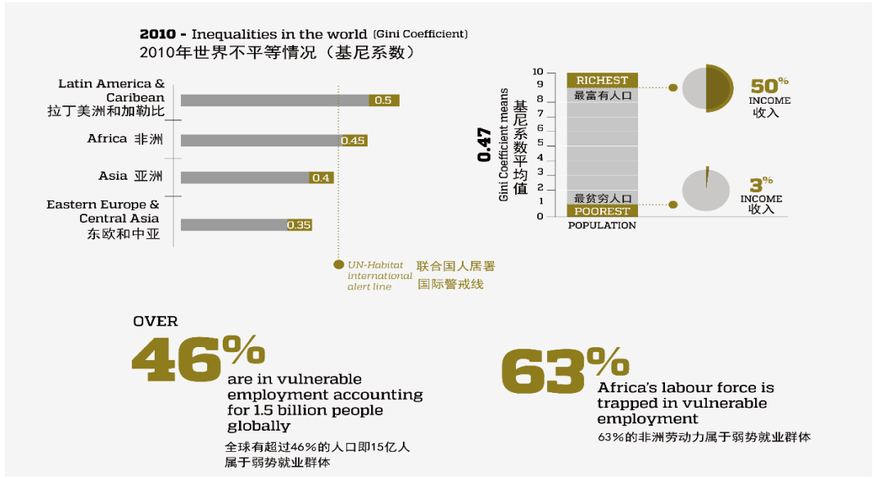
● Quick Facts

1. Today the world is more unequal that it was twenty years ago: 75 per cent of the world's cities have higher levels of income inequalities than two decades ago.

2. Opportunities across diverse individual abilities and cultural backgrounds that historically characterize urban dynamics have stalled in many regions of the world.

3. Too many cities today fail to make sustainable space for all, not just physically, but also in the civic, socioeconomic and cultural realms.





● 政策要点

1. 城市是创新的场所。城市是新经济思想开花结果的地方，也是不同群体的人们学习如何建立良好的邻里关系、如何与他人共处的空间。

2. 城市的异质性、密度和多样性使得城市成为经济创新和民主进步的节点，必须进行良好的管理和规划。

3. 对于排斥在城市公民空间之外的挑战问题可以通过“城市的权利”和基于权利的方法加以解决。

4. 人居三的召开恰逢其时，重申了对包容性城市的国际承诺。

第五、“公平的”环境可持续发展

● 要闻速览

1. 到 2030 年，全球对能源和水的需求预计将分别增加 40%和 50%。

2. 固体废物管理支出在中低收入国家市政年预算中是最大份额，占比在 30%至 50%。

3. 在城市地区，像热浪、强降雨和干旱这样的气候变化影响可能相互混合，从而使得灾害风险管理更为复杂。

4. 面对极端事件，城市越来越意识到：在致力于更公平的环境过程中，要求采用创新的方式来提高城市的适应能力。

5. 虽然发达国家为不发达国家在减缓气候变化方面提供财政支持，但是如果想遏制不断上升的全球气温，这一支持尚不足够。

4. The spatial concentration of low-income unskilled workers in segregated residential quarters acts as a poverty trap with severe job restrictions, high rates of gender disparities, deteriorated living conditions, social exclusion and marginalization and high incidence of crime.

● Policy Points

1. Cities are the sites of innovation. They are the places where new economic ideas crystallize and where heterogeneous groupings of people learn to co-exist as neighbours.

2. The heterogeneity, density and diversity of cities, which is what makes them nodes of economic innovation and democratic progress, has to be managed and planned.

3. The challenge of exclusion from urban civic spaces can be tackled head-on through 'the right to the city,' and a rights-based approach.

4. Habitat III comes at the right time not only to renew the international commitment to inclusive cities.

5. “Just” Environmental Sustainabilities

● Quick Facts

1. By 2030, global demand for energy and water is expected to grow by 40 and 50 per cent respectively.

2. Solid waste management dominates municipal annual budgets in low- and middle-income countries, with shares of 30 to 50 per cent.

3. In urban areas, climate change impacts like

以人权为基础的城市环境方法强调我们普遍依赖于纯自然的、丰富的资源。

A human rights-based approach to the urban environment emphasizes our universal dependence on unadulterated, abundant resources.

● 政策要点

1. 以人权为基础的城市环境方法强调我们普遍依赖于纯自然的、丰富的资源。

2. 将“公平的可持续性”这一概念纳入城市规划和政策将会挑战占主导地位的过时的旧概念，同时考虑具体的当地生态约束因素。

3. 正在出现的新规划方法，为资助环境行动提供一系列可能性，并认识到其在纯经济价值之外的重要贡献。

4. 加强多层次的治理方式对于实现低碳城市，提高未来城市适应力标准都是至关重要。

城市面临四大环境挑战：

1. 公平地提供公共服务。

2. 解决从污染到气候变化影响的环境风险。

3. 最大可能地减少土地利用对资源、生物多样性和生态系统带来的负面影响。

4. 积极响应全球脱碳和合理利用资源的呼吁。

环境规划和管理对建设可持续城市来说至关重要。这必须包括面对灾难应变能力规划。在 1992 年里约会议之后的可持续发展政策和执行情况审查中，千年发展目标、地方 21 世纪议程、人居二、包括全球城市网络章程，都已经认识到实现可持续性——特别是公平的可持续性——需要良好和有效的全球环境治理。确保环境规划和管理过程中的公正和平等，对于建设公正和可持续的城市起着至关重要的作用。

heat waves, heavy precipitations and droughts can compound one another, making disaster risk management more complex.

4. Faced with extreme events, cities increasingly understand that novel ways are called for to build resilience, in the process contributing to a more equitable environment.

5. Although developed countries provide those less developed with financial support for climate change mitigation, it falls short if the on-going rise in global temperatures is to be contained.

● Policy Points

1. A human rights-based approach to the urban environment emphasizes our universal dependence on unadulterated, abundant resources.

2. Mainstreaming the notion ‘just sustainabilities’ into urban planning and policies will challenge dominant, outdated preconceptions, while taking in specific local ecological constraints.

3. New planning approaches are emerging that offer a range of possibilities to finance environmental action and recognize its valuable contribution beyond purely economic valuation.

4. Strengthening multi-level governance approaches is essential to achieving low-carbon cities and raising standards of urban resilience in the future.

社会团体和地方政府已经提出了公平的可持续发展政策有四大要点，它们都是基于以往城市规划中可持续发展的经验，具体如下：

1. 提高人们的生活质量和福祉。

2. 满足现代人和后代人的需求，即同时考虑代际内公平和代际间公平。

3. 在确认、过程、程序和结果方面确保公平和公正。

4. 认识到生态系统的限度和地球资源的承载力。

根据世行统计，固体废物管理占中低收入国家市政年度预算的最大份额，占比在 30%至 50%之间。在发展中国家城市，非正式清洁工通常占城市工人的 5%，但不能在全市范围内提供适当的固体废物管理。

需要从化石燃料向可再生能源的转变，并提高效率，从而将全球温室气体排放量降至“净零”。城市地区的碳排放量估计占全球能源消耗量的 67%至 76%之间。

参与式治理使社区能够有效提供公共服务，实现权利与公共政策之间的有效衔接。解除对公共服务提供的管制往往会使城市规划限于边缘化，从而导致对 “绿色”（农村环境）与“棕色”（城市，特别是穷人）议程之间的差距关注度不够。

“公平的可持续性”与 “城市权力”议程相关，参与式规划使公民可以分享他们的城市愿景。环境规划是一个开放的对话，其中参与和创新至关重要，生命周期成本计算、多标准评估和生态预算也起到帮助作用。（下期待续）

Urban Areas Face Four Broad Environmental Challenges:

1. providing public services in an equitable manner;

2. addressing environmental risks, from pollution to climate change impacts;

3. minimizing the negative impacts of land transformations in the use of resources, biodiversity and ecosystems; and

4. responding to the global call for decarbonization and rationalizing the use of resources.

Environmental planning and management are essential to the advent of sustainable cities. This must include planning for resilience in the face of disasters. A review of sustainable development policies and implementation that followed the conference in Rio 1992, the MDGs, the LA21, Habitat II, including the constitution of global city networks, have recognized delivering sustainability - particularly just sustainabilities - requires good global and effective environmental governance. Ensuring justice and equity in the process of environmental planning and management is crucial towards a just and sustainable city.

Just sustainabilities policies, already advanced by community groups and some local governments, have four pillars that build upon previous experiences of sustainable development in urban planning:

1. Improving people’s quality of life and wellbeing.

2. Meeting the needs of both present and future

generations, that is, considering simultaneously intra- and intergenerational equity.

3. Ensuring justice and equity in terms of recognition, process, procedure and outcome.

4. Recognizing ecosystem limits and the need to live within the possibilities of this planet.

Solid waste management dominates municipal annual budgets in low- and middle-income countries, with shares of 30 to 50 per cent according to the World Bank. In developing country cities, informal pickers typically represent five per cent of urban jobs, but are unable to provide proper solid waste management a citywide scale.

A shift from fossil fuels to renewable energies and improved efficiency is needed to cut planet-warming emissions to a “net zero. Estimates of carbon emissions attribute between 67 and 76 per cent of global energy use to urban areas.

Participatory governance enables communities to control public service delivery, achieving effective convergence between entitlements and public policy. Deregulation of public service provision has tended to marginalize urban planning, turning attention away from the perceived gap between “green” (rural environmental) and “brown” (urban, particularly the poor) agendas.

From a “just sustainabilities” perspective, which is related to the “right to the city” agenda, participatory planning opens up forums where the citizenry can develop their own visions for the city. Environmental planning is an open-ended dialogue where participation and innovation are essential, and where life-cycle costing, multi-criteria evaluation and eco-budgeting can help. (to be continued) WBPM

TECHNOLOGY & VIEWPOINT

技术与观点

New Energy Development in Low-Carbon City
– Recommendation from International Green Model City Initiative

发展新能源，建设低碳城市
——来自国际绿色范例新城（IGMC）倡议的建议

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发展新能源，建设低碳城市

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（全球人居环境论坛秘书长吕海峰在第十届政府间可持续交通论坛上的演讲）

(Speech by GFHS Secretary General Lu Haifeng, at the 10th Intergovernmental Environmentally Sustainable Transport Forum)

一、政策约束

巴黎气候协定目标：在本世纪末把全球平均气温较工业化前水平（1880-1900，平均气温约 14 摄氏度）升高控制在 2 摄氏度之内。全球将尽快实现温室气体排放达峰，本世纪下半叶实现温室气体净零排放。

如果一切按照原来的能源消费模式，全球将在 2015 年 570 亿吨温室气体排放量基础上，增至 2030 年的 740 亿吨，2100 年的 1390 亿吨；要实现巴黎气候协定的 2 度目标，全球温室气体排放量至 2030 年必须减排约 150 亿吨，在 2100 年控制在 420 亿吨的水平（最后一个数据来自联合国环境署的报告）。

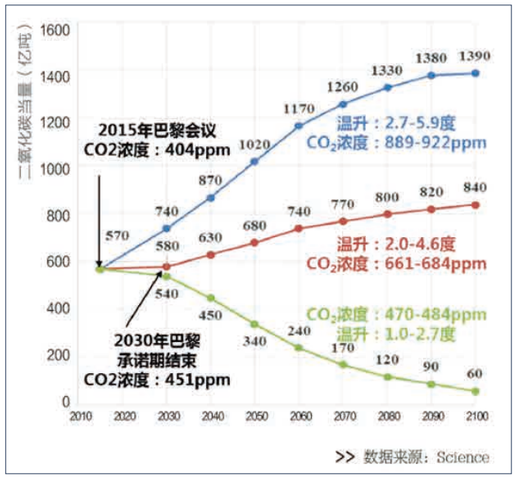
城市消耗全球约 70% 的能源，碳排放约占全球的 70%。提高能源利用效率，发展新能源，建设低碳城市对于实现巴黎气候协定和 2030 可持续发展目标 (SDGs) 有决定性的意义。

I. Policy Restriction

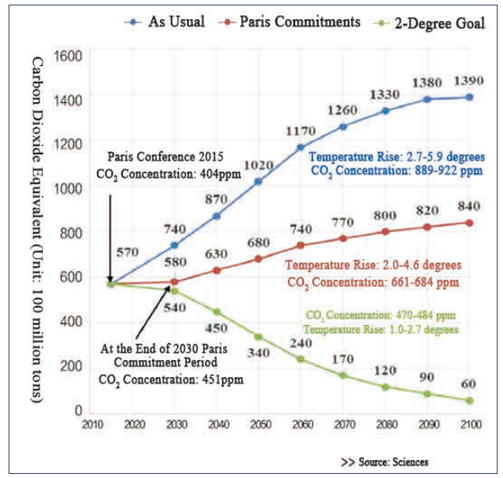
The goal of Paris Agreement on Climate Change: At the end of the century, the global average temperature will be controlled to rise by not more than 2 ° C, compared with the pre-industrial level (the average temperature of about 14 degrees Celsius in 1880-1900). The world will reach the peak of the greenhouse gas emissions as soon as possible and will achieve the zero greenhouse gas emissions in the second half of this century.

If all should remain unchanged with the original energy consumption model, the world would grow from 57 billion tons of greenhouse gas emissions in 2015 to 74 billion tons in 2030, and 139 billion tons in 2100. In order to achieve the 2 degree target of Paris Agreement on Climate Change, the global greenhouse gas emissions must be cut by about 15 billion tons by 2030, and controlled at 42 billion tons by 2100 (the last data come from the report by United Nations Environment Programme).

> 提高能源利用效率，发展新能源，建设低碳城市对于实现《巴黎气候协定》和 2030 可持续发展目标 (SDGs) 有决定性的意义。
>
> In view of this, increasing the energy efficiency, developing new energy sources and building low-carbon cities are the decisive way to achieve the goal of Paris Climate Agreement and the 2030 Sustainable Development Goals (SDGs).



2100 年全球碳排放预测



Prediction of Global Carbon Emissions in 2100

The cities consume about 70% of the world's energy, of which the carbon emissions account for about 70% of the total emissions in the world. In view of this, increasing the energy efficiency, developing new energy sources and building low-carbon cities are the decisive way to achieve the goal of Paris Climate Agreement and the 2030 Sustainable Development Goals (SDGs).

二、主要新能源类型的优缺点比较

新能源类　型	优点	缺点	备注
太阳能	到处都有，可直接开发；清洁；可再生，取之不尽，用之不竭；安装灵活，可与建筑一体化；成本逐年下降，2025 年发电成本有望与火电持平。	受地理及气候影响大，不稳定；需要很大的采光积热面积；目前效率低、成本较高；太阳能电池生产过程有污染、能耗高。	值得大力推广，特别是太阳能热水器造价低、技术成熟、效果更好
生物质能	产品多样性：有液态的乙醇和柴油，固态的原型，气态的沼气，唯一可大规模替代石油、煤炭、天然气，提供低硫燃料，也可以发电和供热；原料多样性：包括特定植物、农作物秸秆、树木、动物及其排泄物、生活垃圾及有机废水；循环性：其全部物质均能进入地球的生物学循环，减少环境公害；技术较为成熟。	植物能量转化效率低；需要大量的土地；小规模利用；原料供应不稳定；有机物的水分偏多；	值得大力推广
风能	清洁，环境效益好；可再生，永不枯竭；基建周期短，装机规模灵活，占地少；成本最接近火电，2025 年发电成本将与火电持平或更低。	受地理及气候影响大，不稳定，不可控；噪声污染；影响鸟类。	值得大力推广，特别是微风发电（建造成本和传统风力机组相近，安装维护成本低、寿命长、对风速要求低、每年运作时间更长）
地热能	环保且可再生；热效率高，整个输送过程热损失小；稳定性好，地热资源的温度一年四季相对稳定；地源热泵系统可供暖、制冷，提供生活热水，一机多用；换热系统使用寿命长；室温调节方便，用户舒适。	使用受场地限制，必须在地下打井；一次性投资价格高；系统复杂、安装难度较大；过度使用可导致土壤温度失衡，影响周围生态。	因地制宜，大力推广
核能	能量密集，功率高，运输与储存都很方便；发电成本较为稳定；发电过程比较清洁，无空气污染和二氧化碳排放。	有发生核泄漏的风险；发电产生的放射性核废料目前还没有长治久安的处制措施，一旦泄漏，危害极大；热污染较严重，投资成本太大，兴建核电厂易引发政治纷争。	谨慎发展
水汽能	储量大，取之不尽，用之不竭；清洁环保，可再生；水汽能热泵比空气源热泵更节能；制冷、供暖、热水三合一；初始投资和运行费用比常规中央空调系统更低；系统可过滤雾霾颗粒，净化室内空气。	社会认知不够；技术上需要完善	因地制宜，大力推广

II. Comparison of Advantages and Disadvantages of New Energy Sources

Type of New Energy	Advantages	Disadvantages	Remarks
Solar Energy	Found everywhere, it can be directly developed and utilized. It's characterized with clean; renewable, inexhaustible, flexible installation and the integration with buildings. Its cost decreases year by year. Its power generation cost is expected to be reduced to the level of thermal power generation by 2025.	Greatly affected by geographical and climate factors, instable, larger lighting and heat accumulation area required; the lower existing efficiency, the higher cost; the solar cell production generates pollution and consumes a lot of energy.	Worth vigorous promotion, especially solar water heaters, which are featured with lower cost, mature technology and better energy efficiency.
Biomass Energy	Product diversity: with liquid ethanol and diesel, solid prototypes and gaseous biogas, is the only large-scale alternative to oil, coal and natural gas; can produce low sulfur fuel and can also generate electricity and heat; raw material diversity: including specific plants, crop stalks, trees, animals and their excreta, domestic waste and organic wastewater; circulation: all of its substances can enter the earth's biological cycle and reduce environmental pollution, with more mature technology adopted.	Characterized with lower plant energy conversion efficiency, a lot of land required; small-scale utilization; unstable raw material supply and higher organic moisture content.	Worth vigorous promotion
Wind Energy	A kind of clean energy, better environmental benefits, renewable, never exhausted; shorter infrastructure construction cycle, flexible installed scale, smaller land occupation; its power generation cost closest to that of thermal power, and will be flat with or lower than that of the thermal power generation by 2025.	Affected by the geographical and climate factors, unstable and uncontrollable; makes noise pollution; and has an impact on birds.	Worth vigorous promotion, especially the breeze power generation (its construction cost similar to that of the traditional wind turbine, but marked with lower installation and maintenance cost, longer service life, lower wind speed requirements, and longer operating time per year)
Geothermal Energy	Green, renewable, higher thermal efficiency, lower heat loss in the entire transmission process, higher stability, relatively stable temperature of geothermal resources throughout the year; ground source heat pump system can provide heating, cooling and domestic hot water services and achieve the multi-purposes; longer service life of the heat exchange system; the convenient room temperature adjustment make users comfortable.	The use site restriction: a well must be dug underground; higher one-time investment price; complex system, and more difficult installation; the excessive use of it can lead to soil temperature imbalance, thus affecting the surrounding ecology.	Worth vigorous promotion according to local conditions.
Nuclear Energy	Intensive energy, high power, very convenient transportation and storage; stable power generation costs, relatively cleaner power generation process, with no air pollution and carbon dioxide emissions.	In addition to the risk of nuclear leakage, there are no long-term and valid treatment measures for radioactive nuclear waste generated by the power generation. In case of leakage, it can do great harm; more serious hot pollution and huger investment costs; the construction of a nuclear power plant easily leads to political disputes.	Prudent promotion and development

Type of New Energy	Advantages	Disadvantages	Remarks
Water Vapor Energy	In a large quantity, inexhaustible, clean and environmentally friendly and renewable; a water vapor heat pump is more energy-conserving than air source heat pump, the combination of the cooling, heating and hot water-supplying functions; its initial investment and operating cost is lower than that of the conventional central air conditioning system; its system can also filter haze particles to make clean indoor air.	In addition to the insufficient social awareness of it, it also needs technical improvement.	Worth vigorous promotion according to local conditions.

各种新能源都有其特点，适合不同的气候和地区，可以因地制宜，相互补充，组合开发。2015 年二十国集团（下称 G20）国家除水电站外的其他可再生能源电量占总发电量的 8%，德国更是达到 36%，基本以风电发电和光伏发电为主。2016 年全球不包括大型水电站在内的可再生能源电力总占比上升到 11.3%（联合国环境规划署）。

中国光伏发电新增和累计装机容量已位列全球第一。截至 2016 年底，中国光伏发电新增装机容量 3454 万千瓦，累计装机容量 7742 万千瓦。其全年发电量 662 亿千瓦时，占中国全年总发电量的 1%。到 2020 年，太阳能发电装机达到 1.1 亿千瓦以上。2016 年中国（除台湾地区外）风电新增装机容量为 2337 万千瓦，累计装机容量达 1.69 亿千瓦。中国计划到 2030 年非化石能源要占到能源消费总量的 20%，二氧化碳排放也要达到峰值。

可再生能源机构（IRENA）报告显示，预计到 2030 年风力发电、光伏发电将成为世界大多数国家最便宜的发电方式。

三、分布式发电和智能微电网

传统的能源供应模式为集中式发电，远距离输送，生产者和消费者分离。新的做法是让传统的能源消费者变为生产者，就地发电，就地消费。建筑耗能占全社会总能耗的 30-40%，所排放的温室气体也占到 1/3。可以让每幢建筑像树木一样生产能量、发电，在满足自身需求之外，多余的电还可以上网销售。主要措施包括：

1、太阳能和微风能建筑一体化技术让每幢建筑可以生产能量、发电。

New energy sources of all kinds have their own characteristics, and are suitable for different climates and regions, which can be used according to local conditions. In addition, they may also complement each other. In the Group of Twenty (hereinafter referred to as G20), the power generation capacity of other renewable energy sources than hydropower stations represented 8% of the total power generation in 2015. The ratio in Germany reached as high as 36%. The renewable energy power generation mainly includes wind power generation and photovoltaic power generation. Globally, renewable energy power generation excluding large hydropower stations accounted for 11.3 percent of the total generating capacity in 2016. (United Nations Environment Programme)

China has ranked first in the world in terms of the newly-added PV power generation and cumulative installed capacity. As of the end of 2016, there is the new installed capacity of 34.54 million kilowatts and the cumulative installed capacity of 77.42 million kilowatts in respect of the photovoltaic power generation in China. Its annual power generation capacity reached 66.2 billion kwh, accounting for 1% of the total annual generating capacity in China. The solar power installed capacity across the country will reach 110 million kilowatts or more by 2020. In 2016, the wind power installed capacity was 23.37 million kilowatts in China (except Taiwan), with the cumulative installed capacity of 169 million kilowatts. As of the end of 2016, the annual power generation capacity of both is accounting for approximately 4 % of the gross generation in China. China plans to make the non-fossil energy account for 20% of the total energy consumption by 2030, when the carbon dioxide emissions will also reach the peak.

> 2016 年全球不包括大型水电站在内的可再生能源电力总占比上升到 11.3%（联合国环境规划署）。
>
> Globally, renewable energy power generation excluding large hydropower stations accounted for 11.3 percent of the total generating capacity in 2016. (United Nations Environment Programme)

2、利用地源热泵或水汽能热泵为建筑提供供热、制冷和热水。

3、用城市里的各种有机废弃物经厌氧处理生产沼气作为燃料或发电。

4、用秸秆、树木、特种农作物等生产能源或发电。

分布式发电需要建立智能微电网，将信息技术、通信和能源系统紧密结合。由分布式电源、用电负荷、配电设施、储能装置、监控和保护装置等组成的、实现智能管理的小型发配用电系统称为智能微电网，它分为并网型微电网和独立型微电网，可实现自我控制和自治管理，并将多余的电力输送到公共电网中。

智能电网还可以连接遍布各地的充电桩，为电动汽车充电，成为移动的电力存储单位，为弥补分布式发电配置的不稳定电量做贡献。

四、IGMC：低碳城市倡议

国际绿色范例新城（IGMC）倡议是由全球人居环境论坛（GFHS）发起、得到联合国大力支持的低碳城市发展计划，该倡议的标准是指导和评估低碳城市规划发展的先进工具，为《2030 年可持续发展议程》和《新城市议程》在城市层面的具体实施提供了技术方法和评估手段。

IGMC 标准的愿景基于 6 项基本原则：安全、可持续、公平、个性、繁荣以及幸福，并通过贯穿环境、空间规划与开发、经济、基础服务、社会和文化这 6 个维度的 18 个科学细分的类别予以落实。

在 IGMC 推荐的能源结构中，项目就地或本域内产生的可再生能源所占比例按项目启动之年计，第三年应达到 20%，第五年应达到 40%，第七年应达到 75%，争取第九年达成净零碳目标。

The report of IRENA shows that the wind power generation and the photovoltaic power generation will be the cheapest ways to generate electricity in most countries by 2030.

III. Distributed Power Generation and Smart Micro-grid

The traditional energy supply model is characterized with centralized power generation, long-distance power transmission, and the separation of generators from consumers. The new power generation approach is to make the traditional energy consumers become a generator, and achieve local power generation and local consumption. The energy consumption of buildings accounts for 30-40% of the total social energy consumption, and the greenhouse gas emission of buildings also makes up 1/3 of the total. However, the new power generation approach allows every building to generate energy like trees. In addition to meeting their own power needs, they can also make the excess electricity online for sale. Recommended measures include:

1. The solar and micro-wind energy building integration technology allows each building to produce energy for power generation.

2. The ground source heat pumps or water vapor heat pumps may be used to provide heating, cooling and hot water services for buildings.

3. Various organic wastes in cities are treated in an anaerobic way to generate biogas for fuel or power generation.

4. Straws, trees, special crops and others are utilized for energy production or power generation.

Distributed power generation requires the

IGMC

国际绿色范例新城标准3.0结构示意图

6 项基本原则

安全 | 可持续 | 公平 | 个性 | 繁荣 | 幸福

6 大维度、18 个类别

- 空间规划与开发
  - 可持续的空间规划与设计
  - 可持续土地利用
  - 宜居社区
  - 公共空间
  - 绿色建筑
- 基本服务
  - 绿色交通和出行
  - 低碳和能源效率
  - 智慧城市
  - 零废弃物
- 环境
  - 可持续环境
  - 弹性
  - 可持续的水
- 经济
  - 绿色经济
  - 绿色生活
- 社会
  - 社会包容和公平
  - 城市治理
- 文化
  - 文化和遗产
  - 地方创新

每个类别结构图

定义和目标

关键策略和方法

关键要求和指数

最佳范例

IGMC

Diagram of the Structure of the International Green Model City Standards 3.0

6 Key Principles

Safety | Sustainability | Equity | Identity | Prosperity | Happiness

6 Dimensions with 18 Categories

- Spatial Planning and Development
  - Sustainable Spatial Planning & Design
  - Sustainable Land Use
  - Liveable Community
  - Public Space
  - Green Buildings
- Basic Services
  - Green Transportation & Mobility
  - Low Carbon & Energy Efficiency
  - Smart City
  - Zero Waste
- Environment
  - Sustainable Environment
  - Resilience
  - Sustainable Water
- Economy
  - Green Economy
  - Green Living
- Society
  - Inclusive & Equitable Society
  - Urban Governance
- Culture
  - Culture & Heritage
  - Local Innovation

The Structure of Each Category

Definitions and Aims

Key Strategies and Methodologies

Key Requirements and Indicators

Best Practices

IGMC 标准的愿景基于 6 项基本原则：安全、可持续、公平、个性、繁荣以及幸福，并通过贯穿环境、空间规划与开发、经济、基础服务、社会和文化这 6 个维度的 18 个科学细分的类别予以落实。

The vision of the IGMC standard is based on the six basic principles: safety, sustainability, equity, identity, prosperity and happiness, and is implemented through the 18 categories of the six dimensions, namely: environment, spatial planning and development, economy, basic services, society and culture.

五、IGMC 倡议实现净零碳城市的策略与措施

1、制定一个全面的净零碳城市行动计划。

2、采取基础设施导向型举措，支持循环代谢型设计。

3、可持续规划和设计，包括根据能源与资源节约性能标准创新城市设计和建筑形态。

4、减少开发、运输、生产和建筑生命周期中能源的使用，采用节能电器和设备，使用建筑性能监控系统，提高建筑能效。

5、更清洁的生产。

6、不断增加可再生能源供给，在本地进行分布式发电，谋求自给自足，同时尽最大可能通过其它可再生能源供应商满足供电需求。

7、建设智能电网，整合各类新能源发电，提高能源综合利用效率。

8、为交通运输提供清洁电网能源，推广新能源汽车。

9、开创全面可持续生活方式和公共参与举措，促进净零碳城市建设。

10、建立数学碳模型，开展碳抵消与碳信用。

六、范例

1、瑞典 • 哈马比生态城：自循环的环保新城

位于斯德哥尔摩中心城区的东南边缘，占地面积 204 万平方米，建成后可容纳 2.6 万居民，1 万多人在此工作，预计于 2017 年全部建成。主要措施有：

● 公共交通比例达 79%，当地私人汽车占有率不足 40%。

establishment of smart micro-grids, where the information technology, communications and energy systems are closely integrated. Intelligent micro-grid refers a small-scale distribution system able to achieve intelligent management, consisting of distributed power supply, power load, power distribution facilities, energy storage devices, monitoring and protection devices, and others, which is divided into net-shaped micro-grid and independent micro-grid, and is able to achieve self-control and self-management, and transit the excess power to the public grid.

Smart grid can also be connected to charging piles everywhere used to charge electric cars, and become a mobile power storage unit, thus contributing a lot to making up the unstable power of the distributed power generation configuration.

IV. IGMC: Low-Carbon City Initiative

International Green Model City (IGMC) Initiative is a low-carbon town development program initiated by the Global Forum on Human Settlements (GFHS) and greatly supported by the United Nations, of which the standard is an advanced tool for directing and assessing low-carbon urban planning and development, and provides technical approaches and assessment means for the implementation of 2030 Agenda for Sustainable Development and New Urban Agenda at the city level.

The vision of the IGMC standard is based on the six basic principles: safety, sustainability, equity, identity, prosperity and happiness, and is implemented through the 18 categories of the six dimensions, namely: environment, spatial planning and development, economy, basic services, society and culture.

In terms of the energy structure recommended by IGMC, the proportion of the renewable energy generated in a local or biological area shall, after the project starts,

● 哈马比城动力 50% 来自于废水处理和垃圾的转换，其他则来自于屋顶的太阳能电池板。当地流行一句俗话“从洗手间到煎蛋卷的炉火”。

● 率先采用了再生燃料发电，所用燃料是周围的木材工厂废弃的木屑碎片，而小城确立的目标是要成为全球第一座无油城。

● 先进垃圾回收系统：垃圾管道抽吸，三级回收，垃圾回收率 70% 以上，家用垃圾的转化率高达 95%。

● 降水收集网络与污水管网分离系统，污水发电、取暖。

2、中国敦煌市：目标 100% 可再生能源的净零碳城市

中国西部城市敦煌有很好的太阳能和风能资源。**在能源生产侧方面**，以建设国家级大型可再生能源基地为主，大力发展分布式能源，确保 100% 满足敦煌市可再生能源消费需求。**在能源输送侧方面**，大力建设外送通道，完善本地配电网络；大力建设可再生能源供热网络、交通网络，加快充电桩网络布局。**在能源消费侧方面**，工业、建筑、交通三大领域全面开展能源需求侧管理，大力提高能源利用效率。目标是在 2020 年达成 100% 可再生能源电力城市、100% 可再生能源供热城市、100% 可再生能源交通城市和 100% 可再生能源旅游城市的愿景。（本案例图文来自中国国家发改委能源研究所胡润青研究员的演讲）

敦煌市的目标是达成 100% 可再生能源电力城市、100% 可再生能源供热城市、100% 可再生能源交通城市和 100% 可再生能源旅游城市的愿景。

The city of Dunhuang aims to achieve the visions of becoming a 100% renewable energy power city, a 100% renewable energy heating city, a 100% renewable energy transportation city and a 100% renewable energy tourism city by 2020.

reach 20% in the third year, 40% in the fifth year, 75% in the seventh year and the net zero carbon emission target in the ninth year.

V. IGMC Initiative Strategies and Measures to Achieve the Net Zero Carbon City

1. To develop a comprehensive net zero carbon city action plan

2. To take infrastructure-oriented initiatives to support circulation-type designs

3. To make sustainable planning and design, including innovating urban design and architectural forms according to the energy and resource conservation performance standards

4. To reduce the consumption of energy in the development, transportation, production and construction life cycle, using energy-saving appliances and equipment, and adopting building performance monitoring system to improve building efficiency

5. To make cleaner production

6. To increase the supply of renewable energy and seek distributed power generation for self-sufficiency in local areas, while striving to meet the power supply needs through other renewable energy suppliers

7. To build smart grids, integrate various types of new energy power generation, and improve the overall energy utilization efficiency

8. To provide clean energy for transportation and promote new energy vehicles

9. To create a comprehensive sustainable lifestyle and public participation initiatives to promote the construction of a net zero carbon city

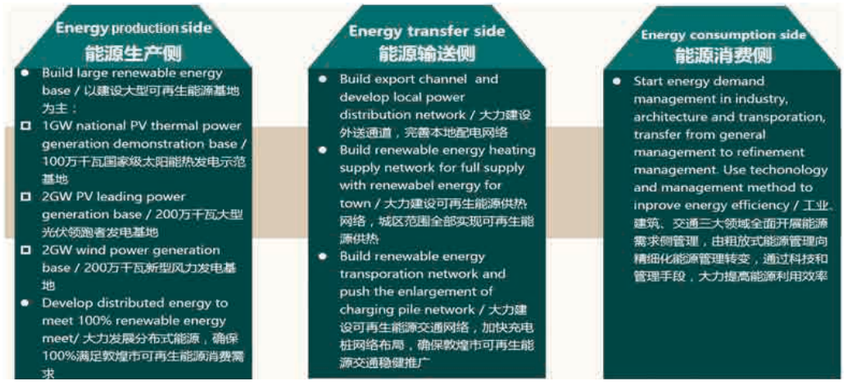
10. To establish a mathematical carbon model, and carry out carbon offset and carbon credits

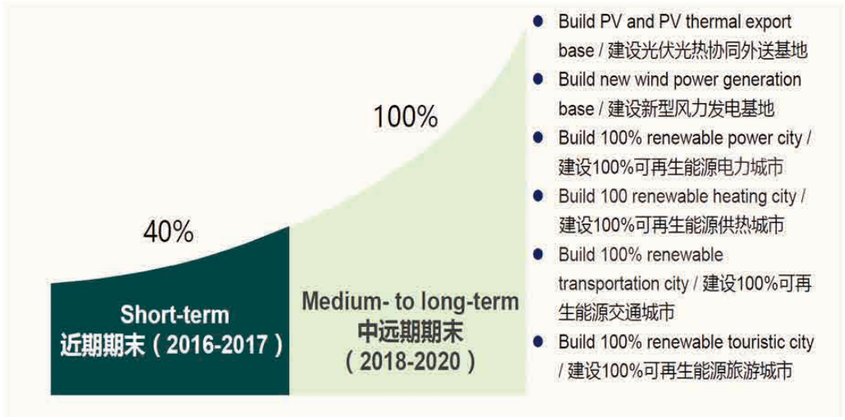
VI. Cases

1. Sweden • Hammarby Ecological City: Self-circulating Green City

Located on the southeast edge of the central downtown of Stockholm, it covers an area of 2.04 million square meters, and can accommodate 26,000 residents upon completion, with more than 10,000 people to work there, which is expected to be completed in 2017.

● The proportion of public transport reaches 79% while the local private car share is less than 40%.





- 50% of the power in Hammarby City comes from waste water treatment and waste conversion, and the rest derives from the roof solar panels. Their slogan is:"from toilet to omelet".

- It's the first to achieve the renewable fuel power generation, and the fuels used are wood debris from the wood factories nearby, and the goal established by the small city is to become the world's first oil-free city.

- Advanced garbage collection system: garbage pipe suction and three-level recycling contributes to the garbage recovery rate of more than 70% and the household waste conversion rate of up to 95%.

- Precipitation collection network and sewage pipe network separation system; sewage power generation and heating.

2. Dunhuang City, China: to Become a 100% Renewable Energy and Net Zero Carbon City

As a city in the western part of China, Dunhuang has rich solar and wind energy resources. In terms of the **energy production side**, efforts are made to build a large-scale national renewable energy base and vigorously develop distributed energy so as to ensure the 100% satisfaction of the needs of the renewable energy in Dunhuang City. In terms of the **energy transmission side**, great efforts are made to vigorously build the export channel, improve the local distribution network; vigorously construct the renewable energy heating network and traffic network, and speed up the charging pile network layout. In terms of the **energy consumption side**: great efforts are made to achieve the comprehensive energy demand side management in the three main areas of industry, building and transportation, and vigorously improve energy efficiency. The goal is to achieve the visions of becoming a 100% renewable energy power city, a 100% renewable energy heating city, a 100% renewable energy transportation city and a 100% renewable energy tourism city by 2020. *(This case is quoted from the speech of Hu Runqing, researcher at the Energy Research Institute of the National Development and Reform Commission.)*

BEST PRACTICE
最佳范例

Zijun Mount • Foothill City:
A comfortable human habitation in the Spring City
子君山 • 麓城：翡翠人居 春城扛鼎

From waste to energy:
Danish plant flexes the power of wastewater
丹麦创造水处理范例：污水厂变身发电厂

Zijun Mount • Foothill City

A comfortable human habitation in the Spring City

子君山 • 麓城

翡翠人居 春城扛鼎

Kunming • Yunnan • China

中国 • 云南 • 昆明

充分重视及尊重周边自然的生态环境，以“人与自然和谐相处”为理念，塑造“生态、健康、舒悦”的私密专属领域，打造生态人居最佳示范社区。

Focusing on the protection of ecological environment, setting"harmony between man and nature" as its philosophy, this project will build an “ecological, healthy and comfortable” privacy territory and a dwelling exemplary community.

南方丝绸之路，走向世界

雄踞中国西南云贵高原中部的昆明市，享“春城”之美誉。在秦汉时期，中国西南就出现了一条经昆明通往境外的国际通道——古代南方丝绸之路，使昆明成为连结中国与东南亚、南亚的纽带，子君山·麓城项目择址于昆明市官渡区，绕城高速以南的子君山范围，由7宗用地组成，像七块翡翠散落在200万平方米的子君山郊野公园里。项目总用地面积约3000亩，规划为运动休闲公园、森林郊野公园、五星级酒店和高尚低密度住宅。项目充分重视及尊重周边自然的生态环境，从生态修复出发，以“人与自然和谐相处”为理念，以“重塑人居梦想”为核心，塑造“生态、健康、舒悦”的私密专属领域，打造生态人居最佳示范社区，成为引领云南昆明新都会生活的新名片。

宗逸置业
创新求发展，品质树品牌

子君山·麓城这一超越众多国际竞争项目的人居经典范作，背后的领创者，正是云南宗逸置业有限公司，公司建设领域涉及中高低端住宅项目开发、生态修复工程等多方面，在促进经济高速增长与环境生态保护之间取得平衡。子君山·麓城作为其最高端的作品，不仅用实践证明了一个企业对绿色人居的追求，更意味着企业助推全球人居环境可持续发展所肩负的担当。

The Silk Road in southern China which connects to the world

Kunming, located in the middle of the Yunnan-Guizhou Plateau in the Southwestern China, is also known as “the Spring City”. During the Qin and Han dynasty, Kunming was on the ancient Silk Road in the southwestern China. Therefore, it became an important link to connect China with Southeast Asia and South Asia. The project of Zijun Mount•Foothill City, which has 7 pieces of lands, is in the Guandu district of Kunming within the Zijun Mountain area. It is like 7 jadeites, spreading onto the 2 million square meters Zijun Country Park. The land area of this project is about 3000 acres with leisure parks, country parks, 5-star hotels and low-density residencies buildings in it. Focusing on the protection of ecological environment, setting

因地制宜，景观修复
构筑全球人居示范社区

规划设计理念依据基地现状和山体走势，最大限度利用森林植被，以浪漫的异域风情为氛围，以生态文明为内涵，以打造全球人居环境最佳社区为己任，将原生态自然景观与建筑形体完美融合，营造宜人宜居的低密度生活环境，最终成为集生态旅游、运动休闲、商务洽谈、养生度假、人居体验等多重功能于一体的都市新地标。

规划突出项目的整体环境保护意识，注重原生态的延续性，建筑群体预留城市视觉通廊。建筑本身强调文化艺术特色，结合基地特有的山地建筑风貌，建筑形体、材料、色彩等做到与环境协调统一，相互呼应。规划设计引入绿色环保理念，充分结合昆明气候特色及日照时间，满足相关节能环保规定，打造全球人居最佳示范社区典范。

建筑传统与时尚相结合
打造出“可游可居、近山近水”
的阿尔卑斯山地风情小镇

建筑风格以阿尔卑斯山山地风情小镇为大基调，力求统一中变化，在立面设计理念上大胆创新，将阿尔卑斯山山地风情小镇居住理念的精华，融合瑞士风格、英伦风格、简欧风格的简约，通过瓦屋面、石材墙面、山地风情小镇空间的运用，实现了优雅、尊贵的“大宅式居住”的理性回归。其中包括：

瑞士风情小镇风格：以阿尔卑斯山山地风情的设计思想，增强建筑竖向立体感。利用阳台、落地窗、连梁等元素结合部分挑板以增加建筑竖向的挺拔感和韵律感。利用简洁的栏杆及顶部挑板统一并简化建筑形态，使整个建筑群体简洁、干净，富于变化又充满韵律感。

英伦风情小镇风格: 建筑立面追求简洁、通透的形体，利用建筑平面的凹凸自然形成丰富的建筑轮廓。外墙采用浅暖色涂料，设计风格以优雅、庄重、高贵为特点，贵族气质不言而明。

“harmony between man and nature” as its philosophy and “recreating favorable inhabiting environment” as its core, this project will build an “ecological, healthy and comfortable” privacy territory and a dwelling exemplary community, which will be a new trump card of Kunming, Yunnan.

Zongyi Properties
pursuing innovation and quality for the overall development of the company

The creator of Zijun Mount•Foothill City project which has exceeded many international competitors, is Yunnan Zongyi Prosperities Limited that focuses on residential projects and ecological rehabilitation projects and tries to find a balance between economic growth and environmental protection. The most successful project - Zijun Mount•Foothill City is a demonstration of our goal to protect ecological environment as well as our responsibility for a sustainable development of global human settlement.

Implementing ecological rehabilitation according to local conditions
Creating a global exemplary community

Our designing concept is to make the most use of forest cover based on the mountain conditions and create a global exemplary community with exotic and romantic atmosphere. Focusing on ecological civilization, the project will combine the original ecological landscapes with buildings to construct a comfortable low-density residential environment. It’s a new landmark for people’s sightseeing, sports activities, business discussion and vacation resort.

简欧风情小镇风格：外立面以温润而醇的浅黄色为主要色调，花纹配合金黄色及白色，玻璃使用淡蓝色。以简洁的线条为主设计手法去实现简欧风格的对称感，整体建筑线条简洁、外观宏伟。

同时建筑充分利用周边资源，依山打造各种小型台地，多露台，私家庭院，组团庭院空间，增添浓郁的原生态山地风情小镇。建筑采景采光面丰富多样，最大化户户观景，使每户住宅产品景观资源最大化，将给居住者带来强烈的归属感和尊贵感。

绿野·仙踪
打造森林里的极致生态康养盛宴

景观设计结合阿尔卑斯特有的景观元素，梳理文化特征，修复并营造林地，打造昆明乃至世界瞩目的生态人居焦点。

自然：强调设计与自然的共生，与现有地形充分结合造景，尽量保留原有植物。提高整体的绿化率和生态化，利用植被和地形塑造独特的肌理效果，创造可持续发展的绿化结构，通过不同的处理手法，创造不同的景观兴奋点，创造贯通整个区域的良好景观带，观景长廊，打造延续而稳定的绿化结构。

生态：注重可持续发展和海绵城市的建设，利用永续经营资源再生的理念和先进的技术运用在景观基础设施和建筑设计上，促进开发的可持续性。通过水路改善、生态保护、栖息地恢复等措施进行科学的湿地建设。保护自然湿地，增加人工湿地，以创造具有综合环境价值的景观空间。

文化：兼具独特内涵和文化辨识度，通过景观来赋予每个组团自我的特点与可识别性。合理规划人文景观和自然景观，加入人文思想让景观类型丰富起来。生态科普，注重品质，深化品牌效益。将浓厚的地域文化和独特的企业文化通过景观的铺垫展现在人们面前。

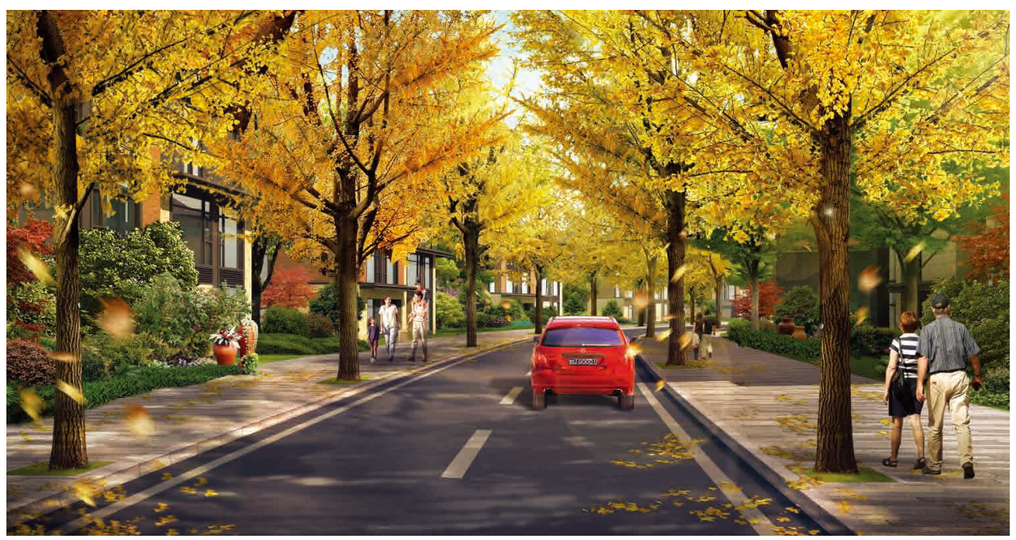
健康：运动娱乐集散地，针对不同人群需求来设计休闲体育公园，为人们提供健身游乐场所。依山造势，建设形式独特的竞技项目。在美化环境的同时强调健康生活的思想理念。

Our designing emphasizes integrated and ecological environment protection and buildings' cultural and art characteristics, which is based on the special mountain conditions, building appearance, buildings materials, and colors for a better environmental coordination. Introducing in the environmental protection concept and taking into consideration the climate conditions and sunshine duration of Kunming according to relevant regulations, it will be a global exemplary residential community for you.

A mixture of architecture tradition & fashion
Creating a gorgeous Alps exotic town for residents and travelers

The architectural style is based on the towns of Alps. We tried to encourage innovation in the facade design of the buildings, integrating the Alps architectural style with the simplicity of Switzerland, England and European architectural styles through buildings' tile roofing and facades to achieve mansion like building style. It includes:

Switzerland building style: we adopted the Alps building concept to increase building's stereoscopic impression by creating balconies, French windows and by using coupling beams and bridging pieces. In addition, with the adoption of handrail and the top bridging pieces, the whole building looks concise and dynamic.



多项绿色环保技术
遵循资源节约、环境友好的可持续发展原则

项目在设计中利用自然地形的高差，采用开放式排雨水，将水直接引接景观水池内。设计实行“人工斜坡地的排水”，通过建筑底部设置排水管收集和排出地基周围的过量雨水。在斜坡上种草进行表面养护，并设排水沟，防止雨水冲刷造成表土流失。设置集水井收集过剩水分排至景观水池。

项目积极推广使用清洁能源，尤其是太阳能。住宅部分在建筑屋顶安装太阳能板以获得高温热水，由集热板制取热水供采暖和生活热水使用。同时利用云南省地热丰富的优势，分别在冬季作为热泵供暖的热源和夏季空调的冷源。项目可再生能源利用率总体控制在 20% 左右。

England building style: The building facade uses transparent and uneven materials, and then paints the external walls with warm color coating, which makes the building elegant, solemn and noble.

European building style: the building facade mainly paints pale yellow coating with golden yellow and white patterns, along with light blue glass. The concise lines and the symmetry of the building make it look simple and magnificent.

At the same time, we also made full use of the nearby resources to create all kinds of small terraces, balconies, private courtyards etc. for a more dynamic and profound atmosphere. All of the buildings have great indoor lightings and broaden views for residents living in it, giving them a sense of belonging and dignity.

Green fields of wonderland
Creating an ecological and healthy feast in the forest

The landscape design integrates Alps landscape elements and emphases ecological rehabilitation to create a community that attracts Kunming and the world's attention.

Nature: The design emphasizes the coexistence with man and nature, fully integrates the existing topography landscape and protects the remaining original plants to improve the overall greening rate. We also adopt vegetation and terrain texture effects to create a sustainable development of green architecture through different techniques. Moreover, green landscape belts and viewing galleries are made for a continued and stable green future.

Ecology: we focus on the sustainable development and the construction of the city, use renewable resources for sustainable management and apply advanced technology into the landscape infrastructure and architectural design to promote overall sustainable development. Waterway improvement, ecological protection, habitat restoration and other measures are adopted to protect the natural wetland and increase the constructed wetland for a landscape with comprehensive environmental values.

Culture: it has both the unique connotation and cultural identification through the landscape and gives every individual special characteristics and recognition. Landscape types are enriched by rational planning of the human landscape and natural landscape along with the adoption of humanistic thoughts. We also focus on

配套完善
塑造“生态、健康、舒悦”的秘密专属领域

项目凭借其得天独厚的资源优势及区位特性，独具一格。一方面坐享滇池度假型物业无法比拟的醇熟都市生活配套，一方面独拥子君山郊野公园这一稀缺的天然氧吧，规划地域内融汇了高端奢华的商务礼遇，集铂金五星级酒店、生态美学公园、绿色郊野公园、顶级城市会所、低密度人文墅群等于一体，并配备标准直升机停机坪、山林SPA、室内恒温泳池、网球场、登山径及环游绿道等，为精英阶层建立私密专属领域。

项目作为“春城首席生态文化国际大都会”，其中，生态美学主题公园以“生态休闲文化”为核心；绿色郊野公园文化体验基地以“户外有氧运动”为核心；艺术殿堂级酒店及会所以“都市商务会所”为核心；低密度墅群以“重塑人居梦想”为核心。体现四种不同的文化内涵，塑造“更生态、更健康、更舒悦”的人居理念。

万豪品牌国际五星级酒店位于规划地块的中心位置，作为郊野公园住宅产品业主的“私享配套”，为项目的住宅产品提升物业价值；生态休闲郊野公园环绕住宅用地四周，是该项目最重要的景观资源和配套，项目将最大限度的利用公园的景观和绿地空间，提高住宅品质的高附加值，充分吸纳现有景观资源，并将其重要园林景观优先布局于住宅周边，在尊重自然的情况下构建人居、建筑与环境的协调统一。

子君山 • 麓城，在全球人居整体趋势于大同的当下，以生态环境修复为起点，从始至终贯穿着绿色环保的理念，独辟出属于自己的品位豪宅，喜获全球人居环境规划设计奖，以翡翠人居的名义登顶国际。从此，开启全球绿色人居的理想生活。

ecological science, building quality and brand benefit. A strong regional culture and unique corporate culture will be unfolded in front of people through the foundation of this landscape.

Health: it’s a sports and entertainment center designed for the needs of different groups of people, providing them with exercising and recreational places. According to the mountain conditions, we created a number of unique athletic facilities, emphasizing the concept of healthy life while beautifying the environment.

Multiple environmental protection technologies
Following the principle of sustainable development of resource and environment

The use of natural terrain altitude differences and the open drainage system allows rainwater to flow into landscape pools. The design of the "artificial slope drainage" allows water to be collected through the drainage pipe at the bottom of the building. Planting grass on the slope and digging drainage ditch will prevent soil erosion by rainwater. Water collection wells are also established to collect excess water to the landscape pools.

Our project aims to promote the use of clean energy, especially solar energy. Solar panels were installed on the roof of the building to obtain high temperature water for heating and other usages. At the same time, the abundant geothermal resources in Yunnan province could be used as a heat pump in the winter and an air conditioning in the summer. The overall renewable energy utilization of this project is about 20%.

> 项目将最大限度的利用公园的景观和绿地空间，提高住宅品质的高附加值，充分吸纳现有景观资源，并将其重要园林景观优先布局于住宅周边，在尊重自然的情况下构建人居、建筑与环境的协调统一。
>
> It maximizes the adoption of green space, improves the quality of residents’ lives. It contains a variety of landscape resources and surrounds residential area, achieving a harmonious and unified coordination among human, architecture and the environment.

Completed auxiliary facilities
Recreating ecological, healthy and comfortable private territory

With advantaged resources and regional characteristics richly endowed by nature, this place has incomparable completed auxiliary facilities on one hand and a Zijun Country Park which is a natural oxygen bar on the other hand. It also integrates high-end and luxury platinum five-star hotel, eco-aesthetics parks, country parks, top-level clubs with helipads, forest SPA, indoor swimming pools, tennis courts, hiking trails and circled greenways etc., as an exclusive domain for elites.

The project is regarded as "the Spring City’s ecological and cultural metropolis." Among them, the eco-aesthetics parks set "ecological leisure culture" as its core; green country park sets "outdoor aerobic exercise" as its concept; five-star hotels and clubs are for business purpose; low density villa sets "rebuilding the living dream" as its core. They reflect four different cultural connotations and create a more ecological, healthier and comfortable human settlement.

5-star Marriott International hotel is located on the center which is a private facility for residents living around this area; ecological leisure Country Park surrounding the residential lands is the most important landscape resource and supporting facility. It maximizes the adoption of green space, improves the quality of residents’ lives. It contains a variety of landscape resources and surrounds residential area, achieving a harmonious and unified coordination among human, architecture and the environment.

With the overall development of the global architecture, Zijun Mount• Foothill City, setting the ecological rehabilitation as its starting point and advocating the concept of environmental protection, is a luxury real estate that has obtained the Global Human Settlements Award on Planning and Designing in the name of emerald habitat, leading us to a greener residential environment in the future.

中国金茂 释放城市未来生命力

China Jinmao - Arouse The Future Urban Vitality

中国金茂，隶属世界500强中国中化集团。中国中化集团公司是国务院国资委监管的国有重要骨干企业，具有全球影响力的跨国企业集团，已26次入围《财富》全球500强，2016年名列第139位。中国金茂秉承母公司“创造价值、追求卓越”的核心理念，以释放城市生命力为使命，坚持高端定位和精品路线，致力于成为中国领先的城市综合开发商与运营商。金茂品牌旗下有开发和持有两大版块。开发版块包括城市开发和府、悦、墅、山、湖、湾六大体系品质住宅开发两大业务，持有版块包括商务租赁、酒店经营、零售商业运营三大业务。

China Jinmao, belonging to the world top 500 enterprise – China SINOCHEM Group. The SINOCHEM Group Corporation is a state-owned important backbone enterprise, supervised by the state-owned assets supervision and administration commission, also it’s a multinational enterprise group which has the global influence, the group has entered the Fortune Global 500 Ranking List for 26 times and ranked at No. 139th in 2016. China Jinmao adhering to the Group companies’ core development concept of “ Creating Value and Pursing Excellence”, and setting the ideology of “Arouse The Future Urban Vitality” as the company development mission, kept insisting the development requires of high-end positioning and fine quality, and devoting to become the China’s leading urban comprehensive developer and operator. The Brand of “JINMAO” has two main sections – development business and holding business. Development section includes the city development and six quality housing development systems, which are the FU, YUE, SHU, SHAN, HU, WAN, respectively. Holding section includes business leasing, hotel management, retail business operation three business type, respectively.

湘江新区核心 长沙新中心

Core Area of Xiangjiang New City, New City Center of Changsha

梅溪湖国际新城位于国家级新区湖南湘江新区核心区，项目占地约11452亩，总建筑面积1040万平方米，国内首批“国家绿色生态示范城区”。桃花岭公园、梅溪湖等六大公园，山水洲城天资禀赋；名校环绕，健康医疗等周期配套；集商务中心、文化中心、科技中心于一体。

中国金茂作为梅溪湖一级土地开发商及运营商，在梅溪湖开发了金茂悦、金茂广场、金茂梅溪湖、金茂湾等标杆项目，还建设了梅溪湖国际研发中心、7所绿色学校，将释放城市未来生命力为使命。

Changsha Meixi Lake International New City is located in the core area of the state-level new district – Hunan Xiangjiang New City, the project covering area is about 11452 mu (i.e. 1/15 hectare), and the total construction area of 10.4 million square meters, also as one of the first generation of “National Green Ecological Demonstration Cities” in the domestic scope. The location is surrounded by tremendous natural resources, nearby six important Parks such as the Peach Blossom Hill park, Meixi lake, ect., also encircled with famous schools, health care and other cyclicity developed facilities; built the business center, cultural center, technology center as a whole.

China Jinmao as Meixi lake first level land developer and operator, it has already developed several benchmarking project surround with Meixi lake, such as Jinmao YUE, JInmao Plaza, Jinmao Meixi Lake, Jinmao Bay, etc. and also built the Meixi Lake International R&D (i.e. research and development) Center, seven green school, and set the ideology of “Arouse The Future Urban Vitality” as the company development mission.

绿色科技 金茂品质

Green Technology, Jinmao Quality

中国金茂发挥板块间协同效应，打造了以“金茂”品牌为核心的高端系列产品。“绿色科技、金茂品质”的“绿金”标准已成为“金茂”系列产品独有的优质基因及品牌内涵，并在行业中不断重新定义高端与品质。

中国金茂以“因地制宜、被动优先、高效健康”为设计理念；以绿色规划设计、绿色部品部件、绿色施工、绿色物业运营的完整产业链为依托，以开创企业绿色综合经营管理创新、引领全行业绿色低碳转型为己任，实现企业效益、环境保护与社会价值的可持续发展。

截止2015年，公司已获得绿色建筑评价标识98项，绿色建筑面积共计310万平方米，绿色节能投资累计超过2亿元人民币。以各项目所在地方建筑节能标准为基础，公司住宅项目累计年节约标煤约16,700 吨，公建每年累计节约标煤约6,600 吨。

绿色建筑设计标识
GREEN BUILDING DESIGN LABEL

China Jinmao produced a synergistic effect between different business plates, built the "JINMAO" brand as the core of high-end products. The concept of "Green Technology, Jinmao Quality" has become the "Green Gold" standard and unique brand connotation of "JINMAO" series products, and it constantly redefine the high-end and fine quality in the industry.

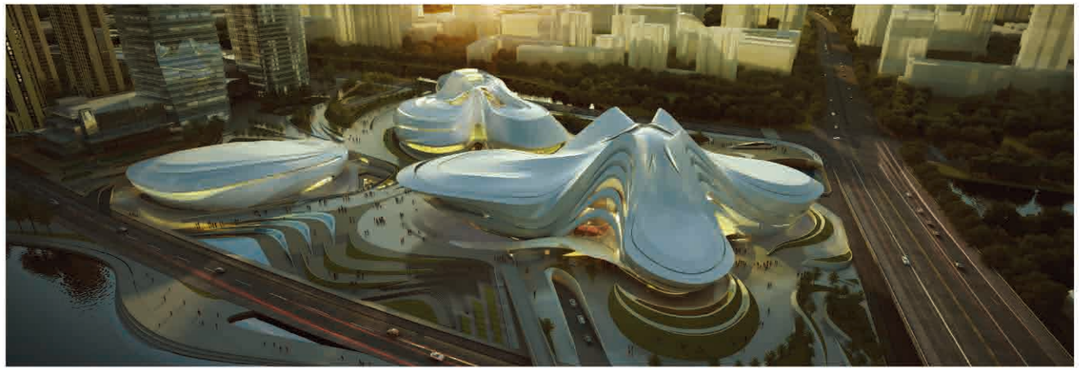
China Jinmao set the design concept of "Of using responsive measures, passive technologies,and health methods" ,through implementing the green design, green products, green construction, green property operation methodologies as the basis of complete industrial chains, to establish the company development perspectives of creating the innovation movement to the enterprise green comprehensive management, and leading the industry green low carbon transformation, in order to realize the enterprise benefits, environmental protection and the sustainable development of social values.

By 2015, the company has realize 98 certified green building evaluation projects, with total green building area of 3.1 million square meters, special investment to green energy-saving around more than 200 million RMB.

Based on the asset items local building energy efficiency standards as the basis, the residential projects contribute to accumulated energy savings about 16,700 tons of standard coal equivalent per year, the public building projects contribute to accumulated energy savings about 6,600 tons of standard coal equivalent per year.

“长沙梅溪湖国际新城”荣膺“全球人居环境规划设计奖”

Changsha Meixi Lake International New City obtained “Global Human Settlements Award on Planning and Design”



Changsha Meixi lake international new city project sets the planning and design principle of "Sustainable Development, Transport Oriented", and the planning ideology of " Harmonious City, Dynamic City, Accessible City, Green City ". During the design process,the energy saving measures are fully considered,and the concept of sustainable development is fully embodied. Building the ecological city with the integrated consideration of ecological priorities, adjust measures to local conditions, and "ecological, wisdom, culture" integration methods.

Jinmao pays great efforts to made Meixi Lake win the "Global Human Settlements Award on Planning and Design"in 2016, the worldwide prize in the field of urban construction and design phase, and hailed as “Human Settlements Oscar”.

长沙梅溪湖国际新城项目整体以“可持续发展、交通导向”为规划设计原则，以“和谐之城、活力之城、易达之城、绿色之城”为规划理念，在设计过程中，充分考虑节能措施，全面体现可持续的发展理念。打造成了生态优先、因地制宜的“生态、智慧、文化”一体化生态城区。

金茂的努力使得梅溪湖获得了2016年“全球人居环境规划设计奖”，这是目前全世界范围内城市建筑和设计领域的最高奖项，被媒体称为“人居奥斯卡”。

图片来源：Aarhus Vand/ 汤森路透基金会 Image: Aarhus Vand via Thomson Reuters Foundation

Marselisborg Wastewater Treatment Plant in Denmark.
丹麦马尔利斯堡污水处理厂

From waste to energy: Danish plant flexes the power of wastewater

丹麦创造水处理范例：污水厂变身发电厂

2003 年至 2016 年期间对新技术的投资帮助马尔利斯堡 (Marselisborg) 污水处理厂降低了 33%的电力消耗。

去年，丹麦废水处理厂的产能已经超过了其自身所需能耗，成为了名副其实的“绿色发电站”，从塞尔维亚到中国的工程师们已经排队到访取经，了解如何设法将废水转化为有价值的能源。

大多数水处理厂一将废水和污水转化为可以进入水循环的东西一消耗了大量能源，同时也力争运用新技术，以便节省电力成本，保护环境。

位于丹麦第二大城市奥尔胡斯的马尔利斯堡污水处理厂在投入 300 万欧元进行升级改造后，2016 年的能源生产量超过自身所需能耗近 70%，因此引起了国际社会的关注。

Investment in new technologies between 2003 and 2016 helped the Marselisborg plant reduce its power consumption by 33 per cent.

Since a Danish wastewater plant produced more energy than it needed last year becoming a “green power station”, engineers from Serbia to China have been lining up to learn how it has managed to turn wastewater into a valuable energy source.

Most water treatment plants - that convert wastewater and sewage into something that can go back into the water cycle - are energy hogs, with the race on to find technologies to cut electricity usage to save costs and the environment.

So international interest was piqued when the Marselisborg Wastewater Treatment Plant in Aarhus, Denmark’s second largest city, generated nearly 70 per cent more energy than it needed in 2016 following a 3 million euro ($3.2 million) upgrade.

This put Aarhus on track to become the first city in the world to provide and pump fresh water to all its citizens from energy created solely from household wastewater and sewage, escalating interest in how to make wastewater into a resource.

“We are only using the potential of wastewater,” Per Overgaard Pedersen, a chief engineer at Aarhus Vand, the water company that runs Marselisborg, told the Thomson Reuters Foundation in a phone interview.

“We’re not using heat pumps, wind mills … like many other places.”

The Marselisborg plant says it became energy self-sufficient by extracting carbon from wastewater and sludge and pumping it into digesters with bacteria to produce biogas, mostly methane, that is burned to make heat and electricity.

We are only using the potential of wastewater. We’ re not using heat pumps, wind mills ··· like many other places.

--Per Overgaard Pedersen, chief engineer, Aarhus Vand

“我们只是利用废水的潜力”，奥尔胡斯水务公司首席工程师 Per Overgaard Pedersen 在接受路透基金会电话采访时说道，“我们不像其他地方一样使用热泵、风力发电机。”

We are only using the potential of wastewater. We’re not using heat pumps, wind mills … like many other places.

--Per Overgaard Pedersen, chief engineer, Aarhus Vand

这使得奥尔胡斯成为世界上第一个通过处理家庭污水和废水生产能源，向所有市民提供淡水的城市，这极大地提高了大家对如何使废水转变为资源的兴趣。

“我们只是利用废水的潜力”，奥尔胡斯水务公司首席工程师 Per Overgaard Pedersen 在接受路透基金会电话采访时说道，“我们不像其他地方一样使用热泵、风力发电机。”

马尔利斯堡厂透露，他们是通过从废水和污泥中提取碳并将其输送到具有细菌的分解池，产生沼气，主要是甲烷，然后进行燃烧生产热量和电力，从而实现能源自给自足。虽然这个处理过程并不新颖，但是最后的效果非常好，马尔利斯堡处理厂把这归因于他们对新技术和量身定做的设备的投资，以阻止泄漏并降低维护成本。

Pedersen 表示，2003 年至 2016 年期间对新技术的投资帮助马尔利斯堡污水处理厂降低了 33%的电力消耗。“对于像我们这样的处理厂来说，这非常重要”，他说。

国际关注

马尔利斯堡污水处理厂被誉为废水变革的范例，引起了国际社会的关注。位于巴黎的国际能源机构在其《2016 年世界能源展望》中将马尔利斯堡作为未来通过废水处理实现能源中和的典型案例。

联合国在上个月的《2017 年世界水资源发展报告》中表示，废水不应被视为一个问题，而应是一种有价值的资

International focus

Marselisborg is being heralded as an example and attracting international attention as the attitude towards wastewater changes.

The Paris-based International Energy Agency in its “World Energy Outlook 2016” singled out Marselisborg as an example of how wastewater treatment can be energy neutral in the future.

The United Nations, in a 2017 World Water Development Report last month, said wastewater shouldn’t be seen as a problem but rather as a valuable resource which could help meet the demands for water, energy and nutrients.

Energy efficiency is important for utilities like Aarhus

源，能够满足我们对水、能源和营养的需求。能源效率对像奥尔胡斯水务公司这样的公共事业单位很重要，因为它可以降低成本并有助于保护环境。

美国环境保护局（EPA）表示，电力占水务公司预算的 25%至 40%，而全天候运行的机器可能是社区温室气体排放最大的因素之一。

马尔利斯堡每年处理 30 万客户产生的超过 3000 万立方米的废水，使用其生产的能源来运行废水泵，并向客户提供清洁水源。过剩的热量和能源一相当于 500 户家庭的能源消耗一正在向当地电网出售，这创造了额外的收入。

该工厂每年生产 2.5 千兆网热量，输送到当地的区域供热系统，加上剩余电力，这相当于废水处理和供水所需能源总量的 99%。Pedersen 说：“把这部分计算在内，我们可以将运营成本降低约 3%至 4%。”

来到马尔利斯堡学习经验的参观者来自各国，远至南非，但是 Pedersen 表示，我们工厂的模式并不一定适用于所有地方，特别是小型的处理厂，人口当量较少。他说：“这对于小型工厂来说难度很大，因为这其中需要对分解池进行昂贵的投资。基于我们在丹麦的情况，估计拥有 10 万的人口当量，投资才可行，但是也取决于工厂的设施和当地的环境。”

来源：汤森路透基金

Vand because it can cut costs and aid the environment.

The US Environmental Protection Agency (EPA) says electricity accounts for 25 to 40 per cent of water utilities' budgets, while the machinery running all day can be one of the biggest contributors to greenhouse gas emissions in a community.

Marselisborg, which annually treats more than 30 million cubic metres of wastewater from its 300,000 customers, uses the energy it generates to run sewer pumps and to pump clean water to its customers.

Excess heat and power - the equivalent of energy consumption of 500 households - is being sold to the local grid, providing additional income.

The plant produces 2.5 gigawatt (GW) of heat per year that it feeds into the local district heating system, which - combined with the surplus electricity - equals 99 per cent of total energy needed for wastewater treatment and water supply.

"Taking that into consideration has made it possible to reduce our operational cost by approximately 3 to 4 per cent," Pedersen said.

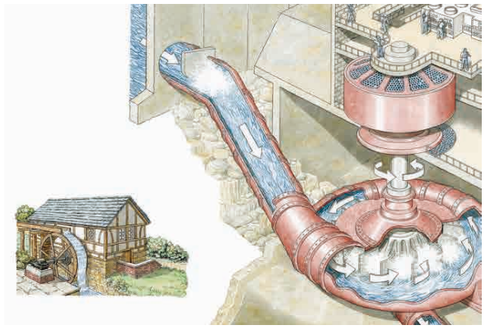
Although visitors from countries as far-flung as South Africa have come to learn from Marselisborg experience, Pedersen said adapting the plant's model might not work for everyone, especially smaller plants with less consumers.

"It's going to be difficult because for a smaller plant it will probably be too expensive to do the investment in the digesters," he said.

"In our context here in Denmark I think 100,000 persons would be a good guess (for the investment to be feasible) but it simply depends on what facilities you have in the plant and the local context."

By Magdalena Mis

Source: The Thomson Reuters Foundation



CONFERENCE

会 议 活 动

Asia-Pacific Forum on Sustainable Development 2017 Successfully Convened in Bangkok, Thailand

2017 亚太可持续发展论坛在泰国曼谷成功举办

联合国副秘书长兼亚太经社理事会执行秘书沙姆沙德·阿克塔尔博士致开幕词
Dr. Shamshad Akhtar, UN Under-Secretary-General and Executive Secretary of ESCAP delivering the opening remarks

Asia-Pacific Forum on Sustainable Development 2017 Successfully Convened in Bangkok, Thailand

2017 亚太可持续发展论坛在泰国曼谷成功举办

本刊编辑部 / By the Editorial Office

以“在变革中的亚太地区消除贫困和促进繁荣”为主题的 2017 第四届亚太可持续发展论坛（简称 APFSD 2017）3 月 29 日至 31 日在泰国曼谷联合国会议中心成功举办。本届论坛致力于在亚太地区有效实施《2030 年可持续发展议程》，其成果建议将为 2017 年 7 月在纽约召开的可持续发展高级别政治论坛的全球辩论提供借鉴和参考。

出席本届论坛的重要嘉宾有联合国副秘书长兼亚太经社理事会执行秘书沙姆沙德·阿克塔尔博士、 斯里兰卡可持续发展与野生动植物部部长、第三届 APFSD 主席加米尼·加亚维克雷玛·佩雷拉阁下、 印度尼西亚国家发展规划部部长班庞·贝玛迪阁下、泰国外交部长敦·帕马威奈阁下、联合国经社理事会副主席纳比勒·穆尼尔先生等。亚太地区 60 多个国家和地区的政府高级代表、联合国系统代表、地方政府和民间社会代表 300 余人出席会议。

Pursuant to ESCAP resolution 72/6 Committing to the effective implementation of the 2030 Agenda for Sustainable Development, the fourth session of the Asia-Pacific Forum on Sustainable Development (APFSD 2017) themed as ‘Eradicating poverty and promoting prosperity in a changing Asia-Pacific’ was productively held from 29 to 31 March 2017, at the UN Conference Centre in Bangkok, Thailand. The conclusions and recommendations of the forum will also inform the global debate at the High-level Political Forum on Sustainable Development, to be convened in New York in July 2017.

Some of the high-level distinguished guests include Dr. Shamshad Akhtar, UN Under-Secretary-General and Executive Secretary of ESCAP, H.E. Mr Gamini Jayawickrema Perera, Chair of the Third APFSD, Minister of Sustainable Development and Wild Life, Sri Lanka, H.E. Mr. Bambang Permadi Soemantri Brodjonegoro, State Minister, National Development Planning, Indonesia, H.E. Mr. Don Pramudwinai, Minister of Foreign Affairs, Thailand, H.E. Mr. Nabeel Munir, Vice President of the Economic and Social Council, among others.

In total, the forum brought together more than 300 participants from over 60 countries in Asia-Pacific including senior leaders from national and local governments, United Nations, civil society, business and the international community.

全球人居环境论坛（GFHS）代表团应邀出席了此次论坛。由 GFHS 推荐，广西钦州市人民政府李从佳副市长出席会议，并在市长论坛上分享了钦州市在扶贫、促进繁荣和可持续发展领域取得的业绩和成功经验，得到大会的高度认可，为本次论坛做出了贡献。联合国副秘书长兼亚太经社理事会执行秘书沙姆沙德·阿克塔尔博士亲切会见

广西钦州市人民政府李从佳副市长分享钦州扶贫发展的成功经验
Mr. Li Congjia, deputy mayor of Qinzhou, Guangxi sharing experience in poverty relief

Global Forum on Human Settlements (GFHS) delegation attended the forum by invitation. Recommended by GFHS, city of Qinzhou led by deputy mayor Mr. Li Congjia joined the forum and participated in the Mayor’s Panel by sharing the experience and achievement on eradicating poverty and promoting prosperity in Qinzhou, which has made contribution to the forum and was thus highly regarded. In the meanwhile, GFHS delegation was warmly received by Dr. Shamshad Akhtar, United Nations Under Secretary General and Executive Secretary of ESCAP who spoke highly of GFHS’ long-term support to promote sustainable urban development. Two parties have also discussed the ideas and plans to strengthen the future

APFSD 2017 开幕式现场 Opening of APFSD 2017

宾主亲切合影：左起李从佳副市长、沙姆沙德·阿克塔尔博士、吕海峰秘书长、钦州市扶贫办张炳东主任

From left: Deputy Mayor Li Congjia, Dr. Shamshad Akhtar, GFHS Secretary General Lu Haifeng, and Zhang Bingdong, Director for Poverty Alleviation Office, Qinzhou

沙姆沙德·阿克塔尔博士与吕海峰秘书长一行亲切交流

Dr. Shamshad Akhtar meeting with GFHS delegation

了 GFHS 秘书长吕海峰和钦州市李从佳副市长一行。阿克塔尔博士对 GFHS 长期推动可持续城市发展的努力表示赞赏。双方还就亚太经社理事会和 GFHS 未来深化合作、推动亚太可持续城市发展的活动计划进行了讨论，达成了共识。

2017 亚太可持续发展论坛是在亚太地区实施《2030 年可持续发展议程》的主要区域性政府间论坛，强调可持续发展目标的地区化、伙伴关系和利益相关者的参与，重点就以下方面开展对话：（1）关于实施、跟进和回顾《2030 年可持续发展议程》的区域观点，包括探讨论坛主题和可持续发展目标 1、2、3、5、9、14 和 17，以及 2017 年可持续发展高级别政治论坛将讨论的一系列目标；（2）在亚太地区加强实施《2030 年可持续发展议程》，包括审议通过在亚太地区实施《2030 年可持续发展议程》的区域路线图。

cooperation between GFHS and ESCAP on driving sustainable development in the region, and arrived at consensus in that regard.

APFSD 2017 is the principal regional intergovernmental forum on implementing the 2030 Agenda for Sustainable Development in Asia and the Pacific, and emphasized the localization of SDGs, strengthening partnership and involving all relevant stakeholders. This year, the forum was focused on (1) Regional perspectives on the implementation, follow-up and review of the 2030 Agenda for Sustainable Development, including in depth review of the theme and SDGs: 1, 2, 3, 5, 9 and 14 and 17, the cluster of goals to be discussed by the High-level political forum on sustainable development (HLPF) in 2017; and (2) Strengthening implementation of the 2030 Agenda for Sustainable Development in the Asia-Pacific, including the consideration of a draft regional road map for implementing the 2030 Agenda in Asia and the Pacific, with a view to strengthening implementation efforts.

各国各界代表发言 *Representatives from member states and all circles*

闭幕式上，亚太国家通过了实施《2030 年可持续发展

Some 400 million people in Asia and the Pacific live in extreme income poverty and more than 1 in 4 people experience poverty in multiple dimensions – these include health, education and living standards. APFSD 2017 specifically discussed good practices and effective interventions to eradicate poverty and promote prosperity in the region.

At the closing of the Forum, Asia-Pacific countries have adopted a road map for regional cooperation on implementing the 2030 Agenda for Sustainable Development. The road map lays out priority areas, implementation arrangements and a process for tracking progress on the Sustainable Development Goals (SDGs), building on the agreements reached at the last two APFSD meetings. It will, with the support of

议程》的地区合作路线图。路线图列出了可持续发展目标（SDGs）的优先领域、实施安排和跟踪进展情况，将在联合国亚太经社理事会的支持下，促进区域合作，重点关注社会发展、防灾减灾、减少气候变化、自然资源的管理、连通性和能源等领域。

路线图特别强调在发展中国家、最不发达国家、内陆发展中国家、小岛屿发展中国家和其他有特殊需要的国家支持执行 2030 年议程，同时还概述了跟踪 SDGs 进展的方法。

路线图还认识到可持续发展必须以和平和包容性社会为基础，解决不平等，提倡善政。将性别平等和赋予妇女权力置于区域政策议程的中心，以加强妇女在社会各个方面的领导和决策。

沙姆沙德·阿克塔尔博士在闭幕式上说道：“今年论坛的磋商和达成的协定为巩固区域联合行动和有效合作打下了基础，有利于共同应对 2030 议程下的跨领域问题，重点是消除贫困和促进繁荣。”

the United Nations Economic and Social Commission for Asia and the Pacific, (ESCAP), facilitate regional level cooperation with a focus on the means of implementation of the SDGs and in the thematic areas of social development, disaster risk reduction, climate change, management of natural resources, connectivity and energy.

“While the countries of the Asia -Pacific are forging ahead in this common endeavor, much work remains to bring about the transformations needed. In the years to come, through the APFSD, ESCAP will continue to support crucial dialogue among member States, to share experiences and to strengthen implementation,” she added.

The road map places particular emphasis on supporting implementation of the 2030 Agenda by developing countries, least developed countries, landlocked developing countries, small-island developing States and other countries with special needs. It also outlines a process for tracking progress on the SDGs.

The road map also recognizes that sustainable development must be underpinned by peaceful and inclusive societies, addressing inequality, and by good governance. Gender equality and women's empowerment are placed at the centre of the regional policy agenda in order to enhance women's leadership and decision-making in all aspects of society.

“The APFSD deliberations and agreements reached this year have cemented the foundation for a concerted and effective regional response to address cross-cutting issues under the 2030 Agenda, with a focus on eradicating poverty and promoting prosperity,” said United Nations Under Secretary General and Executive Secretary of ESCAP Dr. Shamshad Akhtar. WBPR

曼谷联合国亚太会议中心宜人的庭院
Pleasant courtyard, UN Conference Center, Bangkok, Thailand

FIGURE 人物视界

Sustainability Experience from Mannheim
– Exclusive Interview with Dr. Peter Kurz, Lord Mayor, City of Mannheim, Germany
曼海姆市的可持续发展经验
——专访德国曼海姆市市长彼得·库尔兹（Peter Kurz）博士

Sustainable Urban Development in Cape Town
– Exclusive Interview with Patricia de Lille, Mayor of Cape Town, South Africa
开普敦的可持续城市发展
——专访南非开普敦市市长帕特丽夏·狄莉儿（Patricia de Lille）女士

Warm the World with Geothermal Energy
– Dr. Li Zhenhan and His Geothermal Energy World
让地热能温暖世界
——李振函博士和他的地热王国

图片来源：曼海姆市 / 丹尼尔·卢卡科 Photo: City of Mannheim/ Daniel Lukac

创意产业中心 An entrepreneurship and founding center for creative industries (C-HUB).

Sustainability Experience from Mannheim

– Exclusive Interview with Dr. Peter Kurz, Lord Mayor, City of Mannheim, Germany

曼海姆市的可持续发展经验

——专访德国曼海姆市市长彼得·库尔兹（Peter Kurz）博士

本刊编辑部 / By the Editorial Office

WBPM: 非常感谢库尔兹市长接受我们的专访。首先，请您简要介绍一下曼海姆市，特别是它有什么独特的城市景观？

市长：曼海姆是一个非常多元化和富有创新性的城市。有来自 170 多个国家的人们在这里居住生活。小汽车（1886 年）和自行车（1817 年）都是在这里发明的。曼海姆是创意产业的枢纽，也是科技企业的集聚地，特别是医药科技企业的聚集地。曼海姆处在欧洲中部，在莱茵河和内卡河的交汇处，位于帕拉提尼亚葡萄园（也称为德国托斯卡纳）和奥登瓦尔德山之间，毗邻浪漫的海德堡市。

WBPM: Thank you mayor Kurz, for setting time aside for this interview. First, could you briefly describe what kind of city Mannheim is, especially its unique urban landscape?

Mayor: Mannheim is a very divers and innovative city. People from more than 170 Nations are living here. The car (1886) and the bicycle (1817) were invented here. We are a hub for the Creative Industry and a Techcluster especially in the Medicine Industry. Mannheim is located in the middle of Europe at the confluence of the River Rhine and the River Neckar, between the Palatinian wineyards (also called the Toscana of Germany) and the Hills of the Odenwald with the Romantic Heidelberg.

> 我们的城市管理基于 8 个战略目标：激发城市化活力、吸引人才、做强企业、培育宽容、提高平等的教育机会、增强创造精神、鼓励参与和增加资产。
>
> Our city administration is based on 8 strategic objectives: vitalizing urbanity, attracting talent, strengthening enterprises, cultivating tolerance, enhancing equal educational opportunities, enhancing creative spirit, encouraging engagement and enhancing assets.

市长彼得·库尔兹博士 Mayor Dr. Peter Kurz

WBPM: 过去十年，在您的领导下，曼海姆被誉为绿色宜居的城市。请您谈一下地方政府为提高生态可持续性所制定的计划。

市长：曼海姆市已经制定了一系列侧重城市规划、开放空间和植被恢复的战略计划。通过致力于兑现“市长公约”和“市长契约”，曼海姆市正在提高适应气候变化不利影响的能力，促进气候恢复能力和减少温室气体排放量，力争到 2020 年实现比 1990 年二氧化碳排量减排 40% 的目标。曼海姆的城市发展和绿色发展也面临着巨大的新挑战，大量前军事用途区域在军队撤离之后成为了废弃之地。然而，这同时为消除城市与自然之间的障碍提供了新的潜力，通过植被恢复缩小绿色走廊内的缺口，同时也改善该市在夏季高温期间的气候条件。此外，另一个重大挑战是整合现有的规划，如东北绿色走廊和全国园林展览会（BUGA23）。有了东北绿色走廊，公民将获得一个巨大的、连接性强的绿地，它能与城区想通，为全市提供新鲜空气。通过将城市绿化和开放空间与创新性生活和文化相结合，改造区斯皮内利（Spinelli）就成为了市民未来生活之所的典范，配套有无障碍系统、城市园林、自行车和人行道。

曼海姆市正在以“曼海姆气候足迹（MANNHEIM AUF KLIMAKURS）”为口号积极致力于提高气候保护，并在策略上将能源和气候保护与政治措施联系在一起，从而更加突出对气候保护的重视。曼海姆市当前处于一个特殊的时期，需要特别负责任地执行能源供应、高效建筑和可持续交通的创新理念，这些是气候保护战略的一部分，同时在

WBPM: Under your leadership over the past decade, Mannheim has become known as a green and livable city. Please share some information on the local programs aimed at enhancing the ecological sustainability.

Mayor: The City of Mannheim has developed a bundle of strategic plans for urban planning, open spaces and renaturing so far. By committing to the Covenant of Mayors and the Compact of Mayors the City of Mannheim is increasing the ability to adapt to the adverse impacts of climate change and fosters climate resilience and low greenhouse gas emissions development with the target of 40% CO_2-reduction till 2020, based on 1990. Mannheim's urban and green development faces new challenges by huge, former military used, free becoming brownfield areas, which offer new potentials for dissipating the barrier between city and nature, for closing the gaps within the green corridors by renaturing, and at the same time improving the city's climate during heat waves periods in summer. A special challenge is to integrate existing plans like the green corridor North-East and the national garden exhibition BUGA23. With the green corridor North-East the citizens will get a huge, connected green area, interfacing urban quarters and providing a fresh air supply for the entire town. By interlocking urban green and open spaces with innovative living and culture the

曼海姆滨水区多姿多彩的城市生活
Diversity and urban life quality happening along the Mannheim waterfront

生态上也促进城市发展。该市已经成功建立了“曼海姆气候足迹”战略咨询结构、资助计划和行动范围，并与利益相关者建立关系网，加强合作与沟通，促使公众广泛参与到建设绿色宜居城市的行动中来。本地推行的私人房屋翻新计划和屋顶及外墙绿化计划均由该市资助。该市重点塑造为一个关注自身影响的行为榜样，这具体表现在可持续区域发展、加强气候保护意识和承诺以及企业对可持续经济活动的奉献。

WBPM: **您能介绍一下曼海姆的智慧城市战略、行动及成果吗？**

市长：我们的城市管理基于 8 个战略目标：如何提高曼海姆的吸引力、创新能力、效率和可持续性。具体来说，对于现代大都市，这 8 个战略目标包括：激发城市化活力、吸引人才、做强企业、培育宽容、提高平等的教育机会、增强创造精神、鼓励参与和增加资产。

可能让你感到惊讶的是：战略目标中并不包含“智慧城市”这个词。然而，现有的组织架构都包括智慧城市的方方面面（例如，智慧能源、智慧生活、智慧生产、智慧健康等）。许多利益相关者已经联合起来，正在密切合作来实施智慧城市的概念。

我想强调的是，市政府不能单独管理和实施智慧城市的所有概念。经济和城市社区也是关键所在。这个重要任务只能一起实施，确保数字化只会提高生活质量和促进社会繁荣，而不会带来任何问题。

值得高兴的是，我们的各种活动正在国内外引起关注。新经济学人将曼海姆列为全球 20 个最智慧城市之一。 预测未来（Prognos Future）研究所将曼海姆列为德国十大数字化城市之一。

这两个例子说明了曼海姆已经成为数字化和智慧城市概念的热门地区：在前军事地区本杰明 • 富兰克林村，将为 9,000 名居民建造一个新区。富兰克林村的开发建设将配套有许多智慧城市技术：智能照明、分散式能源管理（智能电网）、电动公交车和共享电动汽车车队等。

第二个例子是与当地经济的互动。为了使生产行业更加智能化，我们建立了支持智能创新的“智能生产网络”。其成员包括灵活的初创公司、创新型大学和数字化全球企业如 ABB，Pepperl + Fuchs 和 SAP。其共同目标是使曼海姆和莱茵内卡区域变得更加智慧化。

conversion area Spinelli could be a role model for future live, for barrier-free systems, urban gardening and cycle and footways for all citizens.

The City of Mannheim is actively committing itself to greater climate protection under the slogan “MANNHEIM ON CLIMATE TRACK (MANNHEIM AUF KLIMAKURS)” and bundles energy and climate protection political measures strategically and make them much more visible. The City of Mannheim considers itself to be in a special position and with special responsibility to implement innovative concepts for the supply of energy, efficient construction and sustainable mobility as part of its climate protection strategy and in doing so drive urban development ecologically. The City has successfully built up a structure for advice, funding schemes and scope of action with the strategy "MANNHEIM ON CLIMATE TRACK" with the result to network stakeholders, strengthen cooperation and communication as well as enable broad-based involvement and participation for a green and livable city. Local promoting programs for refurbishment private houses and for greening the roofs and facades are financed by the city. The City is focusing on its own effect as a role model, sustainable district development, strengthening climate protection awareness and commitment as well as the dedication of companies to sustainable economic activity.

WBPM: **Could you please introduce the smart city strategies, actions and achievements in Mannheim?**

Mayor: Our city administration is based on 8 strategic objectives: how to increase Mannheim's attractiveness, innovative ability, efficiency and sustainability. In detail these 8 strategic objectives for a modern metropolis include vitalizing urbanity, attracting talent, strengthening enterprises, cultivating tolerance, enhancing equal educational opportunities, enhancing creative spirit, encouraging engagement and enhancing assets.

What might surprise you: the term "smart city" is not included in the strategic objectives. Instead, various smart city aspects (for example, smart energy, smart living, smart production, smart health, etc.) are integrated in existing organizational structures. Many players have joined forces and are working closely together on the implementation of smart city concepts.

I would like to emphasize that a city administration cannot manage and implement all concepts of smart cities alone. Economy and urban community are central actors, too. This important task can only be tackled together, ensuring that the digitalization does not create problems but increases quality of life and prosperity.

I am very pleased that our diverse activities are attracting national and international attention. The New Economist counts Mannheim among the 20 smartest cities in the world. The Prognos Future studies counts Mannheim as one of the TOP10 cities of digitalization in Germany.

Two examples demonstrate how Mannheim has become a hotspot for digitalization and smart city concepts: On the former military area Benjamin Franklin Village, a new district will be built for 9,000 inhabitants. Franklin will be developed with a lot of smart city-technologies: intelligent lighting, decentralized energy management (smart grids), electric buses and e-carsharing-fleet.

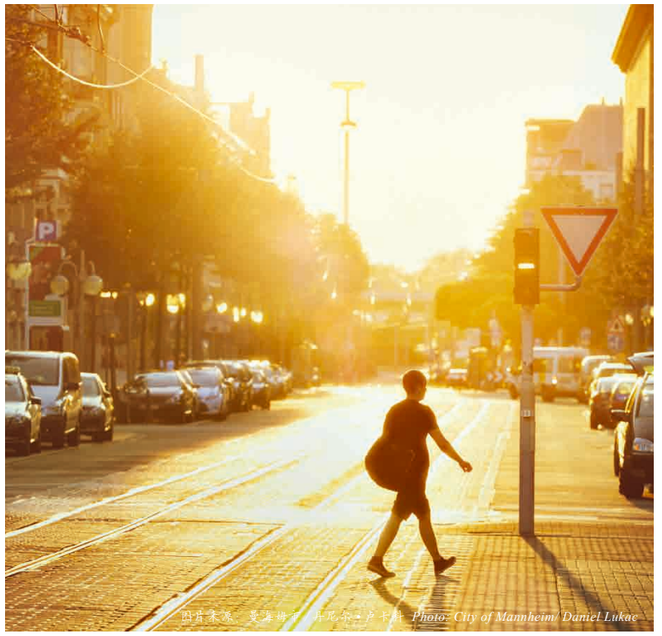
The second example concerns the interaction with the local economy. In order to make the production industry smarter, we have developed the “Network Smart Production”, which supports smart innovations. Agile start-ups, innovative universities and global players of digitalization such as ABB, Pepperl+Fuchs and SAP are members .The common goal is to make Mannheim and the Rhine-Neckar region smart.

WBPM: **Mannheim has rich experience on wastewater treatment. Could you elaborate more on this area?**

Mayor: With a daily average rate of 96,000 m³ of clarified wastewater and a designed size of 725,000 population equivalents the wastewater treatment plant Mannheim is part of the biggest installations in Germany. Since 2003 our wastewater department has been certified under the environmental and quality standards ISO 9001 and 14001.

Beside the usual treatment steps, so mechanical, biological and chemical clarification, we installed a forth treatment step in order to remove residues from micro pollutants like pharmaceuticals, contrast media, hormones, antibiotics and chemical additives. We were the first treatment plant in Germany which realized a full-scale installation for this new kind of progressive wastewater clarification by dosing activated carbon powder.

A clarification plant needs huge amounts of energy (electricity and heat) to operate. By introducing a large number of measures (cogeneration plants, photovoltaics, hydropower) and permanently increasing the energy efficiency, the wastewater department is gradually approaching its future goal of operating the clarification plant as a self-supplying system. For



交通是城市最重要的挑战之一
Mobility as one of the most important challenges of urbanity

曼海姆污水处理项目 *Waste water treatment plan Mannheim*

WBPM: **曼海姆拥有丰富的污水处理经验。您能在这方面多谈一下吗？**

市长：曼海姆污水处理厂每日平均能够处理污水 96,000 立方米，设计规模为能够满足 72.5 万人口生活居住需要，也是德国最大的污水处理厂之一。自 2003 年以来，我们的污水处理部门已通过 ISO 9001 和 14001 环境和质量标准认证。

除了通常的处理步骤，即机械、生物和化学净化措施之外，我们安装了第四步处理设施，旨在清除水中微量污染物的残留物，如药物、造影剂、激素、抗生素和化学添加剂。我们是德国的第一家拥有完整设施的处理厂，这种新型渐进式污水净化方法需要配量使用活性炭粉。

污水处理厂运行中需要耗用大量的能源（电力和热能）。通过采用多种措施（热电联产、光伏发电、水力发电）和永久提高能源利用效率，污水处理部门逐渐实现在未来采用自供电系统进行净化车间运作的目标。例如，将来有意利用热电联产厂的废热来干燥脱水污泥。在采用多种措施之后，二氧化碳排放量每年将减少约 4 万吨。

WBPM: **您能介绍一下曼海姆的城市更新和城市发展促进计划吗？到目前为止已经取得了哪些成果？**

市长：曼海姆的城市发展特别着重于将前美国军事区转变为新城区和多样化城区。曼海姆的愿景是“突出的城市风格和开放空间”， 曼海姆面临的重大挑战是如何将 500 万平方米的前美国军事区转变为新城区。曼海姆重建局（MWSP）跟踪这些军事区的收购、定性开发和营销工作。在美国军方离开之后，这些地区归联邦房地产研究所（BImA）所有。因此，这五块区域（图雷、泰勒、弗兰克林、斯皮内利、科尔曼）已经由并且必须由曼海姆重建局回购。将图雷地区规划为城市、文化和公共生活和工作空间，而将泰勒规划化为一个带有绿色走廊的高质量、创新工业园区。弗兰克林，面积 143 公顷，是前美国军事区中最大的地块，被改建为一个可容纳 9000 人的新城区和多样化城区。在“蓝村弗兰克林”的所在地，这一地区将规划为城市、节能和电动车基地。此外，弗兰克林的发展是基于社会和文化多样性以及包容性和宽容性的价值观。弗兰克林将成为所有人的住区。这就是其基础设施、公共空间和服务需要特别考虑残疾人或需特别照顾人群的需要。由于对房地产投资的需求很大，几乎所有的地区都在挂牌销售了。

example there is the future intention to dry the dewatered sludge by utilization of waste heat from the cogeneration plants. After realizing the package of measures the CO_2 emissions will be reduced by about 40,000 tons per year.

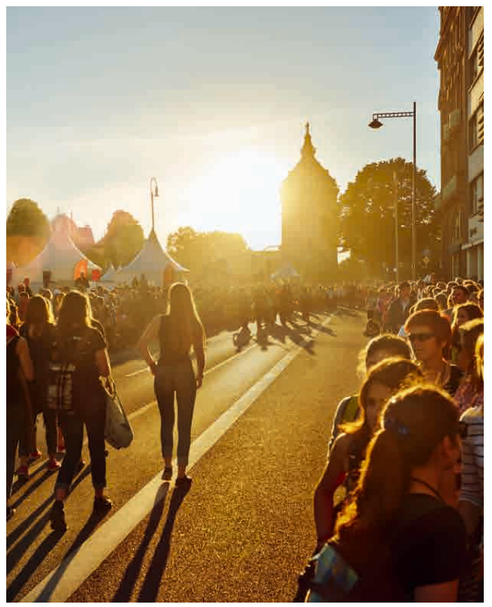
WBPM: Would you please introduce to us the urban renewal and associated urban development promotion programme in Mannheim? What have been achieved so far?

Mayor: Urban development in Mannheim focuses currently particularly on the transformation of former US military areas into new, urban and diverse city quarters. With the vision “strong urbanity and open spaces”, Mannheim faces the challenge of converting five million square metres of former US military grounds into urban areas. The Mannheim redevelopment Agency (MWSP) tracks the task of acquisition, qualitative development and marketing of these grounds. After the American military left, the areas came into possession of the Institute for Federal Real Estate (BImA). For that reason the five areas (Turley, Taylor, FRANKLIN, Spinelli, Coleman) had and have to be repurchased by the MWSP. While the Turley Areal is planned as an urban, cultural, public mixed-living and working space, Taylor is conceptualized as a high quality, innovative and industrial campus with a green corridor. FRANKLIN, with 143 hectare the largest former US housing estate, is converted into a new, urban and diverse city quarter for 9,000 people. Under the premise “Blue Village FRANKLIN” the city quarter is planned as an urban, energy-efficient, electromobile quarter. Besides, the development of FRANKLIN is based on the values of social and cultural diversity as well as inclusion and tolerance. FRANKLIN will be a quarter for everyone. That´s why infrastructures, public space and services takes in particular people with handicap or in need of special care into consideration. As there is a high demand for real estate investments nearly all grounds are marketed.

WBPM: **据报道，曼海姆的公民特别具有社区意识，他们也得到城市的特别支持。在这方面，能否提供一些具体的例子，以及您对其他城市有什么建议？**

市长：建立公民参与结构框架，通过民主参与体验持续性地促进公众利益取向。也就是说，从小就开始体验政治和参与其中，曼海姆多年以来一直在推进儿童和青少年参与的新模式。

在我看来，至关重要的是，制定高标准，鼓励公民参与，从而巩固当地民主和避免破坏民主。



WBPM: It is reported that Mannheim's citizens are extraordinarily community-minded people and they are supported by the city to a special degree. Please kindly give us some specific examples in this regard, and what are your recommendations for other cities?

Mayor: The creation of civic participation structures that sustainably promote public interest orientation through experiences of democratic participation possibilities have decisively attributed to this result. That is: Experiencing politics and participation from an early age onwards, Mannheim for example has been promoting a new model of children and youth participation for some years now.

Crucial in my opinion is that high standards are applied to the implementation of citizen participation in order to stabilize local democracy and avoid frustration.

As a municipality we support citizen participation and engagement with dependable structures, professional advice, training courses and specific contact persons in the Mannheim’s administration. That may be the most important aspect; being a contact, initiating a dialogue between the administration, politics and citizens and actively searching for exchange and debate, and as such eliminating the barriers between administration, politics and citizens. Currently we are working on a regulation for citizen participation as well as various offers such as a web-based platform for ideas.

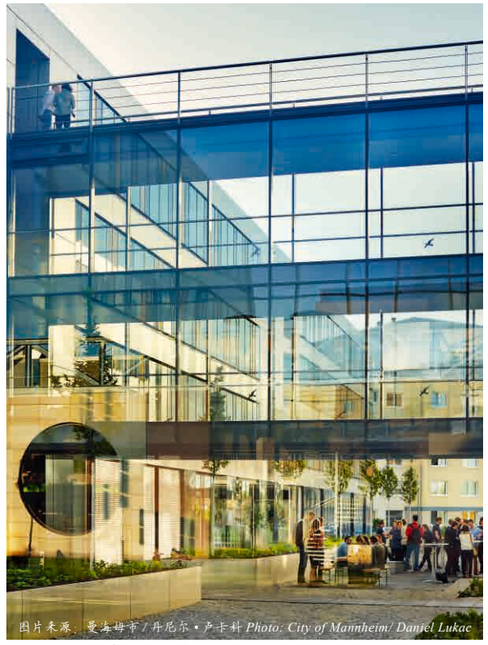
Another example for the shared responsibility for our city is ”Mannheim’s declaration for life together in diversity”. The great majority of Mannheim’s society further enhanced this declaration in a broad participation process. The declaration demands that the citizens of Mannheim actively promote mutual appreciation and personal encounters– an important step for Mannheim’s society. More than 140 institutions have already committed themselves to this declaration – from the Muslim community to global active companies.

作为市政当局，我们支持公民参与和参加曼海姆政府的可靠架构建设、专业咨询、培训课程和成为具体联系人。最重要的方面可能是：成为联系人、开展政府、政治和公民之间的对话、积极寻求交流和辩论，从而消除政府、政治和公民之间的隔阂。目前，我们正在制定公民参与方面的规章制度，并提供诸如网络建议平台等各种提议。

共同承担城市责任的另一个例子是“多样性共同生活曼海姆宣言”。曼海姆的绝大多数组织在广泛参与过程中进一步强化了这一宣言的作用。宣言要求，曼海姆公民积极促进相互了解和面对面交流——这是促进曼海姆社会发展的重要一步。 140 多个机构已经承诺致力于实现这一宣言——从穆斯林社区到全球活跃的公司。

WBPM: **由于其积极的经济创新环境，曼海姆曾经当选为最能代表未来世界 20 大城市之一。在这方面，请您谈一些该市的政策、举措和经验。**

市长：未来的经济将与过去的经济和我们现在熟悉的经济完全不同。商业模式将发生根本性改变。数字企业家将主宰整个经济，带来颠覆性的商业案例。通过建立现代创业生态系统，曼海姆为企业家提供了一个良好的平台。为了实现创业城市这一目标，我们建立了最有效和最多样化的机制来支持德国的初创企业，尤其支持医疗技术、高科技、IT 和创意领域的创业公司。我们拥有八个创业中心和广泛的配套项目，如补助、咨询和资金以及与国际创业公司和创新者相关联的城市氛围，这为年轻企业家提供了最完美的创业条件。



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促进企业发展 *Strengthening enterprises*

WBPM: Mannheim was once elected under the 20 cities that best represent the world of tomorrow emphasizing Mannheim's positive economic and innovative environment. Please help us learn more about the city's policies, initiatives and experiences in this aspect.

Mayor: The economy of the future will be totally different from the economy of the past and the economy we know now. Business-models will change basically. Digital-entrepreneurs will rule the economy with disruptive business-cases. Mannheim provides a platform for these entrepreneurs by building a modern startup-eco-system. On behalf of the goal, being a startup-city, we established one of the most effective and diverse structure to support startups in Germany focused on Med-Tech, High-Tech, IT and Creative Business. With eight startup-centers and a wide range of supporting-programs such as grants, consulting and funding and an urban atmosphere which is connected to - also international - startups and innovators, we have perfect conditions for young entrepreneurs.

WBPM: What do you think about the New Urban Agenda that was adopted at Habitat III last October? Please share with us some ideas about implementing the New Urban Agenda in Mannheim.

Mayor: First of all, I have great respect for the achievements of the global community to work out conjointly a paper on urban sustainable development of our cities in a long and intensive working process and to finally adopt this document. This is not trivial. Even though, I would have preferred to see the cities, which are mainly concerned by the New Urban Agenda (NUA), in a stronger leading role in the development process of this paper, I can find many aspects that I, as the Mayor of my city, consider as important.

Only the role of art and creativity for sustainable development of our cities is underrepresented in this paper, as I have already mentioned it during the World Mayors Assembly in Quito upon general approval of the attendees. We know from our own experiences as well as from reliable scientific research that these issues play a significant role in the development of our cities, and even for our societies. In this regard, an increased focus is set on Cultural Diplomacy as one instrument for problem solving processes in a globalized world – to give just one example. In this context, a strong representation of these aspects in the NUA would have been an important and profound signal, by replacing old strategies that have failed by new and better ones. Nevertheless, I have to say that I am proud that the

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城市节日 *Impressions of the city festival in Mannheim*

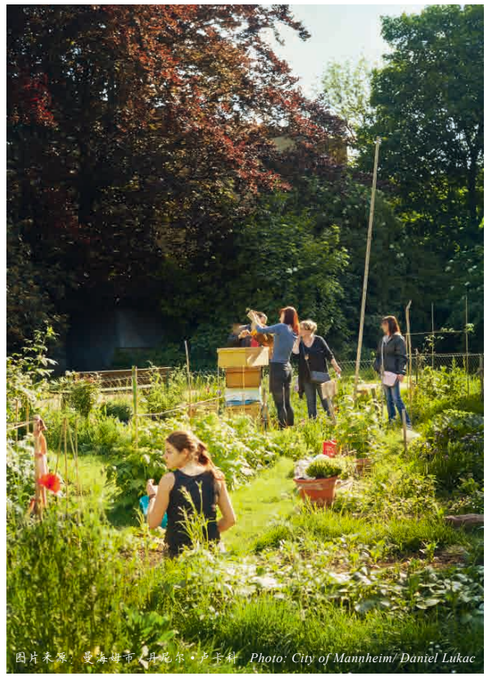
WBPM: **去年 10 月在人居三通过的《新城市议程》，您觉得怎么样？能否请您谈一下曼海姆对实施《新城市议程》的观点意见。**

市长：首先，国际社会做了漫长而大量的工作，最后共同制定了城市可持续发展文件，并最终通过了该文件，对于国际社会取得的这一成果，我深表敬意。这不是轻而易举的工作。尽管如此，我更愿意看到《新城市议程》（NUA）更关注城市在发展过程中发挥更强有力的主导作用，作为曼海姆市市长，我认为发展过程中的很多方面都很重要。

正如我在基多“世界市长论坛”上经过与会者的一致同意提出的，本文件忽略了艺术和创造力对我们城市可持续发展的作用。基于我们自己的经验以及可靠的科学研究，我们深知，这些问题对我们的城市发展，甚至对我们的社会都起着非常重要的作用。在这方面，需要更加重视文化外交，作为全球化世界中解决问题的一个重要手段——这里仅给出一个例子。在这种情况下，《新城市议程》在取代旧战略之后，突出强调的这些方面将是一个重要和深刻的信号。不过，我不得不说，让我感到自豪的是，国际社会包括在曼海姆市的积极参与下，也采纳了这份文件作

global community, also with the active participation of the City of Mannheim, has adopted the paper as a roadmap for the next two decades. A good common working ground is found.

The most important step will follow now - the implementation of the Agenda. The United Nations states in this context: “The United Nations resolves to implement the New Urban Agenda as a key instrument for national, sub-national and local governments and all relevant stakeholders to achieve sustainable urban development.” The actual quality and power of the NUA remains to be seen now. Therefore, we need instruments in order to measure and classify the success of the implementation. This requires indicators and a methodology that is accepted and operational all over the world. In the case of Habitat I and II this has been neglected, and this is why we can only presume how successful the implementation after Vancouver 1976 and Istanbul 1996 was. I am skeptical. For this reason, we participate, as the City of Mannheim, in a research project by Michael Cohen at the New School in New York and combine it with our own local processes in Mannheim. In the same time frame of the agenda 2030, we develop together with the local population a mission statement 2030 for our city. Of course, we implicate the NUA in our local considerations in order to ensure that


图片来源：曼海姆市 / 丹尼尔·卢卡斯 Photo: City of Mannheim/ Daniel Lukac

鼓励市民参与 *Encouraging engagement*

为未来二十年的路线图。由此，国际社会拥有了一个良好的共同基础。

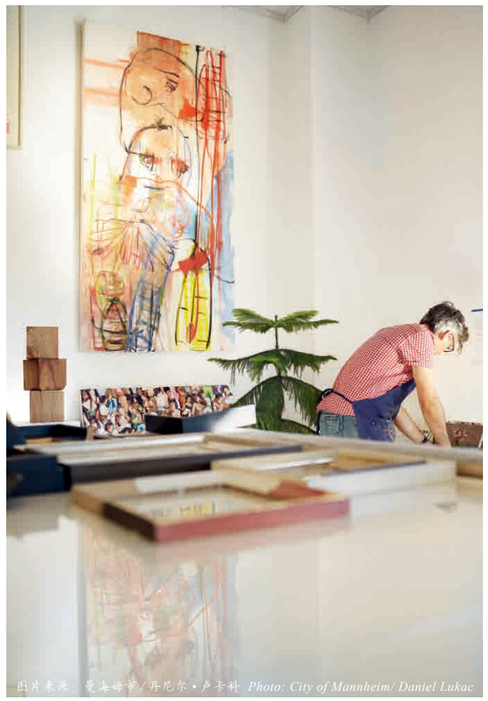
现在最重要的一步将是——实施《新城市议程》。在这方面，联合国指出：“联合国决定将执行《新城市议程》，作为国家、省（州）和市级政府以及所有利益相关方实现城市可持续发展的重要手段。”《新城市议程》在现实中的效果和作用现在还有待观察。因此，我们需要一些工具来衡量和评定新议程执行的成功程度。这需要一套在世界范围能够普遍接受和运作的指标和方法。当时，人居一和人居二都忽视了这一点，这就是为什么我们只能假定温哥华在 1976 年和伊斯坦布尔在 1996 年后成功实施的原因。因此，我们作为曼海姆市的代表去纽约参加迈克尔·科恩（Michael Cohen）主持的一项研究项目，并将其与曼海姆的本地过程相结合。与《新城市议程》时间轴几乎同步的是，我们与当地人共同制定了我们城市的《2030 年使命宣言》。当然，我们也同时充分考虑了《新城市议程》，以确保曼海姆能够满足并实施全球社会共同制定的目标。因此，我们再次组织了一个由联合国人居署指定的叫作“城市思想家论坛”的活动。重要的是保证本地议程和全球议程的内容相互一致。我们的目标是通过地方性的《曼海姆 2030 年使命宣言》来适应和实施《新城市议程》，在二者之间达成最大可能和最有意义的交集。如果我们能够衡

the jointly formulated goals of the global community are met and implemented congruently here in Mannheim. Therefore, we organize once again a so-called Urban Thinkers Campus - allocated to us by the UN-Habitat. It is important to overlap the contents of local and global agendas. Our goal is the adaption and implementation of the global New Urban Agenda through the local Mannheim mission statement 2030 by reaching a maximum of possible and meaningful intersections. And if we are able to measure the achievements of these goals in order to incorporate these experiences in the creation of the New Urban Agenda, then we have done it right.

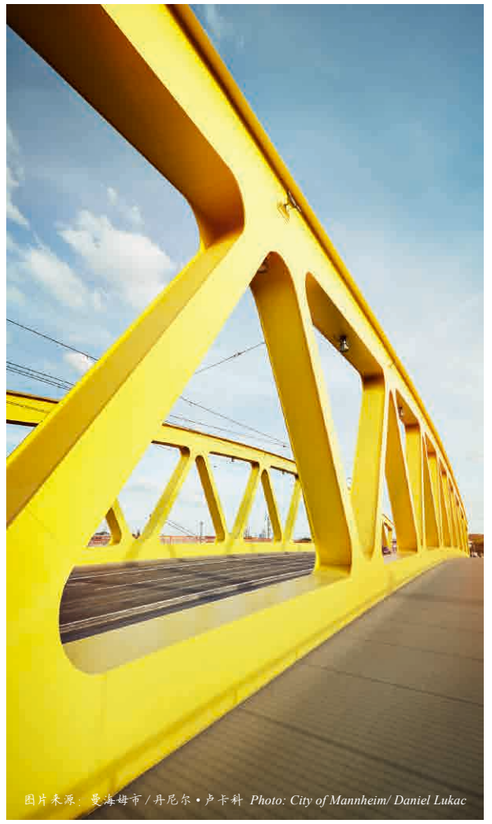
WBPM: What is your vision for sustainable development of Mannheim?

Mayor: In a world of volatility, uncertainty, complexity and ambiguity you need a vision for holding steady direction.

In 2008 the city of Mannheim set out on a path to focus its strengths and its improvable areas of action in the context of an ambitious analysis project. The initial result was an overview of specific and historically evolved features and challenges of our city, which were


图片来源：曼海姆市 / 丹尼尔·卢卡斯 Photo: City of Mannheim/ Daniel Lukac

提倡创新精神 *Enhancing creative spirit*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促进基础设施建设 *Enhancing assets*

量这些目标执行的成果，将这些经验纳入到《新城市议程》的实施之中，那么我们的工作就可以说意义重大了。

WBPM: 曼海姆可持续发展的愿景是什么？

市长：在今天这个充满波动性、不确定性、复杂性和模糊性的世界中，我们需要有一个发展愿景来把握前进的方向。

2008 年，在一个雄心勃勃的分析项目中，曼海姆市采取了一种方法来突出强调其优势和可改进的行动领域。最初的成果是对我们城市具体的和历史演变的特点和挑战进行概述，然后将其作为确定前七项战略目标的基础。

关键词“可持续性”是贯穿曼海姆八项战略目标计划的红线，涵盖了城市社区的社会、经济和生态方面，同时也帮助面临全球挑战的城市积极推进市政和地方政治进程。现在，我们使用针对每个具体目标的一系列指标，定期衡量我们的活动和行动，并且随时可以根据情况作出任何必要的调整。

> 未来的经济将与过去的经济和我们现在熟悉的经济完全不同。商业模式将发生根本性改变。数字企业家将主宰整个经济，带来颠覆性的商业案例。通过建立现代创业生态系统，曼海姆为企业家提供了一个良好的平台。
>
> The economy of the future will be totally different from the economy of the past and the economy we know now. Business-models will change basically. Digital-entrepreneurs will rule the economy with disruptive business-cases. Mannheim provides a platform for these entrepreneurs by building a modern startup-eco-system.

then taken as a basis for the definition of at first seven strategic goals.

The keyword “sustainability” is the red thread running through the entire programme of the eight strategic goals for Mannheim, covering as it does all the relevant social, economic, and ecological aspects of an urban community, and at the same time laying the foundations for actively shaping the municipal and local-political processes in these times of global challenges. Using a set of indicators defined for each of the specific goals, we now measure our activities and actions on a regular basis and are at all times capable of making any necessary adaptations should the circumstances dictate. WBPM


图片来源：曼海姆市 / 丹尼尔·卢卡斯 Photo: City of Mannheim/ Daniel Lukac

吸引人才 *Attracting talent*


图片来源：开普敦市 Photo: Cape Town

Sustainable Urban Development in Cape Town

– Exclusive Interview with Patricia de Lille, Mayor of Cape Town, South Africa

开普敦的可持续城市发展

——专访南非开普敦市市长帕特丽夏·狄莉儿女士

本刊编辑部 / By the Editorial Office

WBPM: **感谢市长女士接受我们的专访。 首先，恭喜您再次当选为开普敦市市长。过去五年来在您的领导下，开普敦最重要的变化是什么？**

市长：开普敦市是目前唯一已连续四次通过廉洁审核的主要大都会城市。 这意味着我们拥有一个廉洁政府，没有一直困扰我国的腐败成风的现象。我们已经制定了相应的体系，用于识别和防止腐败现象。

同时，通过交叉补贴贫困家庭，我们一直致力于建设一个有利于穷人的城市。 此外，居住在郊区的人们渴望住房—这在南非是首要问题—我们已经提升这些地区的基本服务。我们也率先开展了以公共交通为导向的城市发展计划，以减少交通堵塞，使市民更易获得一些机会。

WBPM: Thank you Mayor De Lille for joining this interview. First of all, congratulations on your re-election as the mayor of Cape Town. What do you think is the most important change for Cape Town under your leadership over the past five years?

Mayor: The City of Cape Town is currently the only major metropolitan municipality which has received four consecutive clean audits. This means that we are running a clean government, free of the mainstream corruption which is plaguing our country. We have achieved putting systems in place that can detect and prevent corruption.

Mayor: At the same time we have been building a pro-poor city by cross subsidizing the poor through

> 能源效率是开普敦能源 2020 目标的基石，其目标是 20% 的能源来自可再生能源。再那之后，能源 2040 目标就是实现更弹性、低碳、资源节约和公平的开普敦。
>
> Energy efficiency is a cornerstone of the Cape Town's Energy2020 goal which aims to have 20% of our energy from renewable sources. Then our Energy2040 Goal, also models a more resilient, lower carbon, resource-efficient and equitable future for Cape Town.


图片来源：开普敦市 / 布鲁斯·萨瑟兰
Photo: Cape Town /Bruce Sutherland

市长帕特丽夏·狄莉儿女士
Mayor Patricia de Lille

WBPM: **您能简要介绍一下开普敦 2012-2017 年综合发展规划 (IDP) 吗？ 今年是该规划期限的最后一年，在可持续城市发展方面取得了哪些突出的成就？**

市长：IDP 是我们经过与公众协商制定的城市发展蓝图，旨在建立一个充满关怀的城市，一个运行良好的城市，一个包容的城市，一个充满机会、安全的城市。 这也是我们的选民所期望的。

我们的一些成就包括：

- 截至 2015/16 财政年度末，我们已经安装了超过 840 公里的光纤布线。
- 共有 301 座城市建筑物连接到该网络，包括图书馆、诊所、活动场所和出纳处。（这也使我们每年可以节省 8000 多万兰特，并通过向私营部门出租额外的设施，增加收入。）
- 我们已经开始了一项计划—改造 40000 套房屋，这些建筑建于 2004 年之前，既无天花板，也不能防水。
- 我们有 215 个 Wi-Fi 接入点和 65 个 SmartCape Wi-Fi 区域，每天有 25 万多人使用。
- 到 2015 年，我们在城区安装了 46,000 多台太阳能热水器，为经济发展贡献了 8.3 亿兰特，创造了 1300 个工作岗位。
- 截至 2016 年 6 月，已经为 148 多项历史性建筑确权登记。

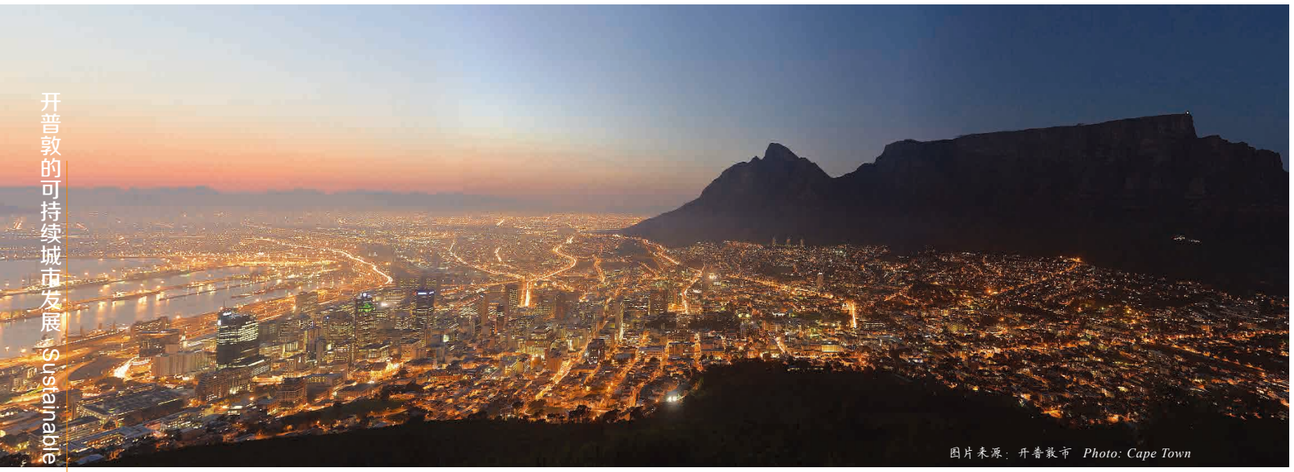
the rates of those who are better off. Furthermore, we have increased basic service to people who are living in backyards while they wait for a housing opportunity which is a first in South Africa. We have also pioneered transport-led urban development in order to reduce congestion and bring opportunities closer to where people reside.

WBPM: Could you briefly describe Cape Town's Integrated Development Plan (IDP) 2012-2017? This is the last year for the IDP (2012-2017), and what are the prominent progresses or achievements in regards to sustainable urban development?

Mayor: Our IDP is the blue print that we developed in consultation with the public, in order to build A Caring City, A Well-run City, An Inclusive City, An Opportunity City and Safe City. It is the expression of the electoral mandate that we received from the people.

Some of our achievements include:

- By the end of the 2015/16 financial year, we had installed more than 840 km of fibre-optic cabling.
- A total of 301 City-owned buildings are connected to that network, including libraries, clinics, event venues and cash offices. (This has also enabled us to save more than R80 million a year, and to generate an income from the infrastructure by renting out extra capacity to the private sector.)
- We have embarked on a program to retrofit


图片来源：开普敦市 Photo: Cape Town

● 我们向遵守广泛的《黑人经济授权法案》的供应商提供了 219,000 份采购订单，价值达 13,960 亿兰特（占总采购订单的 92%）。

● 我们还通过“扩建公共工程计划”（EPWP）创造了 45,902 就业机会，使得自 2011 年以来，EPWP 就业总数达到了 17 万个。

WBPM：位于一个缺水地区，城市必须智慧地用水。请您与我们分享开普敦在水资源利用效率和可持续管理方面的城市举措和经验。

市长：开普敦市拥有超过 11,000 公里的自来水管道和相关基础设施（水库、泵站、水表、水阀、消火栓等），通过节水和用水需求管理计划，在减少水损失（和水需求）方面，我们已经成为南非的先锋城市。根据最新的数据，整个系统的水损失（包括泄漏和水管破裂，以及通过水表篡改，一般计量不准确和行政错误造成的损失）已从 25%降至 15%以下（14,69%）。这是各种干预措施的效果，包括大规模的水管更换，供水系统的压力管理，提高响应速度。最新统计还显示，这些干预措施将 2010/2011 财政年度的每 100 公里水管爆裂次数从 63.9 次降低到 31 次，在此过程中节省了数百万升的水。


图片来源：开普敦市 Photo: Cape Town

建筑屋顶翻新 *Ceilings being retrofitted*

40,000 houses that were built without ceilings and waterproofing before 2004.

• We have 215 Wi-Fi access points and 65 SmartCape Wi-Fi zones being used by more than 250 000 people every day.

• By 2015 we installed over 46,000 solar water heaters in the metro which have contributed R830 million to the economy, creating 1,300 jobs.

• By June 2016, over 148,100 historic title deeds had been registered.

• We issued 219,000 purchase orders to vendors who complied with broad-based black economic empowerment legislation to the value of R13,96 billion (92% of total purchase orders).

• We also created 45,902 Expanded Public Works Programme job opportunities, bringing the total number of EPWP opportunities to 170,000 since 2011.

WBPM: Located in a water-scarce region, the city must be wise on water use. Please share with us the specific city projects, initiatives and experience on water efficiency and sustainable management.

Mayor: The City of Cape Town, which has in excess of 11,000 km of water mains and associated infrastructure (reservoirs, pump stations, water meters, valves, hydrants etc.), has established itself as a national leader in reducing water losses (as well as user demand) through its Water Conservation and Water Demand Management Programme. Water losses (which includes losses through leaks and bursts, as well as water ‘lost’ through meter tampering, general metering inaccuracies, and administrative errors) for the overall systems have been reduced from around 25% to below 15% (14,69 %) according to latest data. This is the effect of various interventions, including extensive water pipe replacements, extensive pressure management of the water supply system, and improved response times. These interventions have also reduced the burst rate from 63,9 bursts per 100 km of piping in the 2010/2011 financial year, to 31 bursts per 100 km according to the latest statistics, saving millions of litres of water in the process.


图片来源：开普敦市 Photo: Cape Town

升级改造路灯 *Retrofitting street lights*

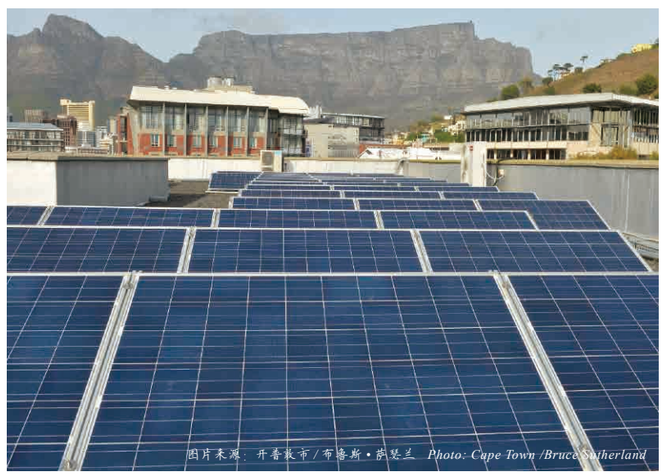
The City’s water management efforts were also recognised internationally when City of Cape Town’s Water Conservation and Water Demand Management Programme was announced as the winner in the Adaptation Implementation Category at the 2015 C40 Cities Awards in Paris.

WBMP: Under your direction, Cape Town has pioneered the Transit Orientated Development (TOD) Strategic Framework. How is this project making out?

Mayor: In March 2016 Council adopted its Transit-Orientated Development (TOD) Strategic Framework which prescribes how new developments across Cape Town should address apartheid spatial inequality, urbanisation and the high cost of public transport, while also stimulating economic growth.

The City has identified five projects in Bellville, Philippi East, Athlone, Paardevlei, and the Cape Town central business district (CBD) where we will either invest in the improvement of existing public transport infrastructure or provide new public transport infrastructure to ignite urban renewal, economic growth, and job creation in these areas.

在 2016 年 7 月，我们发布了一个文件，呼吁所有潜在投资商和开发者，或是独立财团，为我们提供解决拥堵问题和可负担住房的方案。


图片来源：开普敦市 / 布鲁斯·萨瑟兰 Photo: Cape Town /Bruce Sutherland

太阳能电池板 *Gallow's Hill PV Panel*

沿海高速公路项目 *Foreshore freeway*

WBPM: 您作为全球气候与能源市长公约理事会成员，请您介绍一下开普敦在减缓气候变化和碳减排方面的努力，尤其是在能源效率方面。

市长：能源效率是开普敦能源 2020 目标的基石，其目标是 20% 的能源来自可再生能源。再那之后，能源 2040 目标就是实现更弹性、低碳、资源节约和公平的开普敦。

开普敦是一个能源消耗较高的城市，所以我们致力于提高所有市政运营方面的能源利用管理，从而提高能源效率，降低碳足迹并节省资金。

改造交通信号灯 *Traffic lights being retrofitting*

The Foreshore Freeway Project is one of the five transit-orientated development (TOD) projects we have identified in the city which will see economic and residential development located closer to transport corridors. In June 2016 we made the call to the private sector to submit ideas for unfinished highways on the western, central and eastern side of the Foreshore Freeway Precinct which have been part of the Cape Town city landscape for nearly five decades now.

In July 2016, we issued a document calling on prospective investors and developers, or a consortium, to provide us with a solution which will address the congestion and provide affordable housing.

WBPM: You also serve as a board member of the Global Covenant of Mayors for Climate and Energy, could you introduce the efforts in Cape Town on climate change mitigation and carbon emissions reduction, especially through the energy efficiency perspective?

Mayor: Energy efficiency is a cornerstone of the Cape Town's Energy2020 goal which aims to have 20% of our energy from renewable sources. Then our

自 2011 年以来，我们一直致力于在市政运营方面的节能改造计划，覆盖交通信号灯、路灯、建筑和污水处理厂。也尽可能在适合的地方安装使用屋顶太阳能光伏系统。该计划包括对管理设备的员工进行能源管理培训，针对建筑用户的行为改变计划以及城市司机的精明驾驶培训。

我们也开发了一个大数据管理系统，以便从智能仪表和行政系统中获得定位、计量和计费数据—所有数据将反馈给管理人员，具体数据也会传送给地面工作人员，从而提升建筑管理。在建筑入口处设置了显示屏幕，以便住户（包括工作人员和公众）可以了解到该计划和相关数据。所有这些行动都隶属于内部资源管理协定，该协定制定了一整套用于提升资源管理的计划。每年向城市财政部门上报节省的费用和进展情况。

举例说明：

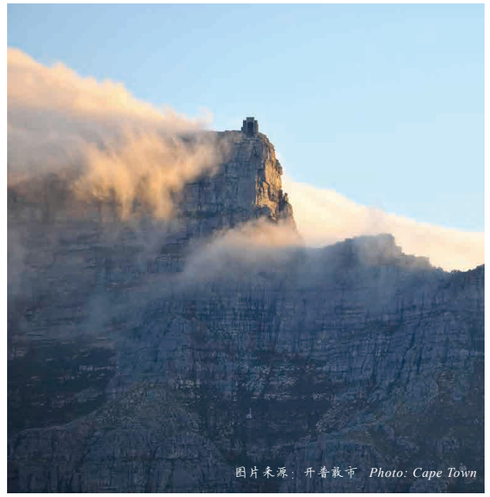
- 在开普敦，所有的 1500 个信号灯和超过 17% 的路灯都改造成 LED 照明。

- 城市 57% 的建筑都经过了翻新改造，包括 40 幢大型行政楼。能源效率的提高不仅降低了成本，也提高了工作环境质量。

- 智能电表的安装极大地改善了城市用电管理。与此项目相配套的是基础能源管理培训，针对城市工作人员开展技术和实践培训，包括如何提取、读取和解析智能电表数据。这提高了设施设备管理者的能力，并促使城市雇员对用电更负责。

- 迄今为止，已经在城市建筑安装了 247 个太阳能屋顶光伏系统，同时，我们也在探讨更大规模的地面安装系统的可能性。

自行车道 *Cycle Lanes*



Energy2040 Goal, also models a more resilient, lower carbon, resource-efficient and equitable future for Cape Town.

The City of Cape Town is a major energy user in its own right and is committed to improving the management of energy use in all municipal operations, to improve resource efficiency, reduce its carbon footprint and save money.

The City has been implementing energy efficiency retrofit programmes within municipal operations since 2011, covering traffic lights, street lights, buildings and wastewater treatment plant retrofits. Rooftop solar photovoltaic systems are also installed where possible. The programme includes energy management training for facilities staff, behaviour change programmes for building users and smart driver training for the City's fleet drivers.

An extensive data management system has been developed which aligns location, metering and billing data from smart meters and administrative systems – the overall data feeds through to managers, and the specific data to staff on the ground to improve building management. Display screens are being set up in building entrances to communicate the programme and the data to building users (both staff and the public). All of these activities fall under the Internal Resource Management Protocol which sets out a comprehensive plan for improved resource management across all departments. Savings and progress are reported annually to the City's Finance Department.

图片来源：开普敦市 *Photo: Cape Town*

WBPM: **开普敦在可持续发展方面的愿景是怎样的？**

市长：我们的愿景植根于对历史遗留问题的修正。如果我们不能保证那些被落下的人们有能力过上比以前更好的生活，那么任何进展和发展都是不可持续的，让我们共同努力去创造更美好的明天。

WBMP: **What do you think about the New Urban Agenda that was adopted at Habitat III last October? Please share with us some ideas aboutimplementing the New Urban Agenda in Cape Town.**

Mayor: The New Urban Agenda is validation that we are on the right track in terms of the programmes that we have implemented to ensure that we are cognizant of the impact of urbanization on resources and the need for proper planning as a result.

We appreciate that cities are acknowledged by the UN for the central role that we play in the adaptation efforts related to climate change. As stated in previous answers, you can see that we are implementing stringent programmes to ensure resource conservation.

We have also already been implementing a smart city approach to governance. We want to be the digital city of Africa and digitization is a priority for us in this term.

We have also implemented an Integrated Human Settlements Framework which sets out new approach to housing delivery, which includes other tenure options such as incremental development, the upgrading of informal settlements and encourage self-building schemes.

Lastly, we have already started implementing the TOD framework mentioned in the New Urban Agenda. This plan is therefore validation that our policies and practices are in line with international best practice.

WBMP: **What is the vision for sustainable development of Cape Town?**

Mayor: Our vision for sustainable development is rooted in redressing the legacies of the past. No progress or development will be sustainable if we do not ensure that those who were left behind are equipped and empowered to live better lives today, so that we can allwork together to create progress and a better tomorrow.

WBMP: **您如何看待去年十月在人居三上通过的《新城市议程》？请和我们分享开普敦在实施《新城市议程》方面的一些想法。**

市长：《新城市议程》证明了我们在正确的轨道上前行，通过实施的计划表明我们已经意识到城市化对资源的影响以及合理规划的必要性。

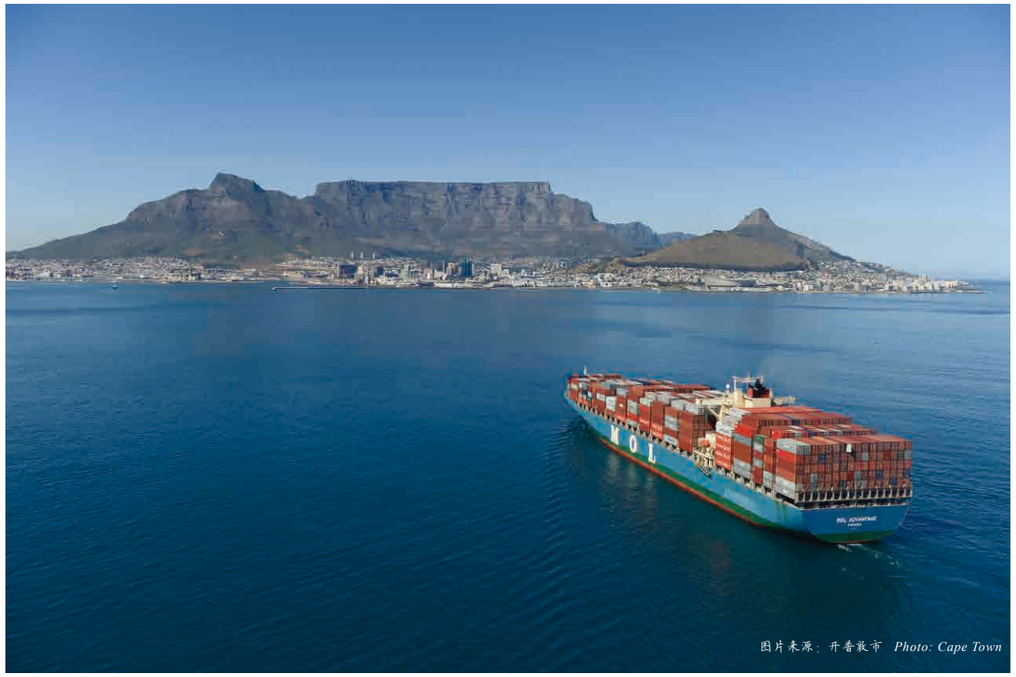
我们感谢联合国认可城市在应对气候变化行动中的核心角色。正如我之前所陈述的，你可以看到我们正在实施严格的资源保护计划。

同时，我们也正在实施智慧城市管理。我们期望成为非洲的数字城市，数字化是我们现阶段的首要任务。我们还制定了“综合人居环境框架”，使房屋开发有了新的方式，其中包括渐进式开发、非正式住区的升级改造以及鼓励自建等确立土地使用权的一些做法。

最后，我们已经实施了在《新城市议程》中提及的公交导向型发展框架。因此，这个计划也证明了我们的政策和实践符合国际最佳范例。

Some examples include:

- All 1500 traffic lights and more than 17% of street lights in Cape Town have been retrofitted with LEDs.
- 57% of the City’s buildings have been retrofitted, including 40 large administrative buildings. Energy efficiency improvements not only reduce costs, but also improve the quality of the working environment.
- Smart electricity meters have been installed which has greatly improved the City’s electricity use management. Linked to this project is Fundamental Energy Management training which incorporates technical and practical training to City staff on how to extract, read and interpret the smart meter data. This develops the capacity of facility managers and enables City employees to be more responsible for their use of electricity.
- To date a total of 247 kWp rooftop photovoltaic systems has been installed on city buildings, with investigations now being done on the potential for larger scale ground mounted systems.



图片来源：开普敦市 *Photo: Cape Town*

Warm the World with Geothermal Energy
– Dr. Li Zhenhan and His Geothermal Energy World

让地热能温暖世界
——李振函博士和他的地热王国

李振函博士 1963 年出生于山东省安丘县景芝镇，迄今已经与地质工作结缘近四十年。当有人问及他为何对地质工作情有独钟，他答道：“小学时看了电影《李四光》，便对骑着大白马走在绿水青山间搞地质的工作产生了浓厚兴趣。从此便义无返顾地走上了这条路。”

梦想，在崇山峻岭间起航

1984 年，李振函从河北地质学院毕业。只身来到驻扎在沂蒙山区的原地质部山东局第八地质大队工作。2006 年，李振函因工作成绩突出，被任命为山东省地矿八院总工程师。他上任后承担的第一个大项目，就是五莲七宝山金矿危机矿山及资源接替潜力研究项目，此前曾有 7 支地质勘探队伍试图在该地区寻找铜金矿，但是全都无功而返。李振函不畏艰苦，搜集整理了大量有关该地区地质地貌、岩性构造的第一手数据，最终证实：该矿区有铅锌金属资源 23.2 万吨、银 532 吨，以及部分铜和金矿产，潜在经济价值 60 多亿，企业可持续采矿 30 年。这是山东省多金属找矿工作的重大突破。七宝山金矿重新焕发了生机。

Born in 1963 in Jingzhi Town, Anqiu County, Shandong Province, Dr. Li Zhenhan has been committed to geological work for about forty years. When asked why he showed special favor to geological work, he replied: "from the moment when I saw the geologist riding a white horse and working in green mountains and clean water in the film Li Siguang during my primary school years, I began to take a strong interest in geology and decide to be a geologist."

Dreams, arising from high mountains and lofty hills

After graduating from Hebei Geology College in 1984, Li Zhenhan came to work in 8th Geology Team of Shandong Bureau of the Ministry of Geology of People's Republic of China in Yishan Mountain and Mengshan Mountain. Owing to his outstanding performance, Li Zhenhan was appointed as Chief Engineer of the 8th Institute of Geology & Mineral Exploration of Shandong Province in 2006. The first large project undertaken after he took up the new position was Gold Ore Crisis Mine in Qibaoshan Town of Wulian County and Resource Replacement Potential Research. Although seven geological exploration teams had sought gold and copper mine, none of them succeeded. However, Li Zhenhan, through overcoming untold difficulties, collected first-hand geological landform and lithological structure data in the region, and confirmed that there were 232,000 tons of lead and zinc, 532 tons of silver, and some copper and gold minerals. The potential economic value was as high as over six billion yuan, and the minerals could be explored for 30 years. That was a significant breakthrough for exploring minerals in Shandong. Qibaoshan Gold Mine restored its vitality.

Covering around almost the whole country, Li Zhenhan has established numerous hydrogeology stations, undertaken a number of mineral exploration projects worth of over ten billion yuan, and identified over 300 wells. Over many years' participation in poverty relief actions in the mountain areas through relying on his geological exploration, Li Zhenhan has explored over 1,000 wells, and contributed to the construction of more than 300 small-scale water supply projects, which has helped resolve the drinking water shortage for over 500,000 people. In June 2011, Li Zhenhan was awarded by the Ministry of Land and Resources as outstanding individual in respect of Drought Relief, Water Exploration and Well Digging in Land and Resource System.

> 凭借多年地质勘察经验，李振函长期参与扶助贫困贫水山区找水行动，共成功钻探饮用水井 1000 多眼，建设小型供水水源工程 300 多处，解决了 50 多万人饮用水困难。
>
> Over many years' participation in poverty relief actions in the mountain areas through relying on his geological exploration, Li Zhenhan has explored over 1,000 wells, and contributed to the construction of more than 300 small-scale water supply projects, which has helped resolve the drinking water shortage for over 500,000 people.

李振函足迹踏遍了大半个中国，确立上亿个水文地质测点，承担完成的找矿项目潜在价值上百亿元，确立井位 300 多眼。凭借多年地质勘察经验，长期参与扶助贫困贫水山区找水行动，共成功钻探饮用水井 1000 多眼，建设小型供水水源工程 300 多处，解决了 50 多万人饮用水困难。2011 年 6 月，被国土资源部评为全国国土资源系统抗旱找水打井先进个人。

跨越，做一名地热拓荒者

2011 年 10 月，李振函被任命为山东地矿地热开发投资有限公司总经理；2013 年 8 月，山东省地矿局党委决定将地热公司更名为山东地矿新能源有限公司。这寓意着今后公司的发展将以地热新能源为主、其他新能源为辅，李振函沉寂了十几年的梦想终于有机会实现！

“据 2010 年世界地热大会统计，全世界共有 78 个国家正在开发利用地热技术。地热作为一种新型可再生能源，包括地热水、地热蒸汽、干热岩、浅层地温能等。”谈起地热，李振函如数家珍。他研究制定了近十年地热产业发展的纲领性文件——《地热产业发展规划（2013—2020）》，组织编写了 20 多万字的《济南地热温泉》、《聊城地热温泉》，这也成为地热温泉研究所完成的第一项工程，此外编写的《山东省地热温泉志》也是全国第一个省级地热资源志，将成为山东省地热资源开发研究利用的重

莒县店子集地热井 *Ziji Geothermal Well*

山东地矿新能源有限公司李振函董事长（左二）在地热井施工现场做技术指导

Li Zhenhan providing technical guidance at the construction site

要依据。他率领团队当年完成了地热井勘查施工和正在开展的项目 8 个，全年勘查施工地热井总进尺 1.5 万米，最深的地热井井深设计 3000 米。他还把项目组开进了青海、西藏，走进了四川、河南，还积极与澳大利亚、北美、非洲等国家的技术同行保持着密切联系，时刻准备着走出国门。

“地热能源的开发运用最终是要造福于民，企业发展应与精准扶贫紧密结合。”2014 年，李振函团队联合当地企业共同开发了鲁地天沐（郯城）温泉扶贫开发项目，公司依托温泉和银杏资源为核心，服务临沂及苏北市场为价值导向，建设温泉度假村及养老公寓、疗养院等休闲养老产品，此外还有餐饮酒吧、音乐休闲、棋牌健身等项目。一期为银杏温泉度假村，占地 100 亩；二期为银杏温泉城（养老地产）项目，三期为银杏温泉安居园区。该项目的实施将极大带动当地旅游产业发展，实现富民增收。 “项目建成运营后，一期即可直接吸纳当地 500 人就业，为当地财政每年增加收入 300 万元。”李振函自豪地说。公司还将拿出 1000 万元的股权用于全县 473 个特困户进行收益分红，每户每年分红不低于 2000 元。

2014 年 11 月，李振函被中国中央文明办等多家中央单位联合评选为“敬业奉献中国好人”；2015 年 2 月，荣登中国文明网“好人 365”封面人物。

Crossover, being a pioneer of geothermal energy

In October 2011, Li Zhenhan was appointed as General Manager of Shandong Mining and Geothermal Energy Development and Investment Co., Ltd. In August 2013, this enterprise was changed as Shandong Mining New Energy Co., Ltd. by Shandong Geology and Mineral Resources Bureau, which implied that the enterprise would focus on geothermal energy, and Mr. Li is getting closer to realizing his dream.

"According to World Geothermal Energy Conference in 2010, 78 countries across the world are exploring and utilizing geothermal technology. As one of the new renewable energy, geothermal energy includes geothermal water, geothermal vapor, hot dry rocks and shallow geothermal energy," said Li Zhenhan. He formulated Geothermal Energy Industry Development Plan (2013-2020)—the guiding document of geothermal energy industry in recent ten years, and compiled the 200,000-word Geothermal Hot Springs in Jinan and Geothermal Hot Springs in Liaocheng, which was the first project of Geothermal Hot Spring Research Institute. In addition, Record of Geothermal Hot Springs in Shandong Province compiled by Li is China’s first province-level geothermal energy resource record, which can be served as an important foundation for geothermal energy development and research in Shandong. At present, he and his team are working on eight geothermal well projects. Annually, 15,000 meters of geothermal wells are explored and constructed, and the deepest one is 3,000 meters. In addition, he has also been involved in projects in Qinghai, Tibet, Sichuan and Henan, and has established close partnership with technicians from Australia, North America and Africa.

The development of geothermal energy shall benefit the people, and the enterprises shall take targeted measures in poverty alleviation. In 2014, Li Zhenhan's team developed Luditianmu (Tancheng) Hot Spring Poverty Relief Project in collaboration with local companies. Taking hot springs and gingkoes as its essential resource, the project is positioned to serve the market in Linyi and northern Jiangsu. A range of leisure and healthcare facilities will be built, such as hot spring resorts, apartments for the aged and sanatoriums as well as restaurants, bars, music entertainment, chess and card, and fitness center. Phase I covers the 66,700-m^2 Gingko Hot Spring Resort; Phase II covers Gingko and Hot Spring Town (Healthcare Real Estate) Project; Phase III covers Gingko and Hot Spring Residence Park. The project will drive local tourism industry and increase

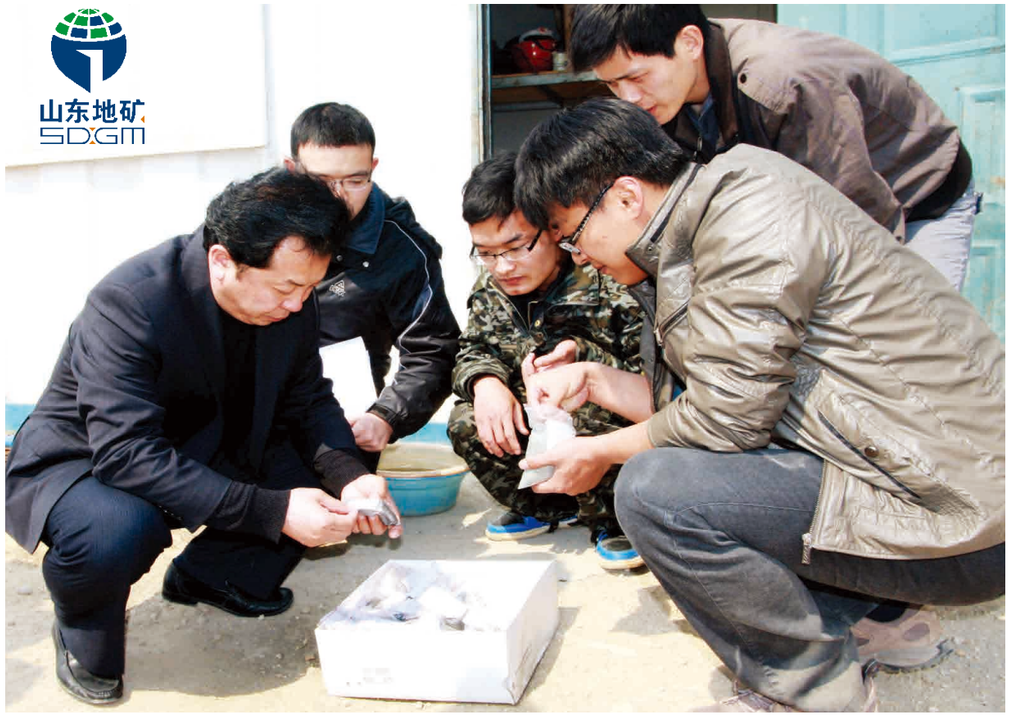
> 根据不同温度的地热进行发电、供暖、温泉洗浴、土地加温、生物降解、温室种植、水产养殖等逐级利用，地热尾水则进行回灌，从而实现地热资源的零碳排放、可循环、可持续性发展。
>
> According to the temperature of geothermal energy, Li Zhenhan adopts the stepped utilization mode, including power generation, heating supply, hot spring spa, land warming, biodegradation, greenhouse cropping and aquaculture, and geothermal tail water can be recharged, which is recyclable, sustainable and zero emission.

腾飞，书写新能源王国传奇

面对全球气候变暖的紧迫形势，世界各国都在加大新能源开发力度，而作为勇担大国责任的中国，在这方面更要有所建树。“1906 年至 2005 年，全球平均气温升高 0.74℃，研究报告预测，如果不采取合适对策应对气候变化，2030 年前全球将因此新增 1 亿贫困人口。”李振函介绍说。在他看来，地热新能源的应用只是掀开了新能源产业的冰山一角，新能源领域还有更多的处女地等待开垦。他把视角从原有地热资源勘查开发利用的基础上，扩展为光伏发电、余热发电、风力发电、地热供暖、绿色温泉农业等，一个更加庞大的新能源王国已经初具规模。

余热余压是指企业生产过程中释放出来多余的副产热能、压差能，如钢铁企业的焦炉气、高炉气、转炉气，煤矿的煤层气等，既造成能源的严重浪费，同时也污染了环境。为解决这一难题，2014 年，李振函率领团队与江西华电集团签署战略合作协议，共同为国内多家钢铁、化工等企业提供余热余压回收发电工程服务，解决其在生产过程中排放余热余压等污染问题。目前，已与济钢、莱钢、昆钢等多个大型钢企进行项目接洽，与云南昆钢煤焦化有限公司合作开展的工业余热发电合同能源管理项目运行良好。

如何将循环经济引入能源产业？李振函创新性地开发出一套“地热能梯级开发利用系统”。根据不同温度的地



李振函博士在野外勘察现场 *Dr. Li Zhenhan conducting field investigation*

热进行发电、供暖、温泉洗浴、土地加温、生物降解、温室种植、水产养殖等逐级利用，地热尾水则进行回灌，从而实现地热资源的零碳排放、可循环、可持续性发展。李振函还结合多年地质工作经验，在地热能源勘探方面独创温泉勘探“六步工法”，其核心即以勘查、扫面、追线、测深、切片、钻探等六个步骤进行地热温泉资源勘探，温泉勘探成功率达到 96%，比传统勘探成井率提高了 61% 以上，年可节约勘探费用投入 800 万元左右。

李振函心中有一个梦想，以新能源改善人居环境、促进生态恢复和低碳发展，为人类带来更加美好的生活！“西藏自治区冬季气温低至零下 30-40℃，可是煤炭、石油、天然气资源缺乏，藏胞传统以烧牛粪、柴薪免强过冬。”李振函看在眼里，急在心上。数据分析显示，西藏是地热活动最强烈的地区，地热蕴藏量居中国首位。李振函经过大量实地调研，认为利用地热能完全能解决藏民的冬季供暖问题。为从根本上改善藏胞的居住环境，他向西藏各级相关部门不断反映、呼吁、建议，使有关部门认识到了利用地热资源改善人居环境的重要性。下一步在日喀则南木林县启动民居地热供暖工程，首批试点将为该县城各级学校 1 万多名师生解决冬季供暖问题。

people's income. "After it is built and operated, the project will create 500 jobs, and generate three million yuan for local revenue," said Li Zhenhan. In addition, ten million yuan of stock right will be allocated for 473 families in most straitened circumstance in the county, which can ensure every household can get no less than 2,000 yuan annually.

In November 2014, Li Zhenhan was rated by Central Civilization Affairs Office as "Chinese Devotion and Contribution Good Man". In February 2015, Li Zhenhan landed the cover of "Good Man 365" on Chinese Civilization Website.

Take-off, writing a new chapter for new energy development

Confronting with the urgency of global warming, all major countries are vigorously developing new energy, and China, as a country who often undertakes responsibilities, should make its contribution. "From 1906 to 2005, the average temperature in the world rose by 0.74℃. It is reported that there will be another 100 million poor people by 2030, if no proper measures are taken

李振函在 *2016* 第十一届全球人居环境论坛上发言
Li Zhenhan sharing experience at the 11th Global Forum on Human Settlements, 18 October 2016

他还创建了中国地热网，作为集电子商务、地热行业优秀企业推介、地热知识交流互动多种功能于一体的平台。网站运行两年来，受到地热行业著名专家学者、地热工作的科研机构、企事业单位、行业协会和工程技术人员的高度评价。现已发展成集资讯、咨询、项目合作、信息交流等服务的专业型、互动型、特色型的地热行业权威门户网站。

2016 年 10 月，第三届联合国住房和城市可持续发展大会在厄瓜多尔首都基多市举行。与其平行的第十一届全球人居环境论坛 (GFHS-XI) 颁发了 2016“可持续城市与人居环境奖”，共表彰 6 个类别共 25 个获奖单位与个人。鉴于李振函近年来在推进城市新能源利用特别是地热能开发利用领域里的突出贡献，李振函与马来西亚威省市长拿督麦慕娜 • 谢里夫等荣膺“全球人居环境杰出贡献奖”。

有梦想是幸福的，追逐梦想是可敬的。李振函将时刻不忘他的地质梦想，在新能源的道路上书写新的奇迹。

to combat climate change," Li Zhenhan said. In his view, geothermal energy is only the tip of the iceberg in new energy industry, and other new energy fields need to be explored. On the basis of original geothermal energy exploration, he also explored photovoltaic power generation, waste heat generation, wind power generation, geothermal heating and green hot spring agriculture, through which a huge new energy empire is growing.

Residual heat and pressure is the by-product heat and differential pressure in the production process. For instance, coke-oven gas, blast furnace gas and converter gas in iron and steel enterprises, and coal seam gas cause energy waste and pollute environment. To solve this problem, Li Zhenhan led his team to sign a strategic cooperation agreement with Jiangxi Huadian Electrical Power Group in 2014 to provide by-product heat and pressure power generation service for domestic steel and chemical enterprises, coping with the pollution problem caused by by-product heat and pressure. At present, they are working with many large-scale steel enterprises such as Jinan Steel, Laiwu Steel, and Kunming Steel. In the meanwhile, they have established an energy performance contracting project on industrial cogeneration with Yunnan Kunming Steel Coal Coking Co., Ltd. and the project is going well now.

How to introduce circular economy into energy industry? Li Zhenhan has created one set of "stepped geothermal energy development and utilization system". According to the temperature of geothermal energy, Li Zhenhan adopts the stepped utilization mode, including power generation, heating supply, hot spring spa, land warming, biodegradation, greenhouse cropping and aquaculture, and geothermal tail water can be recharged, which is recyclable, sustainable and zero emission. On the basis of many years' experience in geological work, Li Zhenhan has developed "six

steps" of exploring hot springs, including exploring, cleaning, deciding line, measuring depth, cutting pieces, and drilling, achieving 96% of successful hot spring exploration, 61% higher than the traditional exploration, which saves eight million yuan of exploration expenditure annually.

Li Zhenhan has a dream of improving people's living environment through new energy, promoting ecological restoration and low-carbon development, and building better life for people. In Tibet where the temperature is as low as minus 30 - 40℃ in winter, and coal, oil and natural gas are insufficient, so Tibetans always burn cow dung and firewood to survive the cold weather. This is a concern for Li Zhenhan. Data analysis shows that Tibet enjoys active geothermal activities and the highest geothermal heat in China. Through numerous field researches, Li Zhenhan thinks geothermal energy can completely meet the heating supply in winter. To fundamentally improve Tibetans' living environment, Li Zhenhan has constantly reported to the relevant departments and emphasized the importance of geothermal energy in improving the living environment. Next, geothermal heating project in Shigatse of Nanmulin County will be launched, and the first pilot project will provide heating service for over 10,000 teachers and students in various schools in the county.

Moreover, Li has established China Geothermal Website as an E-commerce platform for promoting the outstanding geothermal enterprises and facilitating exchanges on geothermal knowledge. Over the past two years, the platform has been highly praised by famous experts, research institutes, enterprises, public institutions, associations and engineers in geothermal industry. It has developed into a professional, interactive and distinctive platform for geothermal industry to share experience, spread information, promote project and explore cooperation.

The presentation ceremony of 2016 Sustainable City and Human Settlements Awards (SCAHSA) was held on the evening of 18th October, becoming a highlight of the 11th Global Forum on Human Settlements in parallel to Habitat III. After the layers of selection and intense competition, a total of 25 winners under 6 categories were selected and granted the awards. Together with Dato' Maimunah Mohd Sharif, Mayor, Seberang Perai, Malaysia, Li Zhenhan was presented the "Global Human Settlements Outstanding Contribution Award" due to his contributions in promoting new energy utilization, especially in geothermal energy development.

Dream is the source of happiness, and the pursuit of dreams is respectable. We have full confidence that Li Zhenhan will score more remarkable achievements in the area of new energy development. WBPM

SUSTAINABLE CONSUMPTION AND PRODUCTION

可持续消费与生产

Picking the pack that grows back

让包装盒再生长

吉隆坡国际学校的学生正在双威金字塔购物中心学习如何将使用过的纸盒制作成具有装饰效果的小树

Students from the International School of Kuala Lumpur learning how to turn used cartons into decorative trees at Sunway Pyramid on 11 November 2016.

Picking the pack that grows back

让包装盒再生长

企业迫切需要从经过认证的森林管理渠道获取纸张。以下讲述了包装巨头利乐公司如何计划到 2020 年将纸箱的回收利用率翻番。

许多消费者可能不知道在一些饮料盒上隐藏着一个小小的符号，该符号告诉您这个纸盒使用的纸是否来源于经过责任管理的森林。这个符号一带着一个钩号的小树一正是森林管理委员会（FSC）的标志，FSC 是一个位于德国波恩的独立非营利组织，为企业提供最可靠的森林认证。 除了保护生物多样性、珍贵的森林外，他们的认证计划旨在确保企业尊重工人、社区和原住民的权利。

随着全球保护森林的意识的提高，FSC 标志的作用显得格外重要，它促使消费者选择经过森林管理认证的木材和纸质商品。

利乐马来西亚、新加坡和菲律宾总经理 Brian May 在最近的一次采访中告诉“生态商业（Eco-Business）”，马来西亚约有 41％的利乐包装纸带有 FSC 标签，从 2015 年的 14％到去年的 33% 稳步上升。 该公司旨在通过与客户紧密合作推动可持续发展议程，希望这个数字

The pressure is mounting on companies to source paper from responsibly managed forests. Here is how packing giant Tetra Pak plans to double the recycling rate of its cartons by 2020.

Many consumers might not know this, but on some beverage cartons lurks a little symbol that tells you whether or not they are made with paper from wood that comes from responsibly managed forests. This symbol is none other than the FSC logo, a little tree with a tick, by the Forest Stewardship Council, an independent, non-profit organisation based in Bonn, Germany that offers one of the most credible forest certification schemes for businesses. Besides conserving high biodiversity value forests, the certification scheme aims to ensure that businesses respect the rights of workers, communities and indigenous peoples.

As awareness grows globally about the need to protect the world's forests, this FSC logo has become ever more important in enabling consumers to choose wood and paper-based products that support responsible forestry.

All Tetra Pak paperboard now comes from FSC sources

现在利乐包装的纸板来源渠道都经过 *FSC* 认证

最终达到 100％。使用利乐包装的主要公司包括 Ace Canning，Dutch Lady，F & N，Marigold，雀巢和 Yeo's。

最近利乐公司与 FSC 在马来西亚合作举办的一次活动中发起了一个名为“再生长的包装盒”的活动，旨在提高消费者对 FSC 标签的认知度。通过这个活动，消费者参观了一个交互式展览，他们可以观摩并体验饮料纸盒的制作过程，包括怎样从森林到工厂，再到零售商店，最后到回收站。May 女士解释道：“我们还邀请消费者设计自己的饮料纸箱，并说出如何将它们改造成生态钱包、名片或篮子。目前公司的包装采用‘FSC Mix’标签，表明其纸纤维来自 FSC 认证的森林、回收材料和低风险森林的混合物。”

截至今年 4 月，利乐已向客户交付了 2000 亿份带有 FSC 标签的纸箱。FSC 亚太区域总监 Alistair Monument 说道：“想

Brian May, managing director of Tetra Pak Malaysia, Singapore and Philippines told Eco-Business in a recent interview that about 41 per cent of Tetra Pak cartons in Malaysia now carry the FSC label, a steady increase from 14 per cent in 2015 and 33 per cent last year. The company aims for an eventual 100 per cent by working closely alongside its customers in driving the sustainability agenda. Major industry names that pack their products in Tetra Pak cartons include Ace Canning, Dutch Lady, F&N, Marigold, Nestle and Yeo's.

May was speaking on the sidelines of a recent event held in Malaysia in partnership with FSC to launch a campaign called “The Pack that Grows Back”. The campaign sought to raise consumer awareness of the FSC label. Visitors took part in an interactive exhibition where they could follow the process in which their drink cartons were created; from the forest to the factory where the paperboard is made, to the retail stores, and finally, to the recycling station. Consumers were also invited to design their own beverage cartons, and say how they could transform them into eco-wallets, name cards or baskets.

May explained that currently, the company's packaging carries the “FSC Mix” label, which means its paper fibres are sourced from a mixture of FSC certified forests, recycled materials and low-risk forests. As of April this year, Tetra Pak has delivered 200 billion FSC-labelled cartons to its clients. “Imagine if 200 billion decisions were made to buy products with an FSC label to ensure they come from well-managed forests,” said FSC's Asia Pacific regional director Alistair Monument. “This would send a strong message to the markets and governments.”

Consumer awareness of the FSC logo can be improved, he added. Tetra Pak's Environment Research 2015 found that two out of five consumers look for environmental logos when they shop. However, less than a quarter of the 6,000 consumers across 15 countries surveyed recognised the FSC logo.

Beyond certification

Paperboard is the main material used in a Tetra Pak package, making up more than 70 per cent of it. Since 2015, all of the paperboard Tetra Pak has used to make its cartons comes from FSC-certified and controlled sources, said the company. All of Tetra Pak factories and market companies worldwide have secured FSC's Chain-of-Custody (CoC) certification. The CoC certification prevents untraced wood products from being mixed with FSC-certified products in a supply chain.

> 马来西亚约三分之一的纸箱被回收利用，即在 2015 年减少了 4.77 亿个纸箱进入垃圾填埋场。在全球范围内，利乐公司的目标是将纸箱的回收利用率从 2010 年的 20%提高到 2020 年的 40%，相当于每年回收 1000 亿个纸箱。

> About one in three cartons in Malaysia are recycled, translating to 477 million cartons saved from landfill in 2015. Globally, Tetra Pak aims to double its cartons' recycling rate from 20 per cent in 2010 to 40 per cent in 2020, an equivalent of recycling 100 billion cartons a year.

象一下，如果有 2000 亿个决定购买具有 FSC 标签的产品，以确保它们来自良好的森林管理， 这将向市场和政府发出一个多么强烈的信号！” 他补充说，消费者对 FSC 标志的认识需要改善。利乐的“2015 环境研究”发现，五分之二的消费者在购物时注重环保标志。但是，在接受调查的 15 个国家的 6,000 名消费者中，能识别 FSC 标志的不到四分之一。

纸板是利乐包装中使用的主要材料，占其百分之七十以上。 该公司表示，自 2015 年以来，利乐纸箱使用的所有纸板都来自 FSC 认证和受控的渠道。利乐全球工厂和公司均已获得 FSC 的产销监管链（CoC）认证。 CoC 认证防止了来源不明的木制品通过供应链混合到 FSC 认证产品中。

Monument 补充道： “我们在 2005 年已经制定了 FSC 规则，促使大规模的认证成为可能。 作为 FSC 认证计划的早期实施者之一，我们十年来一直努力成为获得 FSC 认证量最大的公司。2007 年我们首先在全球 92 个站点开启了供应链认证过程。”

利乐公司从瑞典、芬兰、俄罗斯和美国等国家的森林中获取木材资源，现在，我们采购的大多数人造林都是经过认证的，这在当地推动了实实在在的变化。利乐在每个国家派驻一个环境小组，以降低其业务运营的整体生态足迹。 在马来西亚，环保团队开发了一套利乐包装纸箱的回收系统。

利乐马来西亚、新加坡和菲律宾环境事务总监 Terrynz Tan 解释说: “由于公司的纸箱不是百分之百由纸制成的，所以最初难以建立循环再造系统。 当我们第一次接触当地的回收厂时，他们不知道是否可以回收利用。 但最终他们找到了解决方案，现在我们在马来西亚有 500 个回收点。”

“We have had to sort out our rules in FSC in 2005 to make such a large-scale certification possible,” he added. As one of the early adopters of the FSC certification scheme, Tetra Pak has worked for almost a decade to achieve one of FSC's largest multi-site certifications. It was the first to start the process to certify its supply chains in 92 sites worldwide in 2007, said Monument.

Tetra Pak sources its wood from forests in countries such as Sweden, Finland, Russia and the USA: “Now most of the plantation forests [they buy from] are certified, it has driven real change on the ground,” said Monument. Tetra Pak has stationed an environment team in every country to lower the overall ecological footprint of its business operations. In Malaysia, the environment team has developed a recycling system for Tetra Pak cartons.

Terrynz Tan, environment director of Tetra Pak Malaysia, Singapore and Philippines, explained that since the company's cartons are not 100 per cent paper-based, it was initially difficult to establish a recycling system. “When we first approached local recycling mills, they didn't know if it was possible to recycle it. But eventually, they found a way and now we have 500 collection points in Malaysia,” she said.

A quarter of Tetra Pak cartons are made of plastic (polyethylene) and aluminium. These are separated from the paperboard via the hydra pulping process in recycling mills. The paper fibres recovered are turned into pulp sheets again to make paper products. The residues - polyethylene and aluminium - are recycled into light, highly compressed boards that can be used as panel boards in furniture, roof sheets or other items. About one in three cartons in Malaysia are recycled, translating to 477 million cartons saved from landfill in 2015. Globally, Tetra Pak aims to double its cartons' recycling rate from 20 per cent in 2010 to 40 per cent in 2020, an equivalent of recycling 100 billion cartons a year.

四分之一的利乐纸箱由塑料（聚乙烯）和铝制成。回收过程中，我们通过水电制浆工艺将塑料和铝与纸板分离。回收的纸纤维再次变成纸浆片以制成纸制品。残留物—聚乙烯和铝—经过回收，成为轻质、高压板材，可用作家具、屋顶板或其他物品的加工材料。 马来西亚约三分之一的纸箱被回收利用，即在 2015 年减少了 4.77 亿个纸箱进入垃圾填埋场。在全球范围内，利乐公司的目标是将纸箱的回收利用率从 2010 年的 20%提高到 2020 年的 40%，相当于每年回收 1000 亿个纸箱。

利乐还在 2014 年推出了一个完全可再生的工厂包装线，以提高其产品生命周期的可持续性。这个名为 “Tetra Rex” 的新包装线于去年 1 月首次在芬兰的零售店推出。May 说，由于芬兰、瑞典和挪威的强劲需求，预计到 2016 年底利乐将为其提供 1 亿多个包装箱。

May 说：“我们坚信良好的商业意识在于履行环保责任。”

来源：“生态商业”官网

Tetra Pak has also introduced a fully renewable plant-based package to the market in 2014 to improve the sustainability of their products' life cycle. This new package called “Tetra Rex” was first introduced in retail stores in Finland in January last year. May said Tetra Pak expects to deliver more than 100 million packs by the end of 2016 due to strong demand in Finland, Sweden and Norway.

“We believe it makes good business sense to be environmentally responsible,” May said. WBPC

Source: Eco-Business Website

首届“一带一路”亚太女性（深圳）高峰论坛于2016年7月16日在深圳市成功举办，此次高峰论坛由亚太杰出女性联合会联合中国国际贸易促进会、深圳市委员会、中国政法大学绿色发展战略研究院、《时代商家》杂志社，共同主办。

论坛以全球化视角，专业化解读，为中外商业精英、国际组织提供广阔和有深度的交流平台，以彰显亚太杰出女性的非凡魅力。

The First "One Belt, One Road" Asia Pacific Famous Female Forum (Shenzhen) was held successfully on July 16, 2016. The forum was sponsored by the A.P.F.F.F., co-sponsored by The Chinese Promotion of International Trade Council, Shenzhen Municipal Committee, China's University of Political Science and Law (Green Development Strategic Research Institute), and "Times Entrepreneur" magazine.

The forum gave a global perspective, professional interpretation for Chinese and foreign business elites and international organizations to provide a broad and in-depth exchange platform to highlight the extraordinary visions and charm of Asia Pacific women.

OBOR

RESPONSIBILITY BEARING &
DEVELOPMENT SHARING

The Second "One Belt, One Road"
Asia Pacific Famous Female Forum
第二届“一带一路”亚太女性高峰论坛

Bangkok,Thailand September 10, 2017
泰国·曼谷 2017年9月10日

INTRODUCTION

亚太杰出女性联合会是2013年依照香港法律规定，经香港注册登记机关核准注册登记的社团组织。

自成立以来，亚太杰出女性联合会坚持发挥桥梁纽带作用，团结世界各地杰出女性，为亚太乃至世界经济社会的发展、和谐与进步做出积极贡献。历经四年的发展，联合会分会已遍布亚洲、欧洲、大洋洲、北美洲 、南美洲等20余国家和地区，担任各国分会会长的有侨联主席、妇联主席、国家大使、总统特使、总理夫人、皇室等，他们都是来自全球各地政、商、学、文、媒等各领域的杰出女性代表；会员单位主要涉及创新金融、互联网、跨境电商、房产开发、工程建筑、智能制造、实业投资、生活时尚、商贸旅游、医疗医药、酒店餐饮等几十个行业,是亚太地区乃至全世界最具影响力和凝聚力的社团组织之一。

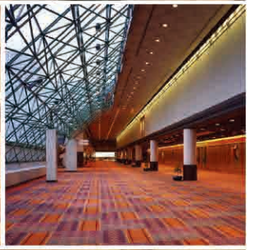
亚太杰出女性联合会坚持走市场化、国际化、规范化的道路，目前已形成金融服务、海外地产、公益慈善、文化教育、智慧城市打造及国际交流六大业务板块。

我们的愿景与目标是努力发展成为亚太地区乃至全世界最具影响力和凝聚力的社团组织；握手东西方文化，通过平台展示东方女性的魅力、美丽、智慧及正能量。

The Asia Pacific Famous Female Federation is an organization approved by Hong Kong's Companies Registry Department in 2013 under the laws of Hong Kong.

Since its inception, the Asia Pacific Famous Female Federation has played a pivotal role in unifying the outstanding women around the world and making positive contributions to the development, harmony and progress of the Asia-Pacific and the global economy and society. After four years of development, the Federation has established branches in more than 20 countries and regions scattered throughout Asia, Europe, Oceania, North America, South America. Each branch president also represents overseas Asian associations, women's associations, ambassador offices, governments, royal families, etc. Their background include political, business, education, media and other areas. Members are mainly related to innovative finance, digital, cross-border electricity, real estate development, engineering construction, Industrial investment, lifestyle, business travel, pharmaceutical, hotel catering and other dozens of industries; which makes the Asia Pacific Famous Female Federation one of the most influential and cohesive community organizations globally and in the Asia-Pacific region.

Asia-Pacific Outstanding Women's Federation adhere to a marketed, international and standardized model and has formed financial services, overseas real estate, charity, culture and education, "smart" city development and international exchange platform.



第二届“一带一路”亚太女性高峰论坛，定于2017年9月10日在泰国曼谷诗丽吉皇后国际会议中心举办，本届论坛得到了泰国皇室、总理府、国会主席及曼谷市政厅的全力支持。届时，一些国家外交使节、国际组织负责人、行业领袖、专家学者、社会贤达、杰出女性代表等将出席论坛，参与交流，共襄盛会。

此次论坛的举办必将推动“一带一路”战略向更深入的领域发展，增进“一带一路”沿线国家女性福祉及全面可持续发展，深化亚太地区各个国家间的互利共赢。

The forum is scheduled for September 10, 2017 at the Queen Sirikit National Convention Center in Bangkok, Thailand. The forum gained support by the Thai royal family, Thai Prime Minister's Office, Thai President of Congress, and the Bangkok City Hall. Expected attendees include: diplomatic envoys, leaders of international organizations, industry leaders, experts, scholars, social leaders, and outstanding female leaders worldwide.

The forum will promote the development of the "One Belt, One Road" initiative in detail to enhance the welfare of all countries along the way through comprehensive and sustainable development; maximize mutual benefits and win-win situations among countries in the Asia-Pacific region.

IGMC

GLOBAL FORUM ON HUMAN SETTLEMENTS
全球人居环境论坛
联合国经社理事会“特别咨商地位”

SUSTAINABLE DEVELOPMENT GOALS

INITIATIVE OF INTERNATIONAL GREEN MODEL CITY:
IMPLEMENTING 2030 SUSTAINABLE DEVELOPMENT AGENDA AT LOCAL LEVEL

国际绿色范例新城倡议：
在地区层面贯彻 2030 可持续发展议程

Greener • Low Carbon • Compact • Quality • Happiness
绿色 · 低碳 · 紧凑 · 品质 · 幸福

2011 年 4 月 8 日，GFHS 在纽约联合国总部正式发布了 IGMC 倡议。
On 8th April 2011, IGMC initiative was officially launched by GFHS at the UN headquarters.

国际绿色范例新城（IGMC）倡议是由全球人居环境论坛（GFHS）于 2011 年 4 月在联合国总部发起的、高起点的绿色低碳城镇发展计划。IGMC 倡议以十二项原则为主要特征，致力于贯彻联合国《2030 可持续发展议程》中目标 11“建设包容、安全、有复原力和可持续的城市和人居环境。”，因此，得到联合国环境规划署等国际组织和有关国家政府的大力支持。

作为一种创新的模式，IGMC 倡议激发前瞻性的政府、企业和社会力量共同努力，探索可持续的城市建设和城镇化模式，应对气候变化。IGMC 试点项目将率先在发展中国家启动。

由 GFHS 和联合国环境规划署组织 50 多位国际专家编著的 IGMC 标准 2.0 包含十二项原则、84 项指标及相应的策略和措施，并设计了评分系统，以指导 IGMC 试点项目的规划建设。

IGMC 十二项原则包括：净零碳、零废弃物、可持续的环境、绿色规划与设计、绿色交通和连接、绿色基础设施、绿色建筑、绿色经济、绿色生活、和谐社会、可持续的文化与遗产、智慧社区。这些原则体现了可持续城市和人居环境的发展方向，和联合国《2030 可持续发展议程》和《新城市议程》相一致。IGMC 倡议在联合国秘书处注册，既是里约+20 的成果之一，也成为在地区层面贯彻《2030 可持续发展议程》和《新城市议程》的自觉行动。

国际绿色范例新城试点项目融入精明增长和紧凑型城市理念，支持地方可持续发展，将“绿色经济、文化、教育、居住、休闲和配套公共服务”等功能进行混合规划，要创建绿色经济聚集区、低碳生态居住区、健康商务休闲区、和谐包容幸福区，旨在建成一个生态优良、生活健康、产业稳健、精神富足的幸福家园。

范例新城倡议和《中国新型城镇化规划 (2014 – 2020 年)》及《中共中央、国务院关于进一步加强城市规划建设管理工作的若干意见》的目标原则十分吻合，也将为中国新型城镇化做出贡献。GFHS 已经先后与中国贵州省贵阳市、江苏省泰州市和山东省德州市签署了 IGMC 试点项目落户当地的框架协议。

IGMC 试点项目有三种类型：新建项目从选址开始导入 IGMC 标准、新建项目中途导入 IGMC 标准、城市更新项目从开始导入 IGMC 标准。

在第七届全球人居环境论坛上，沙祖康大使号召世界应为建设可持续城市而努力
Ambassador Sha Zukang delivering a keynote speech to call for strengthening global efforts to build sustainable human settlements at GFHS Ⅶ

联合国环境规划署阿拉布·霍巴拉部长在 2011 年 IGMC 标准贵阳研讨会致辞
Arab Hoballah, Chief of Sustainable Consumption and Production UNEP/DTIE addressing at Guiyang Workshop on IGMC Standards in 2011

全球人居环境论坛秘书长吕海峰在里约 +20 上同与会者分享 IGMC 标准最新成果
Lu Haifeng, Secretary General of GFHS sharing IGMC standards at GFHS Ⅶ during Rio+20

出席 2011 IGMC 标准贵阳研讨会部分专家
Group photo of some experts present at the Guiyang Workshop on IGMC Standards in 2011

2013 年 4 月泰州 IGMC 领导小组筹备会议上，吕海峰一行与泰州市杨杰副市长等商议项目推进
Lu Haifeng, Secretary General of GFHS discussing the IGMC project process with Yang Jie, Deputy Mayor of Taizhou at the IGMC preliminary meeting in April, 2013

2014 年 3 月 1 日，IGMC 倡议与试点项目落户研讨会在深圳观澜湖度假区举办
The Symposium on IGMC Initiative & Pilot Locating, Missison Hills, 01 March 2014, Shenzhen, China

The International Green Model City (IGMC), a greener and low-carbon city (town) development initiative with high jumping-off point, was launched by GFHS at the headquarters of the United Nations in April 2011. IGMC, characterized by its twelve principles, is committed to implementing the urban-focused goal 11 of the UN's 2030 Agenda for Sustainable Development, to build inclusive, safe, resilient and sustainable cities and human settlements, and has therefore been strongly supported by international organizations including UNEP and relevant national governments. It will duly serve as a innovative model to motivate forward-looking governments, enterprises and social forces to work together to explore new-type urbanization, build sustainable cities to deal with climate change. IGMC pilots will firstly be launched in developing counties.

IGMC Standards 2.0, compiled by over 50 international experts who were convened by GFHS and UNEP, includes 12 principles, 84 indicators and corresponding strategies and measures with an authentication rating system to guide IGMC planning and construction.

12 principles of IGMC include Net Zero Carbon, Zero Waste, Sustainable Environment, Green Planning + Design, Green Transportation and Linkages, Green Infrastructure, Green Building, Green Economy, Green Living, Harmonious Society, Culture and Heritage, Smart Community. These principles are consistent with the 2030 Agenda for Sustainable Development and the New Urban Agenda, and embody a commitment to sustainable cities and human settlements. IGMC initiative has already been registered at the United Nations secretariat as an important commitment to Rio + 20, and has become a substantial action to implement 2030 Agenda for Sustainable Development and the New Urban Agenda at local level.

IGMC pilots incorporate the concept of smart growth and compact city in support of the sustainable development at local level, and integrate the functions of “green economy, culture, education, residence and matched public services” in one system. IGMC pilots are committed to building cities with green economy cluster, low-carbon residential area, recreational place for health and business, as well as inclusive and harmonious community. It is also aimed at creating homes for the people who have access to excellent ecology, better life, stable and prosperous industry, and enjoy healthy spiritual life.

2014 年，国际人居环境范例新城 (IGMC) 试点项目战略合作签约仪式在中铁置业集团上海总部举行
The Signing Ceremony of Strategic Cooperation Agreement with China Railway Real Estate Group on IGMC Pilot Project, Shanghai, 2014

IGMC is in line with the "National New-Type Urbanization Plan (2014-2020)" and the "Guidelines to Strengthen Urban Planning, Development and Management, issued by the Communist Party of China (CPC) central committee and the State Council". IGMC pilots will contribute to the new-type urbanization in China. GFHS has successively signed the framework agreement on the IGMC pilots with the governments of Guiyang, Guizhou Province, Taizhou, Jiangsu Province and Dezhou, Shandong Province, China.

There are three types of IGMC pilots: New projects import IGMC standards from site selection, Existing projects import IGMC standards halfway, Urban renewal projects import IGMC standards from the beginning.

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