

NANYANG TECHNOLOGICAL UNIVERSITY
SCHOOL OF HUMANITIES AND SOCIAL SCIENCES



Developing Bilingual Content
For Educational Gallery

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TABLE OF CONTENTS

List of Tables	4
List of Figures	5
Abstract	6
Translation and Source Text Transcription.....	7
1. Introduction.....	25
1.1 Context and Purpose of Study.....	25
1.2 Defining the Target Audience.....	25
2. Significance of Bilingual Exhibitions.....	26
2.1 Benefits of Bilingual Exhibitions.....	26
2.2 Considerations in a Multilingual Society.....	27
3. Theoretical Framework.....	29
3.1 Characteristics of Exhibition Translation	29
3.2 Translation Strategies.....	29
3.3 Unit of translation	30
3.3 Typography	30
4. Exhibition Translation Challenges.....	31
4.1 Zone Taglines.....	31
4.2 Specific Terminology.....	33
4.3 Neologisms	35
4.4 Rewriting.....	36
5. Conclusion	38
REFERENCES	39

List of Tables

Table 1 Zone Taglines and Translation

Table 2 Segment 3.4

Table 3 Segment 5.4

Table 4 Segment 5.5

Table 5 Segment 6.7

List of Figures

Figure 1 Leaf-A-Pledge and the Promise Tree

Abstract

This paper examines the practical challenges of developing bilingual content for an educational gallery, an area which remains largely unexplored in the field of translation studies. The case study in question is the ENVision Gallery under the Ministry of Environment and Water Resources (MEWR), a showcase of Singapore's environmental journey.

By incorporating bilingual content for the gallery, key messages on environmental awareness could be conveyed to segments of Singapore's community that might otherwise be left out. It also presents a learning opportunity for bilingual visitors to improve their bilingualism, and for mother tongue languages to gain more symbolic capital. Nevertheless, this paper recognises the implications of creating bilingual content in multilingual society, as the choice of which language to display can be a sensitive issue. Only by examining the practical translation challenges that go into creating bilingual content for an exhibition, can organisations better evaluate the costs and benefits of such a proposition for their audience.

Ultimately, this project on creating bilingual exhibitions is an exploratory step towards a more accessible learning environment for a more diverse audience, in the context of Singapore's multilingual society.

Translation and Source Text Transcription

Zone No: Zone Name [Translation]

Text Segment No.	Graphic: Header	
	Source Text	Translated Text

The translation for each zone is contained within a separate table, and organised in the format shown above.

Zone 1: Introduction [介绍]

1.1	Graphic: Our Environmental Journey	
	<p>Our Environmental Journey</p> <ul style="list-style-type: none"> • 1972: The Ministry of Environment (ENV) was formed to tackle issues such as pollution control, sewerage, drainage and environmental health • 1977: Beginning of the Singapore River clean-up • 1979: Opening of Singapore's 1st waste-to-energy incineration plant Ulu Pandan • 1982: Singapore was declared the first malaria-free country in South-East Asia by the World Health Organisation • 1986: All street hawkers were resettled into markets and food centres with proper sanitary amenities • 1987: Completion of the Singapore River Clean-up • 1990: Launch of Clean & Green Week • 1992: Launch of the Singapore 	<p>环保之路</p> <ul style="list-style-type: none"> • 1972: 环境部成立，解决污染控制，污水，排水和环境卫生等问题 • 1977: 新加坡河清河运动展开 • 1979: 乌鲁班丹垃圾焚化厂启用，是本地首个废物能源回收厂 • 1982: 世界卫生组织宣布新加坡成为第一个消灭疟疾的东南亚国 • 1986: 所有街头小贩重新安置在设有适当卫生设施的巴刹及熟食中心 • 1987: 新加坡河清河运动圆满成功 • 1990: “清洁与绿化周”展开 • 1992: “绿化新加坡计划 2012”展开 • 1999: 实马高垃圾埋置场启用

<p>Green Plan 2012</p> <ul style="list-style-type: none"> • 1999: Opening of Semakau Landfill • 2001: Formation of PUB, Singapore's national water agency • 2001: Launch of the National Recycling Programme (NRP) to provide recycling bags or bins to each household • 2002: Formation of the National Environment Agency (NEA) to implement Singapore's environmental policies • 2003: Launch of the first NEWater Factory at Bedok and the NEWater Visitor Centre • 2004: ENV was renamed to what is known today to reflect the Ministry's significantly expanded role in managing Singapore's water resources • 2006: Launch of the first Active, Beautiful, Clean (ABC) Waters Programme at Kolam Ayer • 2007: Rebranding of Clean & Green Week into the nation-wide campaign, Clean & Green Singapore • 2008: Launch of the Deep Tunnel Sewerage System, and opening of the Marina Barrage • 2009: Launch of the Sustainable Singapore Blueprint • 2011: Building of new hawker centres, with 10 more to be built over the next decade • 2012: Book Launch in Commemoration of MEWR's 40th Anniversary 	<ul style="list-style-type: none"> • 2001: 公用事业局 (PUB) 成立 • 2001: “全国再循环计划” 展开, 为各家各户提供环保袋或桶 • 2002: 国家环境局 (NEA) 成立, 实施我国环境政策 • 2003: 位于勿洛的第一座新生水厂开始运行, 新生水游客中心同年开幕 • 2004: “环境部” 更名为“环境及水源部”, 以反映该部管理我国水源的角色显著扩大 • 2006: “活跃、美丽、干净” 水源计划的第一项目开幕, 位于哥南亚逸 • 2007: “清洁与绿化周” 扩展为全国运动, 改名为“清洁与绿化新加坡运动” • 2008: 深隧道阴沟系统启用, 滨海堤坝同年开幕 • 2009: “永续新加坡发展蓝图” 推出 • 2011: 计划未来十年将增设十个新小贩中心 • 2012: 环境及水源部 40 周年纪念书籍推出
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Zone 2: Air [空气]

2.1	Graphic: Zone Tagline	
	Fresh enough to inspire. How do we maintain our clear blue sky?	新鲜空气，精神爽 蓝天白云，如何维护？
2.2	Graphic: Air Quality	
	<p>Air Quality</p> <p>It's free, it's all around us and we can't live without it for more than a few minutes. But we often take the air we breathe for granted. Clean air is important to our health, and even more so for vulnerable groups such as children, the elderly and those with respiratory diseases.</p> <p>In Singapore, we enjoy good ambient air quality that compares well with other urban cities in developed countries.</p> <p>What is ambient air? Ambient air is outdoor air that we live in and breathe.</p>	<p>空气素质</p> <p>它是无价的，存在我们周围，无所不在。没有它，我们只能活几分钟。但我们经常忽视它的存在，视为理所当然。清洁空气对我们的健康至关重要，尤其对儿童、年长者和呼吸道疾病患者更是如此。</p> <p>与其他发达国家城市相比，新加坡享有良好的环境空气质量。</p> <p>究竟什么是环境空气？环境空气是指我们生活在和呼进的室外空气。</p>
2.3	Graphic: Air Monitoring	
	<p>Air Monitoring</p> <p>The National Environment Agency (NEA) keeps a constant watch over Singapore's air quality through a network of air quality monitoring stations that are spread out around the island.</p> <p>These stations, which are operated round the clock, measure the levels of pollutants in ambient air. This background information on air quality helps NEA in its policing and regulatory efforts.</p>	<p>空气质量监测</p> <p>国家环境局（NEA）通过遍布全岛的空气质量监测站，不断监测新加坡的空气质量。</p> <p>这些监测站全天候 24 小时运作，测量环境空气中的污染物水平。所收集到的背景信息有助于环境局的管辖及监管工作。</p>
2.4	Infographic: Where Are Our Air Monitoring Stations?	
	<p>Where Are Our Air Monitoring Stations?</p> <p>Ambient stations: Bedok; Bishan; Choa Chu Kang; East Coast; Jurong West;</p>	<p>我们的空气质量监测站设在哪儿？</p> <p>环境站：勿洛、碧山、蔡楚康、东海岸、裕廊西、克兰吉、纽顿、巴西</p>

	<p>Kranji; Newton; Pasir Ris; Sengkang; West Coast; Yishun</p> <p>Roadside stations: Clementi; Outram</p> <p>Hi-tech analysers are fitted in most monitoring stations to detect levels of the main pollutants in ambient air.</p>	<p>立、盛康、西海岸、义顺</p> <p>环境站（路旁）：金文泰、欧南园</p> <p>大部分的监测站都安装了高科技分析仪，以检测主要污染物在环境空气中的含量。</p>
2.5	Graphic: Know Your PSI	
	<p>Know Your PSI</p> <p>Singapore's ambient air quality is reported using the Pollutant Standards Index (PSI), which provides information about daily air quality according to the five regions of Singapore – North, South, East, West and Central.</p> <p>PSI is calculated from the concentrations of these five key pollutants:</p>	<p>了解空气污染指数</p> <p>新加坡的环境空气质量是以空气污染指数（PSI）来衡量，平日空气质量报告分为新加坡五个地区- 北部，南部，东部，西部和中部。</p> <p>空气污染指数是根据这五个污染物的浓度来计算：</p>
2.6	Infographic: Sources of Key Pollutants	
	<p>Sources of Key Pollutants</p> <p>Carbon Monoxide: A by-product of combustion in the engines of motor vehicles</p> <p>Ozone: Photochemical reactions between NO_x and VOCs can form ground level ozone</p> <p>Nitrogen Dioxide: Mainly from motor vehicle exhaust, power stations and industries</p> <p>Sulphur Dioxide: Mainly from oil refineries, power plants and petrochemical plants</p> <p>PM10: Mainly from exhaust fumes of diesel vehicles, power plants, factories and transboundary pollution</p> <p>NEA also tracks PM2.5 which is particulate matter with diameter measuring 2.5 microns or less. Health</p>	<p>主要污染物来源</p> <p>一氧化碳：机动车发动机燃烧的副产品</p> <p>臭氧：氮氧化物和挥发性有机化合物之间的光化学反应可形成地平面臭氧</p> <p>二氧化氮：主要来自汽车尾气、发电厂和工业</p> <p>二氧化硫：主要来自炼油厂、发电厂和石油化工厂</p> <p>颗粒 PM10：主要来自柴油车，发电厂、工厂和跨界污染废气</p> <p>国家环境局也监测颗粒 PM2.5。它是直径为 2.5 微米或更小的颗粒物。健康公告将在空气污染指数偏高的时候发出。</p>

	advisories are issued during times of poor air quality.	
2.7	Graphic: Interpreting the PSI	
	<p>Interpreting the PSI</p> <p><u>PSI Value</u> <u>Air Quality Descriptor</u></p> <p>Up to 50 : Good 51-100 : Moderate 101-200 : Unhealthy 201-300 : Very unhealthy Above 300 : Hazardous</p> <p>Access today's PSI and PM2.5 reading! Updates are available three times a day at 8am, 12noon and 4pm.</p>	<p>了解空气污染指数 <u>空气污染指数</u> <u>空气水平</u></p> <p>50 以下：好 51-100：中等 101-200：不健康 201-300：非常不健康 300 以上：危险</p> <p>查询今天的 PSI 和 PM2.5 指数 - 每天上午 8 时，12 时和下午 4 时将更新指数。</p>
2.8	Graphic: Haze	
	<p>Haze</p> <p>Singapore faces occasional transboundary smoke haze pollution which affects our air quality during certain periods of the year.</p> <p>To address this, Singapore has been actively pursuing bilateral and regional collaborations as well as engagements with various stakeholders.</p> <p>Our efforts include sharing satellite pictures of hotspots as well as providing technical expertise on fire detection, prevention, monitoring and suppression.</p>	<p>烟雾</p> <p>新加坡在某些月份将面临跨界雾霾污染，导致空气质量下降。</p> <p>为解决此问题，我国不断积极推动双边和区域合作，与各利益相关者共同协商。</p> <p>所实行的措施包括分享热点的卫星图片，提供火灾探测、预防、监测和抑制的技术专长。</p>
2.9	Graphic: Our Goal	
	<p>Our Goal</p> <p>Achieve more stringent air quality targets pegged to the World Health Organisation's Air Quality Guidelines for PM10, PM2.5, sulphur dioxide, nitrogen dioxide, carbon monoxide, and ozone.</p> <p>Learn more about Singapore's efforts to keep our air clean!</p>	<p>愿景</p> <p>力争实现更高的空气质量目标（根据世界卫生组织空气质量指南为 PM10、PM2.5、二氧化硫、二氧化氮、一氧化碳和臭氧而设定的水平）</p> <p>让我们进一步了解新加坡在保持空气清洁方面所付出的努力！</p>

Zone 3: Land [环境]

3.1	Graphic: Zone Tagline	
	Clean enough to inhabit. Where does our waste material go to?	清洁宜居，环境优 垃圾废物，何处去？
3.2	Graphic: Managing Waste	
	<p>Managing Waste</p> <p>Waste (also known as rubbish, trash, refuse, garbage or junk) is unwanted or unusable materials. Without an efficient waste collection and disposal system, rubbish would accumulate near homes and workplaces, and create breeding grounds for pests.</p> <p>But just having an advanced waste management system is not enough. We all need to take ownership of the environment by practicing the 3Rs to reduce, reuse and recycle. This two-pronged strategy is therefore essential to keep our Singapore clean and green.</p>	<p>废物管理</p> <p>废物（也称为垃圾）是指不需要的或不可用的材料。如果没有一个有效的废物收集和处理系统，垃圾将积累在住家和工作场所，并成为害虫的繁殖地。</p> <p>仅拥有先进的废物管理系统是不足够的。我们必须落实 3R 环保概念（减少、重用和再循环），以实际行动保护环境。这种双管齐下的战略有利于打造一个清洁绿化的家园。</p>
3.3	Infographic: How Much Waste Do We Dispose Of	
	<p>How Much Waste Do We Dispose Of</p> <p>Each person in Singapore throws away more than 300kg of organic waste per year. This translates to more than 1.6 million tonnes by everyone!</p> <p>What are the top three types of waste that are disposed of in Singapore?</p> <ul style="list-style-type: none"> • Plastics (23%) • Paper/Cardboard (20%) • Food Waste (21%) 	<p>我们处理多少废物</p> <p>在新加坡，一人每年平均会丢弃超过 300 公斤的有机废物。这意味我国有机废物总数超过 160 万吨！</p> <p>在新加坡处理的前三类废物是什么？</p> <ul style="list-style-type: none"> • 塑料（23%） • 纸/纸板（20%） • 食品废物（21%）
3.4	Graphic: Incineration	
	<p>Incineration</p> <p>Singapore's solid waste disposal infrastructure consists of four waste-to-energy incineration plants located at Tuas, Senoko, Tuas South and an</p>	<p>垃圾焚烧</p> <p>新加坡的固体废物处理基础设施包括位于大士、圣诺哥和大士南的四个废物能源焚烧厂和一个离岸垃圾填埋</p>

	<p>offshore landfill, Semakau Landfill.</p> <p>Incineration is an effective solution for disposing Singapore's waste as it can reduce the volume of waste by up to 90%. This results in lower waste volumes being sent to our landfill.</p> <p>As ash from incinerated waste eventually has to go into our landfill and we have only one landfill, incineration alone cannot deal with the ever-increasing amount of waste that we are producing.</p> <p>What can you do to alleviate this situation?</p>	<p>场，实马高垃圾填埋场。</p> <p>焚烧是处理新加坡废物的有效解决方案，因为它可以将废物量减少高达90%，也大量减少被送至垃圾填埋场的废物量。</p> <p>单独的焚烧是不能处理我们日益增长的废物量。来自焚化废物的灰分最终必须进入垃圾填埋场，而我们只有唯一一个垃圾填埋场。</p> <p>针对这种情况，你能做些什么来缓解现状呢？</p>
3.5	Infographic: What Happens After You Bin Your Trash?	
	<p>What Happens After You Bin Your Trash?</p> <ol style="list-style-type: none"> 1. Waste is collected all over Singapore from residential and business areas 2. Waste that is not recycled will be sent for incineration 3. At the incineration plant, the waste is burnt at temperatures that can reach up to 1,000 °C 4. Heat from the combustion process is used to generate power 5. After incineration, the remaining ash and non-incinerable waste are deposited at Semakau Landfill 	<p>弃置的垃圾是怎么处理的？</p> <ol style="list-style-type: none"> 1. 垃圾从新加坡所有住宅和商业区收集 2. 未回收的废物将被送往焚烧处理 3. 在焚烧厂，未回收的废物在可达1000摄氏度的高温下燃烧 4. 来自燃烧过程中产生的热量用于发电 5. 焚烧后，剩余的灰分和不可焚烧的废物存放在实马高垃圾填埋场
3.6	Graphic: Semakau Landfill	
	<p>Semakau Landfill</p> <p>Semakau Landfill is located 8 km south of Singapore and is the world's first offshore landfill created entirely from sea space.</p> <p>Dubbed the "Garbage of Eden",</p>	<p>实马高垃圾填埋场</p> <p>距新加坡南部海岸 8 公里是世界第一座人造的海上垃圾填埋场。它是完全在海上空间兴建起来的。</p> <p>具有“伊甸园”美称的实马高垃圾填</p>

	<p>Semakau Landfill is also a showcase of how natural habitats can co-exist with waste. The thriving biodiversity haven is currently home to more than 700 types of plants and animals, including several endangered species.</p> <p>However, Singapore has only one landfill. How can we make it last as long as possible?</p>	<p>埋场展示了自然生态与废物共存的可能。实马高岛目前拥有超过 700 种植物和动物，包括几种濒危物种。</p> <p>然而，我们只有一个垃圾填埋场，应该如何加强它的可持续性呢？</p>
3.7	Graphic: Reducing Waste	
	<p>Reducing Waste</p> <p>We can help to minimise the amount of waste we generated by practicing the 3Rs – Reduce, Reuse and Recycle. Minimising our waste will also help to prolong the lifespan of our incineration plants and landfill.</p> <p>Did you know that product packaging makes up about one-third of all household waste in Singapore? More than half of this consists of packaging for food and drinks!</p> <p>How can you reduce waste?</p> <ul style="list-style-type: none"> • Right-size your portions to minimise food waste. Food waste constitutes about 21% of waste disposed of in Singapore. • Avoid using the use of disposable products. Ask for non-disposable cutlery when eating out. • Use rechargeable batteries. Such batteries can be reused 500 to 1,000 times compared to non-rechargeable batteries. 	<p>减少废物</p> <p>环保 3R（减少、重用、再循环）可减少人类生产的废物。最大限度地减少废物也有助于延长焚烧厂和垃圾填埋场的使用寿命。</p> <p>你知道产品包装占新加坡所有家庭垃圾的三分之一吗？其中一半以上包括食品和饮料包装！</p> <p>如何减少浪费？</p> <ul style="list-style-type: none"> • 食物份量适中，避免食物浪费。食物浪费约占新加坡总废物量的 21%。 • 避免使用一次性产品。外出时要求不可丢弃的餐具。 • 使用可充电电池。与不可再充电电池相比，这种电池可以再使用 500 至 1000 次。
3.8	Graphic: Our Goal	
	<p>Our Goal</p> <p>Achieve 65% overall waste recycling rate by 2020 and 70% by 2030</p>	<p>愿景</p> <p>力争至 2020 年达到 65%的废物回收率，至 2030 年达到 70%</p>

Zone 4: Water [水源]

4.1	Graphic: Zone Tagline	
	Pure enough to drink. Will there be enough water for everyone?	水质好，安心饮用 充足水源，如何保？
4.2	Graphic: Quotes	
	<p>“Suppose we could capture every drop of rain in Singapore, could we become self-sufficient?” - Former PM Lee Kuan Yew’s 1977 challenge to PUB”</p> <p>“Those were exciting times, especially when we discovered every drop of water could be recycled.” – PUB Chairman Tan Gee Paw on developing NEWater”</p> <p>Conserve, Value, Enjoy</p>	<p>“假设我们可以捕捉到新加坡的每一滴雨，我们能否自给自足？” 前任总理李光耀在 1977 年为公用事业局（PUB）定下的挑战</p> <p>“当我们发现有将每一滴水回收利用时，那是个令人鼓舞的时刻。” 公用事业局主席陈义辅发表于新生水的研发</p> <p>保护，珍惜，享受</p>
4.3	Graphic: Water Conservation	
	<p>Water Conservation</p> <p>Water is precious and we should use it wisely.</p> <p>Simple water saving habits can help you reduce the amount of water you use.</p> <p>For example, you can keep your shower under 5 minutes. For each reduced minute in the shower, you can save 9 litres (Six 1.5-litre bottles) of water.</p> <p>You can also save 8 litres (about five 1.5-litre bottles) of water per minute if you shorten the washing duration in the kitchen sink. Saving water is easy. Do your part to make a difference.</p>	<p>节约用水</p> <p>水是宝贵的资源，我们应该明智地使用。</p> <p>简单的习惯可帮助减少个人使用的水量。</p> <p>例如，把淋浴的时间设在 5 分钟以下。减少淋浴的每分钟可以节省 9 升的水（六个 1.5 升瓶）。</p> <p>在厨房洗洗碗少花一分钟就可节省 8 升的水（约 5 个 1.5 升瓶）。节约水并不困难，请为环保尽一份力吧！</p>
4.4	Graphic: Water Wally	
	<p>“Hi! My name is Water Wally, a mascot of PUB, the national water agency. Every drop of water like me is precious. Please cherish our water and use it wisely! Check out my website to play games and watch videos about how my friends and I save water and keep the</p>	<p>“嗨！我的名字是活力水，是公用事业局的吉祥物。每一滴水，像我一样，是如此的珍贵。请珍惜我们的水源，要明智地使用！查看我的网站来玩游戏或观看视频，了解我和朋友们是如何节约用水，保持水域干净</p>

	water catchment clean!”	的!
4.5	Graphic: Managing Flash Floods	
	<p>Managing Flash Floods</p> <p>We have an extensive drainage system comprising 8,000km of drains and canals that channel rainwater to our reservoirs or the sea.</p> <p>Our drains are usually able to cope with the rain that we receive. However, intense bouts of rainfall may sometimes exceed the capacity that drains were designed for, resulting in flash floods.</p> <p>Hence, PUB adopts three key strategies for flood management: providing adequate drainage ahead of new developments, continually reviewing and improving the performance of the drainage system, as well as requiring buildings to put in place flood protection measures.</p> <p>Learn more about our flood management strategies.</p>	<p>防洪措施</p> <p>我们的排水系统覆盖面广，包括 8,000 公里的排水道和河渠，将雨水输送到蓄水池或大海。</p> <p>我们的排水道通常能够应付平日收到的雨。然而，强烈豪雨所带来的水量有可能会超过排水道的容量，导致突发性淹水现象。</p> <p>因此，公用事业局采用了三种淹水管理策略：为新工程提前提供足够排水道、定时检讨排水系统并加于改善、以及要求建筑物实施防洪措施。</p> <p>详细了解我们的防洪及缓解淹水的策略。</p>
4.6	Infographic: How Do We Know When It Floods	
	<p>How Do We Know When It Floods</p> <ol style="list-style-type: none"> 1. Water level sensors provide data on water levels in the drains and canals. 2. CCTVs at selected locations to monitor road conditions 3. Flash flood alerts will be sent out by PUB via Facebook, Twitter and iPhone app “MyWaters” 	<p>如何预知洪水来袭?</p> <ol style="list-style-type: none"> 1. 水位传感器提供有关下水道和运河水位的数据。 2. 通过设定地点的闭路电视监控路况 3. 公用事业局通过 Facebook, Twitter 和 iPhone 应用程序 “MyWaters” 向公众发出洪水警报
4.7	Graphic: Our Goal	
	<p>Our Goal</p> <p>2020 40% of water demand met by NEWater 25% of water demand met by desalinated water 147L daily per capita consumption</p>	<p>愿景</p> <p>2020 年 新生水可满足水源需求之 40% 海水淡化水可满足水源需求之 25% 人均日消费量 147L</p>

	<p>820 ha of reservoirs and 90km of waterways to be used for recreation</p> <p>2060 55% of water demand met by NEWater 25% of water demand met by desalinated water</p>	<p>820 公顷蓄水池和 90 公里水道设为休闲设施</p> <p>2060 新生水可满足水源需求之 55% 海水淡化水可满足水源需求之 25%</p>
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Zone 5: Energy [能源]

5.1	Graphic: Zone Tagline	
	Smart enough to sustain. How do we get more from using less?	可持续发展，靠智能 要如何用资少，获利多？
5.2	Infographic: Climate Change	
	<p>Climate Change</p> <p>The weather is always changing. At times, it is warmer or colder than usual. There can also be more rain or more dry periods. However, when there is a significant change in weather patterns over the long term, it is likely that climate change has occurred.</p> <ol style="list-style-type: none"> 1. Over the last 100 years, there has been a build-up of greenhouse gases, especially carbon dioxide (CO₂), which trap heat within the atmosphere. 2. The buildup of these gases leads to the “enhanced greenhouse effect” by disrupting the Earth’s natural ability to regulate its temperature. 3. This gives rise to a warmer planet on the whole, and changes the climate. 4. Scientists have identified human activities as the cause for this extra build-up of greenhouse gases. 5. In Singapore, the main greenhouse gas emission emitted is CO₂. This gas is released when fossil fuels such as oil and gas are burnt to meet our energy needs. 	<p>气候变化</p> <p>天气总是在变化。有时，它比平常温暖或寒冷。时而阴雨连连，时而炎热干燥。然而，当长期天气模式出现重大变化时，气候变化很可能已经发生了。</p> <ol style="list-style-type: none"> 1. 在过去的 100 年，已经积累了温室气体，特别是二氧化碳（CO₂），它们在大气中捕获热量。 2. 这些气体的累积导致温室效应的增强，破坏地球调节温度的自然能力。 3. 这使整个地球变暖，改变了气候。 4. 据科学家研究，额外累积的温室气体是由人类活动种所导致。 5. 二氧化碳是新加坡主要排放的温室气体。当石油和天然气等化石燃料燃烧以满足我们的能源需求时，释放这种气体。
5.3	Infographic: How Will Climate Change Affect Us?	
	<p>How Will Climate Change Affect Us?</p> <p>Globally, people are experiencing scorching summers, melting glaciers and stronger storms. In Singapore, the possible effects of climate change could be flooding, coastal land loss, water shortage, more vector-borne diseases,</p>	<p>气候变化如何影响我们？</p> <p>全球的人们正经历灼热的夏天、冰川融化和更强的风暴。在新加坡，气候变化可能带来洪水，导致沿海土地流失、缺水、更多的传播媒介疾病和生物多样性的丧失。</p>

	<p>and loss of biodiversity.</p> <p>The more we learn about how climate change will affect people and the environment, the more we see why people must take action to reduce the greenhouse gas emissions that cause climate change.</p> <p>What steps can we take to prepare for the changes we know are coming?</p>	<p>关于气候变化对人类和环境的影响，我们有更进一步的了解，这让我们意识到减少温室气体排放的重要性。</p> <p>我们该采取哪些措施，为这些可预知的变化做好准备呢？</p>
5.4	<p>Infographic: Key CO₂ Contributors</p>	
	<p>Key CO₂ Contributors</p> <ul style="list-style-type: none"> - Industry: 54% - Transport: 19% - Buildings: 16% - Consumers: 9% - Others: 2% <p>Energy consumption is one of the main sources of carbon in Singapore. We need energy for our day-to-day living. Our household appliances, transport systems, industrial and commercial activities all run on electricity and fuel.</p> <p>However, we need to ensure that this precious resource is used wisely and its negative by-products such as carbon dioxide are well managed.</p>	<ul style="list-style-type: none"> - 行业：54% - 运输：19% - 建筑：16% - 消费者：9% - 其他：2% <p>能源消耗是新加坡碳排放的主要来源之一。能量是我们日常生活不可或缺的一部分，例如家用电器、运输系统、工业和商业活动都是需要电力和燃料的。</p> <p>因此，我们需要明智的使用这宝贵的资源，并良好管理其负面副产品如二氧化碳。</p>
5.5	<p>Graphic: Energy Efficiency</p>	
	<p>Energy Efficiency</p> <p>A key strategy to mitigate climate change in Singapore is to improve energy efficiency – which means achieving more with less energy.</p> <p>Adopting smart energy choices at home or at work could mean lower energy use, lower emissions and a better environment for everyone, because our individual choices add up to make a collective difference!</p> <p>What do you know about energy efficiency?</p>	<p>能源效率</p> <p>在新加坡，缓解气候变化的一个关键战略是提高能源效率 - 这意味着以更少的能源来实现更多。</p> <p>在家或工作中选择智能能源、就可以降低能源使用和气体排放。我们在环保作出的每个贡献，将积少成多，让大家收益！</p> <p>你对能源效率又知多少？</p>

5.6	Graphic: Energy Efficient Appliances	
	<p>Energy Efficient Appliances</p> <p>When buying a new appliance for your home or work, choose those that are more energy efficient to lower your energy use. Look out for the energy label when you buy appliances. The more ticks on the label, the more energy efficient it is.</p> <p>Energy efficient models generally have lower life-cycle costs. This means consumers would spend less on energy bills when using more energy efficient appliances.</p> <p>To calculate the life cycle costs of different appliances, you can use the Life Cycle Cost Calculator</p> <p>To help track energy consumption in your home, you can download the NEA Energy Audit.</p>	<p>节能电器</p> <p>在购买家用或办公室的电器时，选择节能效率高的电器可以降低能源使用。购买之前，请注意能量标签。标签上的勾越多，能量效率越高。</p> <p>节能电器一般上具有较低的生命周期成本。使用能效较高的电器可帮助消费者减少能源费用。</p> <p>想计算电器的生命周期成本？你可以使用 Life Cycle Cost Calculator 做计算。</p> <p>想检查家户消耗了多少能源？你可以下载 NEA Energy Audit 查看。</p>
5.7	Graphic: Our Goal	
	<p>Our Goal</p> <p>To reduce our energy intensity (energy consumed per dollar GDP) by 35% from 2005 levels by 2030</p> <p>To reduce our carbon emissions by 16% below business-as-usual (BAU) levels* in 2020 if there is a legally binding global agreement to mitigate climate change</p> <p>Singapore has embarked on policies and measures to reduce our carbon emissions by 7%, to 11% below BAU levels in 2020.</p> <p>*The BAU level refers to a baseline projection without policy intervention.</p> <p>Want to know more about climate change? Visit this QR Code!</p>	<p>愿景</p> <p>力争至 2030 年将能源强度（每美元 GDP 所消耗的能源）比 2005 年水平减少 35%</p> <p>如果能设定减缓气候变化而具法律约束力的全球协议，将至 2020 年减少我国碳排放量比“一切照常”（BAU）* 水平低 16%</p> <p>新加坡已采取适当政策和措施，力争将碳排放量减少 7%，至 2020 年达到 11%。</p> <p>* BAU 水平是指没有政策干预的基线预测。</p> <p>想了解更多气候变化这课题？请扫描二维码！</p>

Zone 6: Public Health [公共卫生]

6.1	Graphic: Zone Tagline	
	Making it safe for all. How can we safeguard our collective health?	讲究卫生，人人有责 如何保持公共卫生？
6.2	Graphic: Public Health	
	<p>Public Health</p> <p>Public Health involves a range of issues related to our living environment – food hygiene; toilet cleanliness; dengue; littering; and smoking. Everyone plays a part in improving our quality of life by sustaining a quality living environment. Together as a nation, we are committed to continue sustaining our beautiful surroundings and not taking things for granted.</p>	<p>公共卫生</p> <p>公共卫生涉及一系列与生活环境有关的问题如食物卫生、厕所卫生、骨痛热症、垃圾处理和吸烟条例等。要享有优质生活，就得靠大家携手努力，维护优良环境，不能把现状当成理所当然。</p>
6.3	Graphic: You Don't Have To Be A Smoker To Suffer	
	<p>You Don't Have To Be A Smoker To Suffer</p> <p>Smoking is prohibited in the majority of indoor locations in Singapore, including:</p> <ul style="list-style-type: none"> • Air-conditioned shopping malls and offices • Bus interchanges and shelters • Hawker centres and foodshops • Swimming pools • Sports stadiums • Cinemas <p>The Smoking (Prohibition in Certain Places) Act aims to provide a clean, safe and healthy environment for the public and to safeguard them from the harmful health effects of second-hand smoke.</p> <p>Here's what you can do. Remind smokers to smoke only in designated areas. Being exposed to second-hand smoke will affect your health as well.</p>	<p>二手烟对身体也有害</p> <p>新加坡大多数的室内场所禁止吸烟，包括：</p> <ul style="list-style-type: none"> • 空调商场和办公室 • 巴士站和换乘站 • 小贩中心和食品店 • 游泳池 • 体育场 • 电影院 <p>“禁烟令（设定地方）”旨在为公众提供一个清洁、安全和健康的环境，并避免他人受到二手烟的影响。</p> <p>接触二手烟对健康有害，你可以提醒吸烟者只能在指定地区吸烟。</p>
6.4	Exhibit: Hawker Food Cart	
	1. Nonya Kueh: Store food in	1. 娘惹糕：将食物储存在密封的

	<p>tightly covered containers to prevent pest contamination.</p> <ol style="list-style-type: none"> 2. Tau Huay: Germs multiply quickly within the Temperature Danger Zone of between 5 °C and 60 °C. 3. Chicken briyani: Keep food in refrigerator after 2 hours. Solid foods should give off steam when reheated. 4. Chicken wing: Remember to wash your hands before consuming or handling food. 5. Satay: Use separate utensils for cooked and uncooked food to avoid cross-contamination. 6. Prawn Noodles: Reheat food only once and check that liquid foods simmer thoroughly. 	<p>容器中，防止遭有害生物污染。</p> <ol style="list-style-type: none"> 2. 豆花：在 5 °C 和 60 °C 之间的温度危险区域内，细菌迅速繁殖。 3. 印度鸡肉香饭：2 小时后将食物放在冰箱。重新加热的固体食物应释放蒸汽。 4. 鸡翅：记得在食用或处理食物之前洗手。 5. 沙爹：使用不同餐具处理熟食和未煮过的食物，以避免交叉污染。 6. 虾面：熟食只能重新加温一次，而液体食品一定要煮滚。
6.5	Graphic: Dengue	
	<p>Dengue</p> <p>In Singapore, dengue fever will always be a threat as it is the main vector-borne disease here. (Vectors are organisms that transmit diseases, and the Aedes mosquito is the vector that transmits dengue fever)</p> <p>So when an Aedes mosquito bites an infected person, it can pick up the virus and pass it to the next person.</p>	<p>骨痛热症</p> <p>骨痛热症是新加坡的主要的媒介传染疾病，也是个永久的威胁。（载体是传播疾病的生物，而伊蚊是传播骨痛热症下的载体）</p> <p>所以当伊蚊叮咬患有骨头热症的病人，可导致病毒进入伊蚊中，转播给伊蚊的下一个受害者。</p>
6.6	Exhibit: Toilet Diorama	
	<ol style="list-style-type: none"> 1. Old public toilet: We've come a long way since the last night soil bucket in 1987. 2. Old home toilet: An average person spends 3 years of their lives in a toilet. 3. Modern public toilet: Will you spare a thought for our toilet cleaners? 4. Modern home toilet: Clean toilets are the hallmark of a gracious society. 	<ol style="list-style-type: none"> 1.旧款公厕：从 1987 年淘汰夜间便桶至今，我国厕所设施已改善许多。 2.旧款家厕：一般人呆在厕所的时间估计有三年那么长。 3.现代公厕：用厕时，你会为清洁员工着想吗？ 4.现代家厕：清洁厕所是优雅社会的一种体现。

6.7	Graphic: Public Cleanliness	
	<p>Public Cleanliness</p> <p>Cleanliness is important to Singapore. We want our surroundings to be litter-free and well-kept and we all want to live in clean neighbourhoods that we can proudly call home.</p> <p>However, litter still afflicts our environment. At its best, litter is unsightly. At its worst, litter can provide hospitable habitats for the breeding of mosquitoes and food sources for vermin, as well as pollute and choke our waterways.</p> <p>While Singapore has a thorough public cleaning regime, we cannot rely solely on cleaners to keep our country clean. Everyone has a part to play to keep our surroundings clean.</p>	<p>公共清洁水平</p> <p>公共清洁对新加坡非常重要。我们都希望生活在清洁的社区，能引以为豪的理想家园。</p> <p>然而，乱丢垃圾仍是我们社会的一个不雅的现象。满地垃圾，表面上只不过不堪入目，但恶化情况下，可成为蚊子害虫的滋生地和食物来源，并污染和阻塞我们的水道。</p> <p>尽管新加坡公共清洁制度非常全面，但我们也不该单单依赖清洁工来保持环境清洁。每个人都该关心公共空间，维护社区。</p>

Zone 7: Leaf-A-Pledge [绿约为定]

7.1	Graphic: Zone Tagline	
	Will you help us grow the Promise Tree?	一起栽培“承诺树”好吗?
7.2	Graphic: Facebook Pledges	
	<p>I support ...</p> <ul style="list-style-type: none"> - Clean Air - Peaceful Environment - Recycling - Reducing Waste - Properly Throwing Waste Away - Using Water Wisely - Keeping Our Waters Clean - Using Electricity Wisely - Clean Energy - Proper Food Hygiene - Eliminating Mosquito Breeding Grounds - Responsible Smoking Behaviour 	<p>我支持</p> <ul style="list-style-type: none"> - 新鲜空气 - 平静环境 - 再循环 - 减少废物 - 废物清除 - 节省用水 - 节约用电 - 清洁能源 - 食物卫生 - 消除蚊子滋生地 - 遵守禁烟令，顾虑他人
7.3	Graphic: Choose a Badge, Live the Pledge	
	<p>Choose a Badge, Live the Pledge</p> <p>Now that you have a better understanding of the issues and challenges we faced in working towards environmental sustainability, would you help?</p> <p>If you are to commit yourself to one eco-friendly habit for the good of our environment, what would it be?</p> <p>Write out your pledge on the leaf and help us grow the Promise Tree, one leaf at a time. Let our collective efforts bring about positive changes for the environment that we live in!</p>	<p>选个徽章，实现“绿约”</p> <p>对我们维护环境的各种挑战有更深一层的见解后，你愿意为绿化新加坡尽一份力吗？</p> <p>要让绿色生活成为一种生活方式，可从一个简单习惯做起。你的“绿化誓约”将会是什么呢？</p> <p>把你的承诺写在“绿约”上，然后将它挂在“承诺树”，帮助这棵树茁壮成长。让我们携手合作，共同打造一个更美好的家园！</p>
7.4	Graphics: Goodbye	
	<p>We're so glad you came! Remember your pledge!</p>	<p>后会有期，绿约为定！</p>

1. Introduction

1.1 Context and Purpose of Study

This paper aims to shed light on the translation of exhibition content, an area which remains largely unexplored in the field of translation studies. In the context of Singapore's multilingual society, the study of creating bilingual exhibitions is a step towards creating a more accessible learning environment for a more diverse audience.

The case study in question is the ENVision Gallery under the Ministry of Environment and Water Resources (MEWR). It is a “one-stop showcase of Singapore's environmental story”, where the visitor undergoes a “multi-sensory experience through five different zones covering key environmental topics – air, land, water, energy, and public health” (MEWR, 2017). Through a combination of text, infographics, physical exhibits and multimedia displays, the visitor becomes more informed about the environmental issues at hand. At the end of the gallery, there is a call to action for the visitor to commit to an environmental-friendly habit, with the hope of getting participants to be more involved.

The translation presented in this paper is focused on text content and exhibit labels in print within the ENVision gallery. To ensure that each zone is equally weighted in terms of words translated, certain source text (ST) segments are not included in the translation e.g. print content for Energy Zone is text-heavy with the highest word count among all zones and thus, two text segments are omitted from translation. Video animations are also not included in the translation. While multimedia exhibits constitute an important component of the visitor experience, the translation of such audio-visual materials involves another domain of translation studies that is beyond the scope of this paper.

1.2 Defining the Target Audience

The gallery content is targeted at school children, with the aim of fostering environmental awareness among school children. However, the topic of environmental awareness is one that does not distinguish between the young and the old. By incorporating bilingual content for the gallery, key messages on environmental awareness could be conveyed to segments of Singapore's community that might otherwise be left out.

Nord's (1997) functionalist approach states that it is essential to consider the target audience and context as the core points while developing on the translation. The source text (ST) must serve as a guide in developing the eventual translation, but the translated text (TT) need not necessarily reflect the ST's 'identical image'. With this in mind, I define the primary target audience as the older generations of Chinese Singaporeans who are not literate in the source language, and would best understand the content in the target language.

The secondary audience for the bilingual content is targeted at school children whose mother tongue is Chinese. As will be elaborated in the next section, having bilingual content within the exhibition presents a learning opportunity for bilingual visitors to improve their bilingualism.

2. Significance of Bilingual Exhibitions

2.1 Benefits of Bilingual Exhibitions

While research-based literature on the subject of translating exhibitions proves to be rather limited, there have been some recent studies that examine the visitor experience of bilingual exhibitions. For example, the Bilingual Exhibits Research Initiative (BERI) conducted a series of interviews and visitor research of Spanish-speaking groups in English-Spanish bilingual exhibitions in the U.S. and noted that bilingual exhibits "carry symbolic content conveying who belongs in our learning institutions". (Renner, et al., 2015: 79). Also, the visitor experience in bilingual museums was "much more complex than might be thought", with a need for further research on code switching and group dynamics in museums. (Yalowitz, et al., 2015: 4).

While their research results may not be completely transferable in the context of Singapore's linguistic communities, the following findings may be of consideration as possible benefits of bilingual exhibitions in general (Yalowitz, et al., 2013):

i) For groups that speak both languages, the provision of bilingual exhibition text "enables rich forms of language-based interactions". Bilingual visitors practice code switching frequently, especially when they came across a word or phrase in one language that was more easily understood in the other language.

ii) Some Spanish dominant adults said that they tried reading the English text first, and cross-referenced it with the Spanish text to check their understanding. They felt it was important for

their children to learn or maintain Spanish, and thought having Spanish text allowed them to do so.

iii) The availability of Spanish text in such settings allowed for Spanish-dominant adults to facilitate the visit with their children and made them feel more welcome.

These findings indicate that providing bilingual content can help improve mother language mastery among visitors, as the translation becomes a learning point in itself. While the positive outcomes of BERI's research might not directly translate in Singapore's context and our visitors here, I would suggest that such findings merit further research on visitor engagement with multilingual exhibitions in Singapore's context.

Another study that examines the benefits of linguistic inclusion in exhibitions is Shelley's (2015: 20) work on Belgium's museums; she noted that the multilingual content that have been developed for linguistically different audiences is aligned with how contemporary museums increasingly seek to form personalised connections with their audience and develop appropriate strategies accordingly. As such, in applying this to the ENVision gallery, the message to act in the best interests of our environment, can be further strengthened by communicating in the preferred language of the target audience i.e. older generations of Singaporeans who might not be proficient in the source language are able to access such content and be more engaged in environmental awareness efforts.

2.2 Considerations in a Multilingual Society

The notion of what language to use in multi-lingual societies such as Singapore can be a sensitive topic. Owing to its racial make-up, Singapore is a multilingual society with four official languages: Malay as the national language; Mandarin and Tamil as the languages of the other ethnic groups; and English as the *de facto* lingua franca (Lee, 2010, p. 65).

As Lee (2010: 65) explains, within the field of translation studies, translation in multilingual societies prove to be the most complex theoretical challenge, because "language, and by extension translation, is always an ideologically loaded concept" in such societies, where "linguistic communities struggle for existence, identity and power".

The question then arises: should an exhibition be translated at all? Would the display of bilingual content for a particular exhibition be construed as an act of exclusion of other ethno-linguistic groups?

Nevertheless, this study of creating bilingual content should be viewed as an exploratory step towards translating from English into mother tongue languages, with the bigger goal of creating multilingual content for the diverse make-up of Singapore's linguistic landscape. In fact, Singapore's "bilingual approach attempts to construct a well-balanced relation between the official languages in Singapore by stressing the importance of mother tongue languages by way of translating into them, while not compromising the position of English as the overarching channel of inter-linguistic communication" (Lee, 2010, p. 83).

It should also be noted that government reports and communication materials are produced in English, but when such materials are selected for translation, they would be translated into all the other official languages e.g. MEWR website contains a selection of educational materials on dengue control, climate change and other environmental issues that can be found in four different language versions.¹ As such, this study on English-Chinese translation of exhibition content should be viewed as only one piece of the puzzle; further research on translation of English into Malay and Tamil would be necessary to make multilingual exhibitions a reality.

Another motivation for translating out of English into ethnic languages is to attempt to reverse the asymmetric power relation between English as the dominating language and mother tongue languages as the dominated. "The linguistic environmental trends in contemporary Singapore point to a gradual overpowering of English over the mother tongue languages. While the English-speaking 'cosmopolitans' are perceived as 'the elites at the centre of power and influence', the 'heartlanders' speaking the mother tongue languages are relegated to the periphery of nation-building and economic development" (Lee, 2010, p. 65). In view of the declining usage of mother tongue languages among younger generations of Singaporeans, I propose the development of bilingual and multilingual exhibitions as one way of remedying the situation by "enhancing the visibility of the mother tongue languages and increasing their symbolic capital." (Lee, 2010, p. 85)

¹ <http://www.nea.gov.sg/training-knowledge/educational-materials-and-exhibits/posters-exhibits>

3. Theoretical Framework

3.1 Characteristics of Exhibition Translation

In view of the scarcity of literature on exhibition translation, the translation of advertising could provide some guidelines on possible strategies that could be applied or adapted for this sub-field. Munday notes that in advertising language, there is a “linguistic deviation from the norm [that] often becomes part of the message”, and other advertising techniques include loan words, neologisms and puns with the effect of capturing the reader’s attention (2004: 203). Persuasive effect “must remain a central concern for translators of adverts” (Munday, 2004: 206). Such features are also present in the content of the ENVision gallery, which suggests that there could be commonalities between advertising copy and exhibition content in general.

3.2 Translation Strategies

Using Newmark’s distinction between semantic and communicative translation, two text types can be discerned from the content of the ENVision gallery: i) informative texts that focus on educating the visitor on environmental issues, and ii) expressive text written with the intention to persuade or motivate the visitor into doing more for the environment. He noted that “informative texts are translated more closely than vocative texts,” whereas translation of vocative texts “involves translation in the problem of the second person” and that the equivalent effect of translation is essential to gauge the effectiveness of writing on the reader. (Newmark, 1988: 48, 50)

In differentiating between semantic translation and communicative translation, Newmark mentioned that semantic translation places more emphasis on the SL, tends to over-translate and yet is more likely to be economical and concise, while communicative translation focuses more on the readership, tends to under-translate, and is written in a more natural style that befits the readership (Newmark, 1988: 47). Depending on the text type of the ST, the methods adopted to achieve the equivalence effect of translation would vary between semantic or communicative; over-translating or under-translating.

Chesterman (1997) presents a classification of translation strategies that is roughly categorised as i) syntactic strategies which involve form manipulation, transposition, and sentence structure, ii) semantic strategies such as synonymy, emphasis change, and

paraphrase, as well as iii) pragmatic strategies which related to selection of information, cultural filtering, and so on. Before determining which strategies to adopt for a particular text, the unit of translation has to be defined first.

3.3 Unit of translation

Deciding on the appropriate unit of translation for exhibition content is another consideration that would affect the level of equivalence achieved with the TT.

Newmark (1988: 64) classified paragraphs and text segments as a higher unit of translation, while sentences, clauses and words are regarded as lower unit of translation. He also noted that in vocative texts, the unit of translation is likely to be small, since nuances of meanings are more likely to be captured in words rather than sentences. (Newmark, 1988: 50)

Chesterman (1997: 12) discussed the idea that the choice of unit of translation would influence whether the translation would be free or literal, saying that in opting for a small unit of translation, the TT tends to be produced in a more literal form, whereas in applying a larger unit of translation, the TT would be more inclined towards the target audience as well as the communicative function of the translation.

Considering that this case study involves translation of advertising-like language as mentioned in 3.1, and two different text types as brought up in 3.2, my translation approach focuses on text segment as the unit of translation, as this allows for a more adaptive and less literal form of translation, with the readership in mind. When it comes to vocative text, there is also the flexibility of breaking down from a larger unit of translation into a smaller unit of translation, in order to be focused on the nuances to be conveyed

Another factor in favour of using text segment as a unit of translation is that the gallery content in print is organised and presented visually in text segments, each with its own header. This leads to the next point on typography and how the layout of information affects translation factors such as word count.

3.3 Typography

Texts are shaped by the space they operate. The importance of the visual is another point brought up by Munday on translating advertisements, but he also noted the lack of attention in this aspect from the field of translation studies (2004: 211). Similarly, Torresi (2007: 39) observed that the “visual-oriented semiotic approach” has “seldom been applied to translation studies”, and suggests that graphic components can serve as useful references for translators,

rather than accepting the visual components passively. Schopp (2002) was even more specific in pointing out that the “reproduction of the target text layout” is visually helpful in formulating a print-ready translation.

In crafting the zone taglines and the headers of each text segment, attention has been given to the text layout and spatial considerations. For the taglines and text segment headers, the word count of the translation is approximate to that of the source, so that if the texts are placed parallel besides one another, one text would not overwhelm the other in terms of visual presentation. To apply this level of attention to the text segment itself would require the typographic awareness and design skills of a design professional, and thus, is regrettably not covered in this case study.

4. Exhibition Translation Challenges

4.1 Zone Taglines

Zone names and taglines in general, give the visitor an expectation of the overall messaging of the gallery and what to expect from each zone. As such, the exhibition zone taglines are examined collectively as a unit of translation. This is in exception to the rest of the content, because as mentioned earlier, the unit of translation would be the text segment. From the syntax of the ST, it is derived that the zone taglines were formulated in relation to one another. The tagline of each zone, with the exception of the final zone, follows a syntactic pattern: first, an aspirational statement that outlines an ideal outcome related to the topic e.g. the statement “Clean enough to inhabit” is in direct relation to the topic of “Land”. The statement is then followed up with a question that is posed in the first-person narrative to the audience. As such, the translation of the taglines is also done collectively at the “zone” level, to ensure that a consistent line of messaging is expressed in the TT.

The common thread running through these questions is the reference to a collective “we”. The tagline for the final zone is phrased not as a statement, but in the form of a question, or an appeal to the visitor to grow the “Promise Tree”.

Zone Tagline		
Zone	ST	TT
Air	Fresh enough to inspire. How do we maintain our clear blue	新鲜空气，精神爽 蓝天白云，如何维护？

	sky?	
Land	Clean enough to inhabit. Where does our waste material go to?	清洁宜居，环境优 垃圾废物，何处去？
Water	Pure enough to drink. Will there be enough water for everyone?	水质好，安心饮用 充足水源，如何保？
Energy	Smart enough to sustain. How do we get more from using less?	可持续发展，靠智能 如何资少，获利多？
Public Health	Making it safe for all. How can we safeguard our collective health?	讲究卫生，人人有责 如何保持公共卫生？
Leaf-A-Pledge	Will you help us grow the Promise Tree?	一起栽培“承诺树”好吗？

Table 1 Zone Taglines and Translation

The translation adheres to the structure of the ST by making a statement first, and then following it up with a question. In adhering to a particular syntactic structure within the TT, the translation makes it more obvious to the visitor that the taglines are formulated with a consistent messaging in mind. Another pattern is that the leading statement of each tagline is segmented into two phrases and demarcated by a comma break in the middle. This is where a manipulation in form differentiates the TT from the ST. The intended effect is for the two phrases to be catchy and read like slogans, with a certain rhythm when verbalised. Also, the Chinese language favour four-character expressions, which are considered to be more condensed in meaning, and communicate more with fewer words used. Another difference is the absence of personal pronouns in the TT, which allows for brevity in the expressions used.

4.2 Specific Terminology

The terminology in the gallery content can be classified into two categories i) environmental terminology ii) government-related references.

i) Environmental terminology

To verify the accuracy of translation for environmental or scientific terms such as PM10 (see segment 2.5), cross-referencing has been made to Singapore's mainstream media such as Lianhe Zaobao. Another key point of reference is the Chinese translation of "Clean, Green and Blue: Singapore's Journey towards Environmental and Water Sustainability", a publication listed on MEWR website (Grab Our Research, 2017). Proper nouns such as the Chinese name of then-PUB Chairman Tan Gee Paw is referenced from this source (Tan et al, 2013: 222). Owing to the lack of a definitive official corpus on environmental terms used in Singapore, mainstream media references as well as MEWR-related publications offer the next credible alternative.

The concept of 3R, as covered in Zone 3: Land, is a well-established topic under environmental conservation, and a simple search on the internet will bring up different versions of translations. For example, the Chinese version of Wikipedia lists the translation of the three Rs (reduce, reuse, recycle) as four-character expressions (减少使用、物尽其用、循环再造).² These terms may be semantically similar to the two-character terms used in my translation (see segment 3.2), but for the purpose of educating our target audience, the translation is standardised according to actual terms being used in government reports and mainstream media. Similarly for terms such as Pollutant Standards Index (PSI) where there is more than one accepted version, the term used in my translation would be consistent with the one that is being used in Singapore. This would ensure that the gallery visitor, especially for those who are picking up these terms in Chinese for the first time, to be more familiar and acquainted with the technical terms used in our local context.

ii) Government-related references

A significant portion of the gallery content is on educating the visitor about the government's environmental efforts over the years. As such, there are many references within the gallery on past government campaigns and efforts on environmental conservation. In verifying the official terms used, the first point of reference is the online resource provided by Ministry of

² <https://zh.wikipedia.org/wiki/%E7%92%B0%E4%BF%9D3R>

Communications and Information (MCI) at <https://www.gov.sg/resources/translation>. An extensive list of translation for government-related terms such as “Clean & Green Singapore”, “Sustainable Singapore Blueprint” and “Water Wally” is provided in the database. Proper nouns such as “Semakau Landfill” and “Deep Tunnel Sewerage System” can also be found in the database.

For terms that cannot be found in the MCI database, mainstream media such as Lianhe Zaobao serves as the next best authority on the appropriate translation to be used. When all research options to find an official translation are exhausted, only then would a corresponding translation for terms such as “Singapore Green Plan 2012” and “National Recycling Programme” (both found in segment 1.1) be created.

There are three exceptions where terms with no official translation are also not translated but incorporated instead into the TT itself. For the iPhone app, “MyWaters” (segment 4.6), Life Cycle Cost Calculator (segment 5.6) and NEA Energy Audit (segment 5.6), the decision to not translate and leave the ST term as it is, stems from the fact any visitor who wishes to find the app or program might be misled by the unofficial translation provided. Nevertheless, from the rest of the TT itself, the visitor would be able to understand the function of the app or program.

The Active, Beautiful, Clean Waters (ABC Waters) Programme is a “strategic initiative to improve the quality of water and life by harnessing the full potential of our waterbodies”.³ The official translation for the programme is “活跃，美丽，干净水源计划”, a literal word-for-word translation of the ST. As with all translation terms where the official version is available, my translation would use the official terms provided.

For the purpose of discussion however, I would like to suggest an alternative translation that deviates from the literal approach, but encompasses a deeper meaning of what ABC Waters entails: “爱惜，宝贵，纯净”. This translation conveys the need for the public to treasure water as a precious resource, while retaining the notion of pristine, clean waters in the original term. The three terms are also what one would associate with water as a natural resource. The term’s acronym “ABC” is preserved in the new translation by being reflected in the hanyu pinyin of the three terms: ai xi, bao gui, chun jing.

³ A detailed explanation of the ABC Waters Programme is available at: <https://www.pub.gov.sg/abcwaters/about>

4.3 Neologisms

“Leaf-a-Pledge” is the title of the final zone in the gallery. It also refers to the call to action in this zone, where the visitor is given a “leaf” (a green paper piece that resembles a leaf) to write his or her environmental pledge, after which he or she would place the “leaf” onto the Promise Tree – an exhibit in the shape of a tree that holds up all these “leaf” pledges.

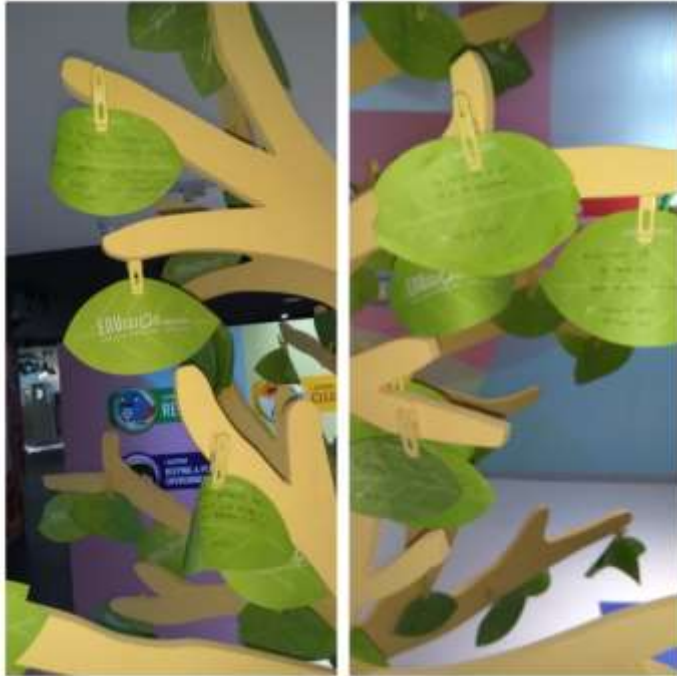


Figure 1 Leaf-a-Pledge on the Promise Tree

Like the original term, the translation would have to be understood in context of the gallery. As Sayadi (2011) pointed out, translators “have to find out the meaning of very new neologisms mainly based on the context ... in which the neologism is used”. The ST term “Leaf-A-Pledge” is a compound of three words, with the word “leaf” as a pun on the homophonic verb “leave.” Similarly, the translation “绿约” can be understood to be a shortened version of the made-up expression “绿化誓约”, which is elaborated in segment 7.3. The term “绿约” is also a homophone of “绿叶” [green leaf], which describes in Chinese the “leaf” pledge that the visitor writes on.

The zone title is translated as “绿约为定”. This is in part inspired by the expression “一言为定”, denoting that a promise, once given, must be kept. The cultural reference in Chinese has been somewhat adapted to enhance the meaning of the translation.

4.4 Rewriting

In certain instances, where the informative text might not be clear in explaining a particular environmental issue, or sequence of events, translation offers the possibility of re-writing to make the text clearer to the visitor in the target language.

Take for example, an extract from segment 3.4 as shown below.

<p>Incineration</p> <p>Singapore's ...</p> <p>As ash from incinerated waste eventually has to go into our landfill and we have only one landfill, incineration alone cannot deal with the ever-increasing amount of waste that we are producing.</p>	<p>垃圾焚烧</p> <p>新加坡……</p> <p>单独的焚烧是不能处理我们日益增长的废物量。来自焚化废物的灰分最终必须进入垃圾填埋场，而我们只有唯一一个垃圾填埋场。</p>
--	---

Table 2 Segment 3.4

The convoluted ST sentence can actually be re-written to form two, even three, sentences. By re-arranging the points and adjusting the sentence structure in the TT, the visitor is able to grasp the main point right away, that “incineration alone cannot deal ... we are producing”. In this case, a communicative approach was taken to re-write the text.

At times, the logic between two connecting paragraphs may come into question, and the translator would have to decide whether to follow blindly, or deviate from the ST and make the correct logical connection.

In segment 5.4 as shown below, the word “however” in the last paragraph does not seem to be making any connection between our dependence on energy and the need to manage this resource wisely. The translation “因此” can be understood to mean “As such”, as befits the sentence.

<p>Key CO₂ Contributors</p>	<p>- 行业: 54%</p> <p>……</p>
--	----------------------------

<p>- Industry: 54%</p> <p>...</p> <p>Energy consumption is one of the main sources of carbon in Singapore. We need energy for our day-to-day living. Our household appliances, transport systems, industrial and commercial activities all run on electricity and fuel.</p> <p>However, we need to ensure that this precious resource is used wisely and its negative by-products such as carbon dioxide are well managed.</p>	<p>能源消耗是新加坡碳排放的主要来源之一。能量是我们日常生活不可或缺的一部分，例如家用电器、运输系统、工业和商业活动都是需要电力和燃料的。</p> <p>因此，我们需要明智的使用这宝贵的资源，并良好管理其负面副产品如二氧化碳。</p>
--	--

Table 3 Segment 5.4

In the next two examples, re-writing is necessary to convey the nuances of meaning encapsulated in the words, and this is where focusing on the sentence as a unit of translation is useful as a translation strategy.

In segment 5.5, the translation for the expression “because our individual choices add up to make a collective difference!” expands on the idea of having everyone to benefit from this collective difference, by adding in the phrase “让大家收益”。

<p>Energy Efficiency</p> <p>...</p> <p>Adopting smart energy choices at home or at work could mean lower energy use, lower emissions and a better environment for everyone, because our individual choices add up to make a collective difference!</p> <p>What do you know about energy efficiency?</p>	<p>能源效率</p> <p>.....</p> <p>在家或工作中选择智能能源、就可以降低能源使用和气体排放。我们在环保作出的每个贡献，将积少成多，让大家收益！</p> <p>你对能源效率又知多少？</p>
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Table 4 Segment 5.5

For segment 6.7 below, the translation for the expression of “At its best” and “At its worst”, did not follow the elegant syntactic structure of the ST, but focuses on explaining the meanings in the ST, at the risk of over-translating.

<p>Public Cleanliness</p> <p>...</p> <p>However, litter still afflicts our environment. At its best, litter is unsightly. At its worst, litter can provide hospitable habitats for the breeding of mosquitoes and food sources for vermin, as well as pollute and choke our waterways.</p> <p>...</p>	<p>公共清洁水平</p> <p>.....</p> <p>然而，乱丢垃圾仍是我们社会的一个不雅的现象。满地垃圾，表面上只不过不堪入目，但恶化情况下，可成为蚊子害虫的滋生地和食物来源，并污染和阻塞我们的水道。</p> <p>.....</p>
---	---

Table 5 Segment 6.7

5. Conclusion

This paper explores the issue of what translation strategies could be used for the translation of exhibition writing. Only by understanding the considerations that go into creating bilingual content for an exhibition, can organisations better evaluate the costs and benefits of such a proposition for their audience.

As an exploratory step towards developing multilingual exhibitions in Singapore, it is my hope that continuing research in this aspect paves the way for a more sophisticated approach for the translation for creative content. The motivation for this paper stems from a desire to see greater social inclusion through the provision of bilingual content, and for mother tongue languages to gain more symbolic capital in our multilingual society.

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