

From: richard stokes [REDACTED]
To: "f_pwsc@legco.gov.hk" <f_pwsc@legco.gov.hk>

Date: Monday, April 14, 2014 04:30PM
Subject: IWMF Phase 1 proposal - 117DR.

History: ➔ This message has been forwarded.

Dear PWSC Members,

I sincerely ask you to carefully consider the Environment Bureau plans for the IWMF in HK. This project will be **too late, too expensive and too destructive** to the Outlying Islands area of HK.

Too Late - because it will not be online until 2022. HK already has too much rubbish to dispose of daily.

More effective waste sorting & recycling must be started now. Reduce the amount of Landfill by sorting.

Build systems that can quickly address the problem of waste disposal.

Too Expensive - the cost of land reclamation & building of special structures is a waste of taxpayer money.

Smaller size "Gasification plants" can be built very easily & more cheaply at the existing Landfill sites.

Only large Incinerator is not the efficient way to dispose of all HK's waste materials.

Most cities around Asia (including Shenzhen) have numerous smaller size systems to handle waste quicker.

Too Destructive - the damage to Shek Kwu Chau, the marine environment, the impact on Tourism & proximity of Disneyland, makes the proposed location for IWMF a very poor choice. Many tourists to HK will avoid visiting Lantau when they know a huge Incinerator is being built near there. The EPD shows prevailing wind from the North, but this is true in wintertime only. Most of the year, the IWMF will affect people in Lantau/Cheung Chau.

The only benefit the proposed IWMF offers is "free electricity", however, the power grid of HK is nowhere near to SKC so electricity will be wasted in the long distribution cables. The best way to use the "recycled energy" is to site the IWMF next to Black Rock Power Station. Toxic Ash from IWMF can also be easily disposed there.

Please vote to use HK Taxpayers money in the best way. **The IWMF in SKC is not the best way for HK.**

yours sincerely,
richard stokes
lantau island.

To: wklo@engineer.com, lcc.nw@dab.org.hk, jkstolegco@gmail.com, klclegco@gmail.com, elau@dphk.org, yctam@dab.org.hk, arazack@netvigator.com, khwong@ftulegco.org.hk, info@cydho.org.hk, garychk@dab.org.hk, leungkl@leungkl.org, ipkh@dab.org.hk, contact@alanleong.net, albert.wychan@yahoo.com.hk, legco@michaeltien.hk, tpc@jamestien.com, frankieyick@liberal.org.hk, chiwaioffice@gmail.com, fankwokwaioffice@gmail.com, fkmaoffice@gmail.com, charlesmok@charlesmok.hk, benchanlegco@gmail.com, info@chankalok.hk, yhchan@ftulegco.org.hk, amlegco@gmail.com, info@cheungchiuhung.org.hk, helenawonhk@gmail.com, eq@eqweb.hk, chianglaiwan@gmail.com, office@chungsk.com, info@tonytsewaichuen.com

From: [REDACTED]

Date: 04/14/2014 10:41PM

Cc: cb1@legco.gov.hk

Subject: IWMF phase 1 proposal should be rejected based on clear project management perspectives
(See attached file: LIM letter to Public Works Subcommittee 2014 04 14.pdf)

Dear Honourable Members of the Public Works Subcommittee,

Our organisation urges you to reject the current proposal by the Director of Environmental Protection (DEP), which is supported by the Secretary for the Environment, to upgrade 177DR to Category A at an estimated cost of \$18,245.7 million in money-of-the-day (MOD) prices for the design and construction of the integrated waste management facilities (IWMF) phase 1. [PWSC(2014-15)7]

While the Panel on Environmental Affairs has now approved (by 9 votes to

6) the same basic ENB proposal to "burn and bury" our waste that they rejected approximately 2 years ago, we urge you not to blindly follow their approval which is meant to have been based on environmental concerns. We believe that the 9 members of the EA Panel who voted in favour have clearly shown their lack of concern for the natural environment of Hong Kong.

As members of the Public Works committee, where your expertise is more on project management and engineering solutions, you should see that the current proposal to extend 3 landfills and build a mega incinerator does not solve the problem we are facing with Municipal Solid Waste (MSW) in the most timely or financially responsible way.

We urge you to reject the current proposal based on the clear project management perspectives of:

- Timing:

building the incinerator next to Shek Kwu Chau (SKC) will take many more years than the alternative site of the Tsang Tsui Ash Lagoons.

- Cost:

selecting a site that does not require reclamation would significantly reduce the cost of the project. The difference in costs has been estimated to be the equivalent of building a new hospital (\$2.5 Billion for the recently opened Tung Chung Hospital)

- Technology:

the current proposal contains no practical proposal for mechanically sorting the majority of our waste before it is either sent to a landfill or incinerator. The proposed SKC pilot sorting plant will only be able to handle about 2% of the total MSW

- Performance Measure:

There are no performance incentives within the proposal for the government to implement meaningful recycling services. How can you trust the government to implement the recycling services once you have approved the "bury and burn" based proposal?

- Inefficient Land Use:

The land area of the existing landfills sites should be used as Integrated Waste Management Facilities (IWMF) rather than being only used for landfill. An IWMF should include building multi-storey waste sorting facilities to separately identify recyclables, organics and hazardous materials.

- Private Sector Competition:

There have been numerous offers from the business sector over the years to help solve the waste issue from a commercial perspective. These have included offers to take 1/3 of the current MSW to piloting of the very latest thermal treatment technology.

- Risk Management:

How can building one mega incinerator operated by one company out in the ocean provide contingency measures if this single plant has operational issues. Surely multiple smaller IWMF's located around HK can truly represent a balanced spatial distribution of Waste Management Facilities and provide superior operational risk management.

Regards

Dr Merrin Pearse

Chairman

Living Islands Movement

<http://www.livingislands.org.hk>

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movement

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14 April 2014

Letter of representation to Public Works Subcommittee Members

Dear Honourable Members of the Public Works Subcommittee,

Our organisation urges you to reject the current proposal by the Director of Environmental Protection (DEP), which is supported by the Secretary for the Environment, to upgrade 177DR to Category A at an estimated cost of \$18,245.7 million in money-of-the-day (MOD) prices for the design and construction of the integrated waste management facilities (IWMF) phase 1. [PWSC(2014-15)7]

While the Panel on Environmental Affairs has now approved (by 9 votes to 6) the same basic ENB proposal to "burn and bury" our waste that they rejected approximately 2 years ago, we urge you not to blindly follow their approval which is meant to have been based on environmental concerns. We believe that the 9 members of the EA Panel who voted in favour have clearly shown their lack of concern for the natural environment of Hong Kong.

As members of the Public Works committee, where your expertise is more on project management and engineering solutions, you should see that the current proposal to extend 3 landfills and build a mega incinerator does not solve the problem we are facing with Municipal Solid Waste (MSW) in the most timely or financially responsible way. We urge you to reject the current proposal based on the clear project management perspectives of:

- **Timing:** building the incinerator next to Shek Kwu Chau (SKC) will take many more years than the alternative site of the Tsang Tsui Ash Lagoons.
- **Cost:** selecting a site that does not require reclamation would significantly reduce the cost of the project. The difference in costs has been estimated to be the equivalent of building a new hospital (\$2.5 Billion for the recently opened Tung Chung Hospital)

- **Technology:** the current proposal contains no practical proposal for mechanically sorting the majority of our waste before it is either sent to a landfill or incinerator. The proposed SKC pilot sorting plant will only be able to handle about 2% of the total MSW
- **Performance Measure:** There are no performance incentives within the proposal for the government to implement meaningful recycling services. How can you trust the government to implement the recycling services once you have approved the "bury and burn" based proposal?
- **Inefficient Land Use:** The land area of the existing landfills sites should be used as Integrated Waste Management Facilities (IWMF) rather than being only used for landfill. An IWMF should include building multi-storey waste sorting facilities to separately identify recyclables, organics and hazardous materials.
- **Private Sector Competition:** There have been numerous offers from the business sector over the years to help solve the waste issue from a commercial perspective. These have included offers to take 1/3 of the current MSW to piloting of the very latest thermal treatment technology.
- **Risk Management:** How can building one mega incinerator operated by one company out in the ocean provide contingency measures if this single plant has operational issues. Surely multiple smaller IWMF's located around HK can truly represent a balanced spatial distribution of Waste Management Facilities and provide superior operational risk management.

Regards
Dr Merrin Pearce
Chairman
Living Islands Movement

To: "wklo@engineer.com" <wklo@engineer.com>, "lcc.ntw@dab.org.hk" <lcc.ntw@dab.org.hk>, "jkstolegco@gmail.com" <jkstolegco@gmail.com>, "kiclegco@gmail.com" <kiclegco@gmail.com>, "elau@dphk.org" <elau@dphk.org>, "yctam@dab.org.hk" <yctam@dab.org.hk>, "arazack@netvigator.com" <arazack@netvigator.com>, "khwong@ftulegco.org.hk" <khwong@ftulegco.org.hk>, "info@cydho.org.hk" <info@cydho.org.hk>, "garychk@dab.org.hk" <garychk@dab.org.hk>, "leungkl@leungkl.org" <leungkl@leungkl.org>, "ipkh@dab.org.hk" <ipkh@dab.org.hk>, "contact@alanleong.net" <contact@alanleong.net>, "albert.wychan@yahoo.com.hk" <albert.wychan@yahoo.com.hk>, "legco@michaeltien.hk" <legco@michaeltien.hk>, "tpc@jamestien.com" <tpc@jamestien.com>, "frankieyick@liberal.org.hk" <frankieyick@liberal.org.hk>, "chiwaioffice@gmail.com" <chiwaioffice@gmail.com>, "fankwokwaioffice@gmail.com" <fankwokwaioffice@gmail.com>, "fkmaoffice@gmail.com" <fkmaoffice@gmail.com>, "charlesmok@charlesmok.hk" <charlesmok@charlesmok.hk>, "benchanlegco@gmail.com" <benchanlegco@gmail.com>, "info@chankalok.hk" <info@chankalok.hk>, "yhchan@ftulegco.org.hk" <yhchan@ftulegco.org.hk>, "amlegco@gmail.com" <amlegco@gmail.com>, "info@cheungchiuhung.org.hk" <info@cheungchiuhung.org.hk>, "helenawonghk@gmail.com" <helenawonghk@gmail.com>, "eq@eqweb.hk" <eq@eqweb.hk>, "chianglaiwan@gmail.com" <chianglaiwan@gmail.com>, "office@chungsk.com" <office@chungsk.com>, "info@tonytsewaichuen.com" <info@tonytsewaichuen.com>
From: Glenn Douglas [REDACTED]
Date: 04/15/2014 08:19AM
Cc: "info@livingislands.org.hk" [REDACTED], "cb1@legco.gov.hk" <cb1@legco.gov.hk>
Subject: Very concerned with EPD's approach to Waste Management

14 April 2014

Letter of representation to Public Works Subcommittee Members

Dear Honourable Members of the Public Works Subcommittee,

Our organisation urges you to reject the current proposal by the Director of Environmental Protection (DEP), which is supported by the Secretary for the Environment, to upgrade 177DR to Category A at an estimated cost of \$18,245.7 million in money-of-the-day (MOD) prices for the design and construction of the integrated waste management facilities (IWWMF) phase 1. [PWSC(2014-15)7]

While the Panel on Environmental Affairs has now approved (by 9 votes to 6) the same basic ENB proposal to "burn and bury" our waste that they rejected approximately 2 years ago, we urge you not to blindly follow their approval which is meant to have been based on environmental concerns. We believe that the 9 members of the EA Panel who voted in favour have clearly shown their lack of concern for the natural environment of Hong Kong.

As members of the Public Works committee, where your expertise is more on project management and engineering solutions, you should see that the current proposal to extend 3 landfills and build a mega incinerator does not solve the problem we are facing with Municipal Solid Waste (MSW) in the most timely or financially responsible way. We urge you to reject the current proposal based on the clear project management perspectives of:

- **Timing:** building the incinerator next to Shek Kwu Chau (SKC) will take many more years than the alternative site of the Tsang Tsui Ash Lagoons.
- **Cost:** selecting a site that does not require reclamation would significantly reduce the cost of the project. The difference in costs has been estimated to be the equivalent of building a new hospital (\$2.5 Billion for the recently opened Tung Chung Hospital)
- **Technology:** the current proposal contains no practical proposal for mechanically sorting the majority of our waste before it is either sent to a landfill or incinerator. The proposed SKC pilot sorting plant will only be able to handle about 2% of the total MSW
- **Performance Measure:** There are no performance incentives within the proposal for the government to implement meaningful recycling services. How can you trust the government to implement the recycling services once you have approved the "bury and burn" based proposal?
- **Inefficient Land Use:** The land area of the existing landfills sites should be used as Integrated Waste Management Facilities (IWWMF) rather than being only used for landfill. An IWWMF should include building multi-storey waste sorting facilities to separately identify recyclables, organics and hazardous materials.
- **Private Sector Competition:** There have been numerous offers from the business sector over the years to help solve the waste issue from a commercial perspective. These have included offers to take 1/3 of the current MSW to piloting of the very latest thermal treatment technology.
- **Risk Management:** How can building one mega incinerator operated by one company out in the ocean provide contingency measures if this single plant has operational issues. Surely multiple smaller IWWMF's located around HK can truly represent a balanced spatial distribution of Waste Management Facilities and provide superior operational risk management.

Kind regards,

Glenn Douglas

Sent from my iPad

To: <wklo@engineer.com>, <lcc.ntw@dab.org.hk>, <jkstolegco@gmail.com>, <kiclegco@gmail.com>, <elau@dphk.org>, <yctam@dab.org.hk>, <arazack@netvigator.com>, <kh Wong@ftulegco.org.hk>, <info@cydho.org.hk>, <garychk@dab.org.hk>, <leungkl@leungkl.org>, <ipkh@dab.org.hk>, <contact@alanleong.net>, <albert.wychan@yahoo.com.hk>, <legco@michaeltien.hk>, <tpc@jamestien.com>, <frankieyick@liberal.org.hk>, <chiwaioffice@gmail.com>, <fankwokwaioffice@gmail.com>, <fkmaoffice@gmail.com>, <charlesmok@charlesmok.hk>, <benchanlegco@gmail.com>, <info@chankalok.hk>, <yhchan@ftulegco.org.hk>, <amlegco@gmail.com>, <info@cheungchiuhung.org.hk>, <helenawonghk@gmail.com>, <eq@eqweb.hk>, <chianglaiwan@gmail.com>, <office@chungsk.com>, <info@tonytsewaichuen.com>

From: WasteHK Info [REDACTED]

Date: 04/15/2014 08:23AM

Cc: <cb1@legco.gov.hk>

Subject: Consider "Plan B" for handling HK's Waste

(See attached file: IWMAG Submission to Legco Panel in CHI on the Environment FINAL2 with Figures.pdf)

(See attached file: IWMAG Submission to Legco Panel on the Environment FINAL reduced.pdf)

Dear Hon Members of the Public Works Subcommittee

Our group is very concerned with the Government approach to solving HK's

waste issue. The ENB and EPD seem to be only promoting a partial solution that is based on the same approach they have been talking about for decades.

Attached is what we call "Plan B", which is a viable alternative that could solve more of the waste issue for a similar or smaller budget in a similar or shorter timeframe.

This proposal has formed the basis of an application to the TPB (http://www.info.gov.hk/tpb/en/plan_application/Y_I-SKC_1.html) and also a submission to the Panel on Environmental Affairs (copies attached in both English and Chinese).

We urge you to reject the current proposal at the meeting tomorrow morning and request the Government to seriously assess the suggestions raised in the attached submission.

Regards

Members of the Integrated Waste Management Action Group.

www.wastehk.org

提交到立法會環境事務委員會的意見書

計劃 B 的逼切性

綜合廢物管理行動組織 (IWMAG)

(此中文譯本如與英文版本有任何差異，應以英文版本為準。)

1. 前言

- 1.1. 綜合廢物管理行動組織 (以下稱之為 IWMAG) 支持一個整體全面的方式去解決都市固體廢物的問題，並著重採取各種的措施以減少廢物的產生量。IWMAG 深信所有社區都要為自己產生的廢物負責，因此鼓吹一個區域性的管理策略，處理都市固體廢物。
- 1.2. 政府目前的計劃 (計劃 A)，主要依賴位於石鼓洲的大型焚化爐及三個堆填區的擴展去處理問題，不單缺乏社會的廣泛認同，亦未能解決問題。政府擬議的啟用日期太遲，解決方法亦未能提供足夠的處理量應付預期的都市固體廢物總量，而且實施成本高昂。土地運用方面，未能有效利用現有的廢物處理區，浪費土地資源。
- 1.3. 政府表明現時未有任何替代方案。為了積極回應社會關注，政府應該認真重新考慮有關需要。這個替代方案如要得到社會的接納，必須能於短時間內推行、造價低、能更持續發展並於廣泛範疇正面回應需要、能夠因應社會的變化及科技的發展作出轉變。因此，政府應摒棄現有方案而採用具備上述條件的計劃 B。本意見書的附件簡介了 IWMAG 提倡的替代方案詳情，並與政府方案作出比較。
- 1.4. IWMAG 已將本替代方案「計劃 B」正式提交予城市規劃委員會審批，有待城規會審理。

2. 政府現時政策蘊藏的問題

處理量不足以應付現時的都市廢物棄置量

- 2.1. 政府就都市固體廢物棄置所提議的政策未能改變大眾對減低廢物產生的態度，亦未有制訂全面性的廢物分類及回收方法的方案。近年公布的政策，對減少都市固體廢物容量、有機資源回收及廢物回收的安排都略有不足。這些門面工夫沒有針對如何減低都市廢物的總產量來解決問題，因此政府需要投放大量資源於石鼓洲擴建堆填區及興建大型焚化爐。目前政府的廢物處理及處置政策在既定的時限內將不足以處理真正的都市固體廢物產量。

何謂第二期 – 另一個焚化爐？

現在政府所提議的「綜合廢物管理設施第一期」根本不足以處理都市廢物棄置量，令到每天大約 2100 公噸的都市廢物仍要棄置到堆填區。就此政府從未有提出過解決的方案及建議，但可預期解決方法就是**需要興建第二座焚化爐**。在政府文件中，未有正式訂明第二座焚化爐的其他選址方案，最有可能的選址便是曾咀煤灰湖。

- 2.2. 立法會《環境基建項目》討論文件中稱已規劃的石鼓洲焚化爐為第一期項目，未有提及「第二期」項目。政府有需要明言究竟第二期項目是否曾經提議過的屯門曾咀煤灰湖焚化爐。在此我們強烈要求政府必須盡快公佈第二期項目的時間表，並澄清該項目是否本港第二台大型焚化爐。

未能充分利用現有選址

- 2.3. 目前的堆填區，以世界標準而言，屬於極其巨大。以香港短缺的土地資源而言，更是嚴重的土地使用錯誤。堆填區的功用只是單一用作堆填，而不是發展成多功能的廢物處置區。為了提倡有效地運用土地，IWMAG 提議堆填區內及鄰近的土地都可以用作多元化的廢物處理用地，例如未曾被考慮作為焚化設施的堆填區選址，其實有潛力用作其他模式的廢物管理，產生規模經濟或協同效力。該等選址應被視作綜合地區廢物管理設施的適當地區，亦是公私營機構重大投資的合作平台。

未有投放資源於高容量廢物分類設施

- 2.4. 從其他國家的例子可見，高容量的廢物分類設施是廢物綜合處理中重要的一環，值得我們借鏡。根據相關的情況，採用高容量廢物分類設施可減少高達 80% 的都市固體廢物，減低其對堆填區的負擔。該 80% 的物質可被轉化作回收或循環再用的用途。剩餘的 20% 會被送到轉廢為能設施，作進一步處理或被確定不能轉化/再用後，才送到堆填區處置。目前，政府的藍圖內只有應用焚化與堆填，這個重要而具彈性的方法尚未被納入計劃中。廢物分類設施仍需依靠人手操作和做初步的分類，推動回收循環再造物料更可以推動整個回收業的發展，兩者均能創造更多就業機會。

採用避重就輕的方案

- 2.5. 政府的擬案偏向採用較少公眾阻力的方案，期望市民不察覺焚化方案對社會、經濟及環境的影響。政府的建議不單止未能徹底解決核心問題，亦未能在省時省錢及得到公眾支持的原則下推行該計劃。我們深信，長遠而言必須教育市民實行源頭減廢，並配合廢物分類及

回收。石鼓洲的焚化爐至少要到 2021/22 年才落成，若現在立即實施廢物分類及回收，到時廢物棄置量定必大幅減少，有望減少興建大型焚化爐的必要。

欠缺逼切性

- 2.6. 雖然政府多次強調本港廢物問題嚴峻且逼切，但是決定在需要填海的人工島上興建焚化爐需時最少數年，未免與其原意產生衝突。若果香港急需於短時間內提供可用的方案，那麼選址必須要是以現存陸地及在政府早期選址過程中被列為適當地點的用地為先，例如早在環評研究報告中所提及的屯門曾嘴土地。假若政府堅持選用需要大型填海的土地為新焚化爐選址，有違其‘逼切性’的原意。

3. IWMAG 的替代方案「計劃 B」：分類，回收，勿焚化

- 3.1. 政府的提議未能全面解決固體廢物的問題，實行解決方案的時間性亦追不上廢物產生的速度，我們急需考慮更實用且靈活的替代方案。若能落實執行 IWMAG 的「計劃 B」，政府提議的堆填區擴展有可能大幅縮小甚至變得無必要。

- 3.2. IWMAG 的替代方案著重於以下幾點：

- 首要目標要大幅減少送往堆填的都市固體廢物或經過熱能廢物處理後的棄置物，減少擴展堆填區的需要；
- 四個現有選址均毋須填海，應用作發展為綜合廢置管理設施，每天處理約 700 公噸都市廢物（見表四）；
- 所有都市固體廢物都必須經過機械式分類處理後才被送往轉廢為能廠房或堆填區；
- 在無可選擇的情況下才會利用某幾個小型轉廢為能廠房（使用焚化爐或氣化廠進行熱能廢物處理）處理廢物，減少送往堆填區的需要。

四個區域性選址

- 3.3. 四個擬議的區域性選址如下：

- 選址一：新界東北堆填區—155 公頃 — 備有兩條廢物分類生產線，提供 1400 公噸處理量，廢物回收廠房、廚餘處理中心及小型轉廢為能廠房，提供 600 公噸處理量。
- 選址二：將軍澳 137 區 — 8.9 公頃 — 已完成填土及備有海路運輸 — 備有兩條廢物分類生產線，提供 1400 公噸處理量，廢物回收廠房及廚餘處理中心。

- **選址三：大嶼山東北** – 9.7 公頃 – 已完成填土及備有海路運輸並部分設於山腳岩洞內 – 備有兩條廢物分類生產線，提供 1400 公噸處理量，廢物回收廠房、廚餘處理中心及教育中心。
- **選址四：新界西堆填區** – 200 公頃 – 已完成填土及備有海路運輸 – 備有三條廢物分類生產線，提供 2100 公噸處理量，廢物回收廠房、廚餘處理中心及小型轉廢為能廠房，提供 600 公噸處理量。

由上述可見，選址中綜合了不同的設施，可**提高彈性**，讓政府能隨著社會的轉變及需要去調較各設施的使用量，**避免投放巨大資源於單一的設施上**。

廢物分類廠房

- 3.4. 位於世界各地的廢物分類廠房佔地大小及處理量都各有不同，部份更是於中國生產，備有不同的組件，應付各種的功能和需要（見表三）。這類廠房一般屬於單一大型廠房，備有簡單裝置，例如生產線上運送帶或其他機器。此類廠房不單止創造實地就業，更帶動回收業的發展，使屬於後階段的回收工作能創造更多職位。請參考以下網上影片了解一般廢物分類設施的日常運作：

<http://www.youtube.com/watch?v=YxevVBAeN4s>

<http://www.youtube.com/watch?v=wugmX85ipRU>

- 3.5. 這個替代方案中假設了每一條廢物分類生產線能夠每天處理 700 公噸的都市固體廢物，而視乎該區的固體廢物總量，每個選址可以設有多於一條生產線以配合該區的需要。因此，有關生產線的實際數量取決於減廢措施的成效。比較之下，**廢物分類對環境沒有任何重大的傷害**。

轉廢為能廠房

- 3.6. **計劃 B 不需要一座大型的焚化爐**。根據我們的估計，經過廢物分類後，需要再一步熱能處理的廢物每天大約有 1200 公噸，可送往兩座小型廠房，每個廠房各處理約 600 公噸廢物。因此，建議在每個新界東北及新界西堆填區內的綜合廢置管理設施內，設置一個熱能廢物處理設施。以廠房的規模而言，可參考其他國家，考慮採用現代化的焚化爐或等離子熱能處理技術。無論使用任何技術，均需要達到最高環保及安全標準。

時間性

- 3.7. 若果採納 IWMA 的建議，改變土地用途及給予政策支持，我們預計位於新界東北、新界西堆填區及將軍澳 137 區的廢物分類設施將可於三年內，即 2017 年前投入服務。我們亦深信，即使沒有這個議題的廣泛討論，廢物分類及回收都是十分值得考慮的廢物處理方針。

4. 應在申請撥款之前完成策略性研究

- 4.1. 環境局對現時政策的不足明顯存疑慮，尤其於議會討論文件的第 9(i)段中提到：

「為長遠減少依賴堆填，我們會就日後的廢物管理設施進行策略性研究，籌備工作將於今年展開。這項研究會探討多項議題，例如需要新引進的策略性與地區性設施和服務的種類、規模、技術、地點和時間，以期為日後的廢物管理設施制訂策略性的總體發展計劃」

環境局局長黃錦星亦都曾經於其他公眾場合上提到策略性研究的必要。

- 4.2. IWMA 就以上的論點重申策略性研究是必要的，而我們的替代方案計劃 B 實際上是一個符合邏輯、具彈性、且可以再鑽研及進展的初期方案。基於環境局承認策略性研究的重要性，我們認為於完成策略性研究之前為焚化爐取得撥款等同浪費納稅人的金錢。

5. 結論

- 5.1. 我們促請各委員反對政府對石鼓洲焚化爐及三個擴展堆填區的撥款申請。這些提議不單止不合時宜，亦都未能配合長遠的可持續發展。策略性研究是必要的。
- 5.2. 我們提議環境局應為現時的都市固體廢物回收政策作出修改，例如加入廢物分類設施、投入更多資金設置達到工業規模的回收廠房、善用現有土地而棄用填海這些費時失事且造價高昂的方案。此舉不但有助解決燃眉之急，亦能大幅減低所需資金。

綜合廢物管理行動組織 (IWMA)

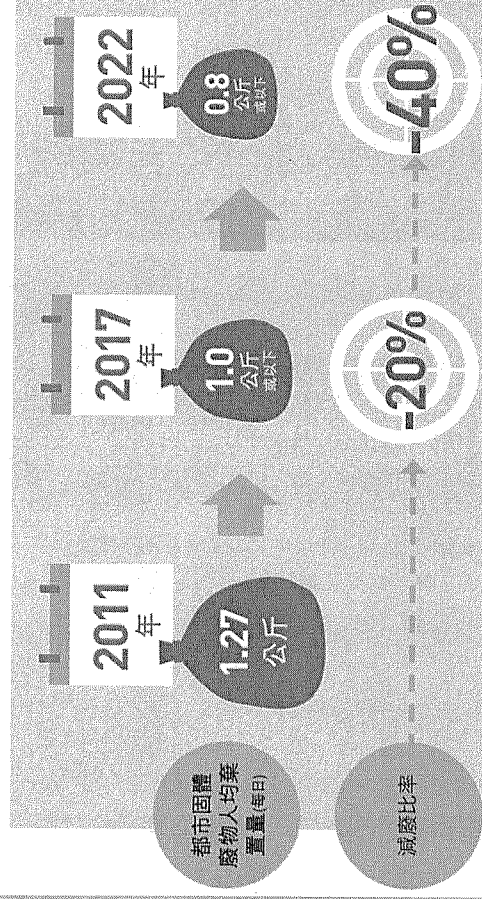
二零一四年 三月

現狀

- 石鼓洲焚化爐仍未得到撥款，令到推行的時間表未能落實
- 政府為未來所計劃的設施不能夠有效處理香港所有的廢物
- 堆填區擴展未獲得撥款，亦將近飽滿
- 政府所計劃的六所有機資源回收中心只有兩所有確實的地點——其他的仍然未明
- 石鼓洲焚化爐只可處理每天3000噸的廢物——另外每天3200噸的廢物將會送到堆填。

為未來預測香港的都市廢物量
到了2022年：

根據環境局的《資源循環藍圖》，
到了2022年，都市廢物人均棄置量將
有望跌至每日0.8公斤。



若果屆時的人口是七百七十二萬*，
於2022年需要的廢物處理量將會是
6180噸。

* 引用於統計處於2012年所發佈的香港人口推算2012-2041

綜合廢物管理行動組織 (IWMA G)

B 計劃：替代方案

IWMA G 所提議的替代方案
有以下優勝之處：

- 廣納社區參與
- 對環境更加敏感且設想
- 可以更快（分階段）實行
- 更符合經濟效益
- 跟隨科技發展的步伐
- 責任按地區而分佈

是一個經改良，較可取的方案。

這個方案著重於：

- 減少廢物
- 以自動化機械的方式分類廢物
- 廢物利用及回收
- 有機分解

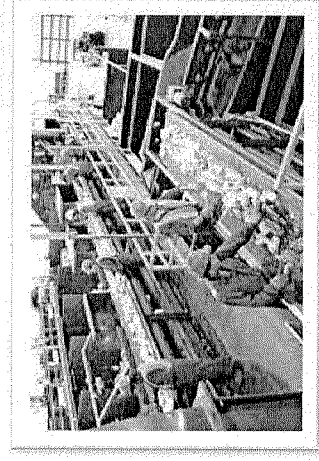
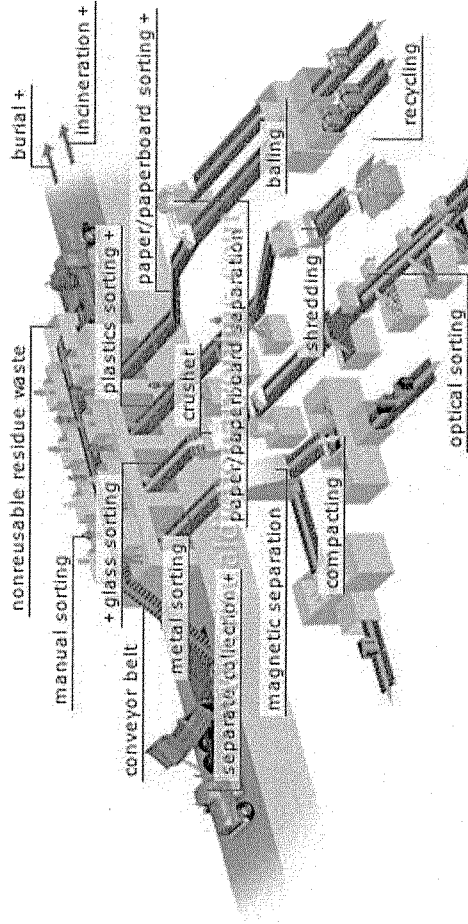
加熱處理（例如焚化）或廢物堆填只會是無可選擇下的處理方法。

**先分類，後回收，
勿焚化！**

一個真正且多元化的綜合廢物管理設施

先分類，後回收，勿焚化

- 多利用高效能的廢物分類設施—所有的都市廢物都必須先得到分類處理；此舉有效還原可回收物，並大大減少焚化或堆填的必要
- 在同一地點將設有廢物回收設施和有機回收及分解設施
- 確保平均的區域分佈，並有效針對區內需要
- 有效利用現有土地，並將個別綜合廢物管理設施放置在和鄰近設施相容的地點，例如在現有堆填區旁
- 配合各分區回收中心，將回收物及都市廢物先整合後運輸，有效提高綜合廢物管理設施的運行效率
- 對於所應用的各種科技持中立、開放的態度—藉此選擇最高水平的技術以達致最高的效能



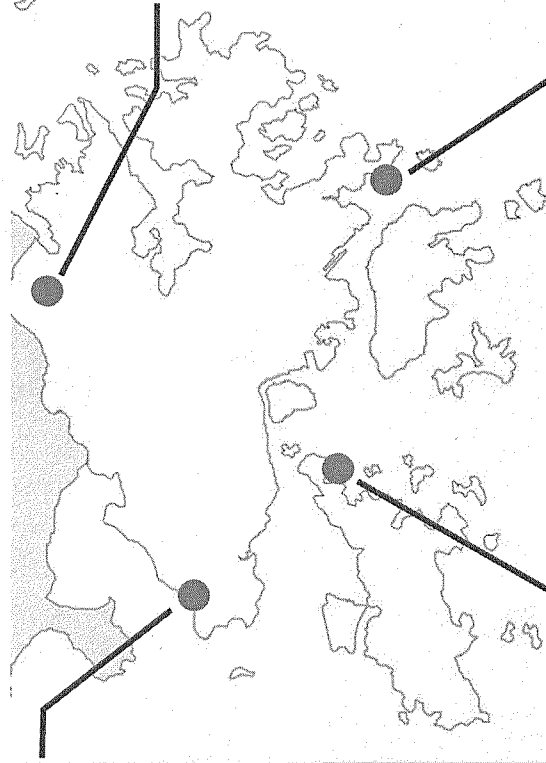
綜合廢物管理行動組織 B 計劃

先分類，後回收，勿焚化

綜合廢物管理行動組織現提議四個

適合且不需填海的替代地點：

以下建議的設施分佈將足夠處理於
2022年所預期每天6180噸的廢物



選址四：新界西


大約多於 200 公頃

 機械化廢物分類廠
足夠處理每天 2100 噸廢物

3x


 廢物回收中心

 有機廢物回收中心

 小型廢物能源轉化廠
足夠處理每天 600 噸廢物

選址三：大嶼山東北


9.7 公頃

 機械化廢物分類廠
足夠處理每天 1400 噸廢物

2x

 廢物回收中心

 有機廢物回收中心


 教育及遊客中心

剩餘的廢物將送往

選址一或四作能源轉化

選址一：新界東北


155 公頃

 機械化廢物分類廠
足夠處理每天 1400 噸廢物

2x


 廢物回收中心

 有機廢物回收中心

 小型廢物能源轉化廠
足夠處理每天 600 噸廢物

選址二：將軍澳 137 區

8.3 公頃

 機械化廢物分類廠
足夠處理每天 1400 噸廢物

2x

 廢物回收中心

 有機廢物回收中心

剩餘的廢物將送往

選址一或四作能源轉化

Submission to Legco Panel on the Environment

The Need For a “Plan B”

Integrated Waste Management Action Group

1. Introduction

- 1.1 The Integrated Waste Management Action Group (IWMAG) supports a holistic approach to address the waste issue, with a priority on implementing measures to reduce the generation of waste. IWMAG believes that communities should take responsibility locally for the waste they generate and **therefore advocates a regional approach to dealing with municipal solid waste (MSW).**
- 1.2 The Government’s current plan (Plan A) of relying on the expansion of landfills and the construction of a large incinerator at Shek Kwu Chau (SKC) has met with widespread community objections and is **simply not the answer to the problem.** The proposed commissioning dates are too late, the solutions do not deliver sufficient capacity to handle the total amount of projected MSW, implementation is too expensive and it does not optimize existing land resources already used for waste disposal purposes, or which are currently under-utilised.
- 1.3 Government has said it has no Plan B, but this should not be the case if it is to respond proactively to widespread community concerns. Any alternative approach likely to be acceptable to the community, must be quicker to implement, less expensive, more sustainable, able to address the issues in a variety of positive ways, and be adaptable to changing needs and improved technologies. **The current proposal should be abandoned and a “Plan B” adopted.** The attached Figures summarize an analysis of the Government’s proposal and the basis for IWMAG’s “Plan B”.
- 1.4 IWMAG has formally submitted this Plan B proposal to the Town Planning Board. The application is yet to be heard.

2. Problems with the Current Government Proposal

Inadequate Capacity to Deal with Current MSW tonnage

- 2.1 The Government plan does not seek proactively to change community attitudes towards waste generation and offers no proposals for comprehensive waste separation or recycling. **Recently announced proposals for reducing the amount of MSW, organic waste treatment and recycling are inadequate,** being small scale and little more than

window dressing. They do not address the key issue which is **how to reduce the total tonnage of municipal waste**. As a result the Government plan requires major investment in the expansion of the existing landfills and the construction of a large incinerator at SKC. The current Government treatment and disposal proposals will be inadequate to meet actual MSW volumes in the required time frame.

What is Phase 2 – Another Incinerator?

The Phase 1 Government proposals will result in approximately 2,100 tonnes per day (tpd) of MSW still being dumped in landfills. How this is to be dealt with has not been explained but it would seem likely that **a second incinerator will be required**. Other sites have not been formally identified in Government documents, although a second incinerator is thought most likely to be located at the Tsang Tsui Ash Lagoons (TTAL) site.

- 2.2 The Legco briefing paper refers to the planned incinerator at SKC as Phase 1 but there is no mention of Phase 2. **The Government should be required to now state clearly whether Phase 2 means a second large incinerator at the TTAL site in Tuen Mun and inform the whole community of the timetable for the Phase 2 project.**

Inadequate Use of Existing Sites

- 2.3 The existing landfill sites are huge by world standards and, given Hong Kong's scarce land resources, they are a massive miss-use of land, as they are only used for land fill purposes rather than for multiple functions relating to waste management. **IWMAG has proposed that permitted use of these sites be broadened** – for instance the sites were never considered for the location of incineration facilities - even though there is great potential for synergies with other forms of waste management and economies of scale. These sites should be considered as suitable locations for fully integrated regional waste treatment facilities and significant investment should be made by the both the public and private sectors to achieve this.

No Investment in High Capacity Waste Sorting Plant

- 2.4 High capacity waste sorting equipment forms a significant part of integrated approaches to waste management in other countries. Depending on the relevant circumstances, the **use of high capacity waste sorting plants can reduce the amount of MSW going to landfills by up to 80%**. The 80% of the material recovered is then sent for various forms of recycling and re-use. The remaining 20% is then forwarded to waste-to-energy plants for further treatment or, as a last resort, sent to landfills. This significant and flexible approach to reducing the need for landfill or incineration has not been included in the Government's Blueprint. Waste sorting plants require manual input, and will

therefore create jobs, while the recovery of recyclable materials creates additional job opportunities in the downstream recycling industries.

Taking the Soft Option

- 2.5 The Government proposals are based on taking the line of least resistance, the soft option, in the hope the community will not realise the long term social, economic and environmental impacts. Government fails to focus on addressing the fundamental problems, or to put forward proposals that are both comprehensive and flexible, including solutions which are capable of being achieved quickly and with community support. It is essential to adopt measures that focus on changing public attitudes, and reducing waste at source. An incinerator at SKC will not be available until 2021/22 by which time the total volume of MSW could be substantially reduced by adopting a comprehensive sorting and recycling plan coupled with active, widespread public education.

No Real Sense of Urgency

- 2.6 Government claims an urgent solution is needed, yet proposes to build an incinerator on a site that does not yet exist, thereby delaying the commissioning of the facility by several years. If Hong Kong does indeed need an urgent solution, then clearly the facility should be constructed as soon as possible. This indicates construction should be on land that already exists and which was identified as being suitable during the Government's site selection process, namely the site at the TTAL. **The Government's claim for urgency has no credibility if it insists on selecting a site requiring extensive reclamation works.**

3 IWMAG Alternative : "Plan B" – Separate, Recycle – Don't Incinerate

- 3.1 The Government proposal does not fully address the MSW problem, is piecemeal, and in any event is not likely to be completed in time to deal adequately with the volume of MSW being generated. More practical and flexible alternatives should be urgently implemented. The envisaged expansion of the landfill sites may not then be necessary or, at the very least, such expansion could be reduced in size or delayed by adopting IWMAG's "Plan B".
- 3.2 The IWMAG proposal consists of the following main points:-
- The prime objective is to **reduce to the absolute minimum the amount of MSW that goes to landfill or for disposal through thermal treatment**, so as to reduce the need to expand the landfill sites;

- Four regional sites, none of which require reclamation, should be adopted for fully integrated waste management facilities - mainly based on **waste sorting and recycling of around 700 tonnes per day (tpd)**. (see Figure 6);
- **All MSW should be processed through mechanical waste sorting plants** before going to waste-to-energy plants or to land fill.
- As a **LAST RESORT** small scale waste-to-energy plants (thermal treatment by incinerators or gasification plants) should be provided within some of these sites to reduce quantity of MSW going to landfill.

Four Regional Sites

3.3 The four sites proposed are:-

- **Site 1 : NENT Landfill site** – 155ha – to include two waste sorting lines with a total capacity of 1,400 tpd, recycling plants, composting plant and a small waste to energy plant for 600tpd.
- **Site 2 : Tseung Kwan O Area 137** – 8.9ha – formed and with sea access – to include two waste sorting lines with a total capacity of 1,400 tpd, recycling plants and composting plant.
- **Site 3 : NE Lantau – 8.9ha** – formed and with sea access, part located in cavern under hills; to include two waste sorting lines with a total capacity of 1,400 tpd, recycling plant, composting plant and education centre.
- **Site 4 : WENT Landfill** – 200ha formed and with sea access – to include three waste sorting lines with a total capacity of 2,100 tpd, recycling plants, composting plant and a waste-to-energy plant for 600tpd.

The mix of facilities illustrates the benefit of a **regional and integrated approach** where the key is **flexibility** such that the actual facilities on each regional site can be adjusted over time to meet changing needs, and **avoid massive investment in any one particular facility**.

Waste Sorting Plants

3.5 There are many examples of waste sorting plants of various sizes operating around the world. Some of these are manufactured in China. They can consist of modules for different purposes (see Figure 3). An example can be seen at <http://www.youtube.com/watch?v=YxevVBAeN4s> while many other videos of these machines in action can be found at <http://www.youtube.com/watch?v=wugmX85ipRU>. They are usually contained within one large warehouse-type building and they include relatively unsophisticated equipment such as conveyor belts and other machines in a production line. They create jobs on-site and off-site through downstream recycling.

- 3.6 An assumption has been made that waste sorting lines handling 700tpd would be appropriate, and more than one line could be located at each site to accommodate the amount of MSW that needs to be processed for that particular area. The actual number required would depend on the effectiveness of the waste reduction measures that would be implemented as part of the overall strategy. **There are no specific environmental concerns arising from the use of this type of facility.**

Waste to Energy Plants

- 3.7 **Plan B does not require a large-scale incinerator for Hong Kong.** After waste sorting, it is estimated that the remaining amount of MSW for treatment by thermal means would be about 1,200tpd and that could be distributed to two small plants of around 600tpd. It is proposed that one thermal treatment facility can be located as part of the totally integrated facilities at each of the NENT and WENT landfill sites. With plants of this size it would be possible to consider either modern incinerators or plasma methods of thermal treatment, as there are plasma plants with this capacity operational elsewhere in the world. Whichever is adopted would need to meet the highest environmental and safety standards.

Timing

- 3.8 With the change in land use zoning proposed by IWMAG, the use of the NENT and WENT landfill sites, and Area 137 in Tsueng Kwan O, the **waste sorting plants could be in place and operating within a 3 year** period if policy priority is given to them. This would be achievable within the 2017 deadline. Regardless of the discussion that may be on-going regarding landfill extensions or the appropriate waste-to-energy plants to install, **these waste sorting facilities and re-cycling plants should be put in place** as part of a sensible, well-rounded waste management strategy.

4. Strategic Review Should be Completed Before Funding Support

- 4.1 The inadequacies with the current proposals appear to be belatedly recognised by the Administration. In paragraph 9(l) of the Paper it is mentioned that:-

*"we will embark on preparatory work this year for a **strategic study** on future waste management facilities. The study will look into various issues such as types, scale, technology, locality and timing of new strategic and regional facilities and services with a view to drawing up a strategic masterplan of waste management facilities for the future."*

This has also recently been announced by Secretary for the Environment, Mr. Wong Kam Shing.

- 4.2 IWMAG's analysis has shown that such a masterplan is necessary and their "PLAN B" is in reality a flexible, high level "strategic masterplan" which needs to now be developed

and expanded in greater detail. In view of this need now being recognised by the Bureau, **it would be fundamentally wrong to give support to spending billions of dollars of taxpayer's money for an incinerator before the masterplan has been completed.**

5. **Conclusion**

- 5.1 Members are urged not to endorse the Government's request for approval of the funding for the incinerator at SKC and the extension of the three landfill sites. These proposals are outdated, do not represent a cohesive strategy for waste management, and are not sustainable in the long term. **A strategic review is necessary.**
- 5.2 Instead the Environment Bureau should be asked to revise those parts of their current MSW Waste Plan to incorporate mechanical waste sorting facilities, major investment in recycling plants of an industrial scale, and to make best use of the existing land that is available and can be used quickly. This should be done as a matter of urgency and would be unlikely to compromise a long term masterplan, as it is a flexible approach and has significantly less need for funding.

Integrated Waste Management Action Group
March 2014

Current Situation

- SKC does not have funding or approval, therefore no confirmed date for implementation
- The planned range of facilities are inadequate to handle all MSW in Hong Kong
- Landfill extensions not yet approved and soon full – SENT to be closed to MSW soon.
- The government plans for 6 OWTFs in total – but only 2 (or 3) sites confirmed
- The SKC incinerator can only handle 3,000 tpd, some 3,200 tpd will be landfilled

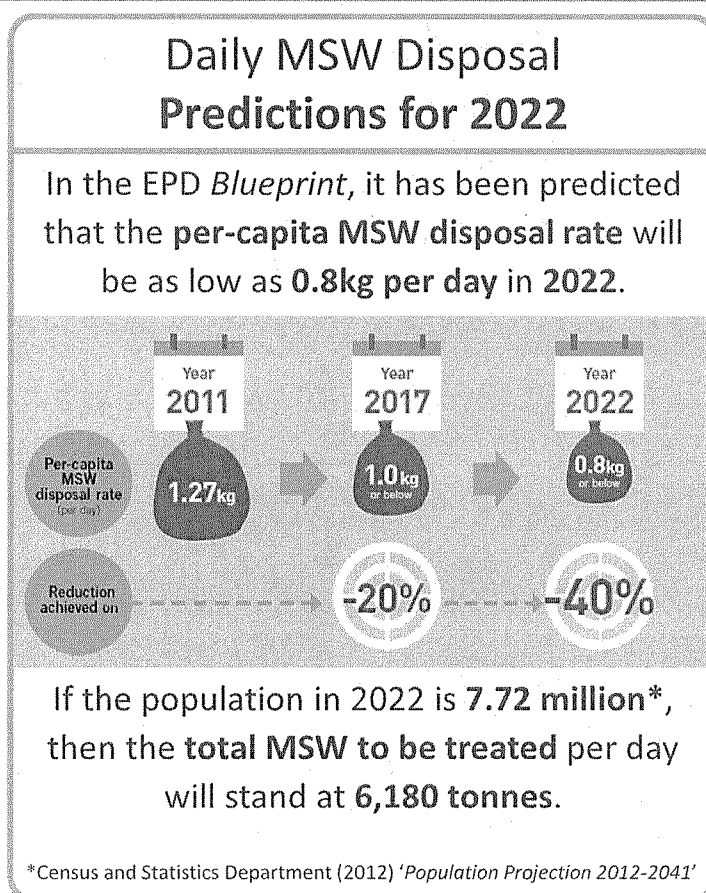


Figure 1

Integrated Waste Management Action Group (IWMAG)

Alternative Proposal – Plan B

The IWMAG Proposal is a **different approach** which:

- involves the broader community
- is more environmentally sensitive
- can be implemented in a shorter timescale (in part)
- is likely to be more economically viable
- is more flexible to cater for technology advances
- distributes the responsibility regionally

An Improved Alternative.

It **prioritises and emphasises** on:

- Waste reduction
- Mechanical sorting
- Recycling
- Composting

And heat treatment and/or landfilling **only as the last resort.**

***Separate, Recycle,
Don't Incinerate!***

Figure 2

A true multi-purpose IWMF

Separate, Recycle, Don't Incinerate!

- Utilise proven **mechanical sorting technology** – ALL MSW to be mechanically sorted; reduces amount by up to 80% – **reduces need for heat treatment or landfilling**
- **On-site recycling plant and composting**
- **Regionally distributed** – respond to local needs; more balanced approach
- Make best use of **readily available sites** – located in areas with compatible neighbouring activities; marine access; better use of NENT and WENT landfill sites
- **Supported by local recycling centres** – fed by territory-wide waste collection and separation network
- Use best technology which meets performance criteria – **technologically neutral**

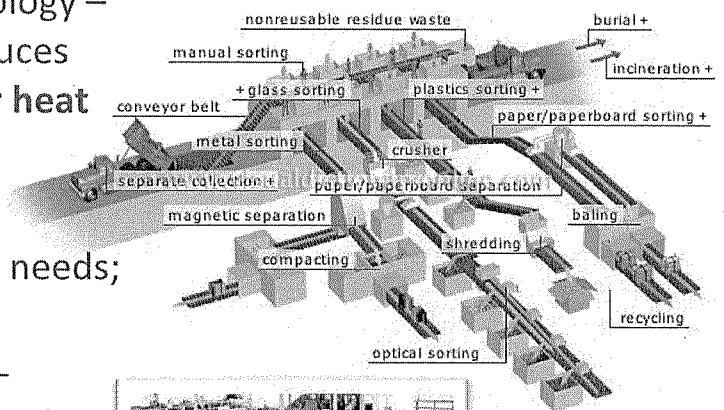


Figure 3

IWMAG Plan B

Separate, Recycle, Don't Incinerate!

IWMAG proposes 4 suitable, alternative sites for IWMFs: no reclamation required
 Distribution of facilities capable of handling 6,180tpd of MSW anticipated in 2022.

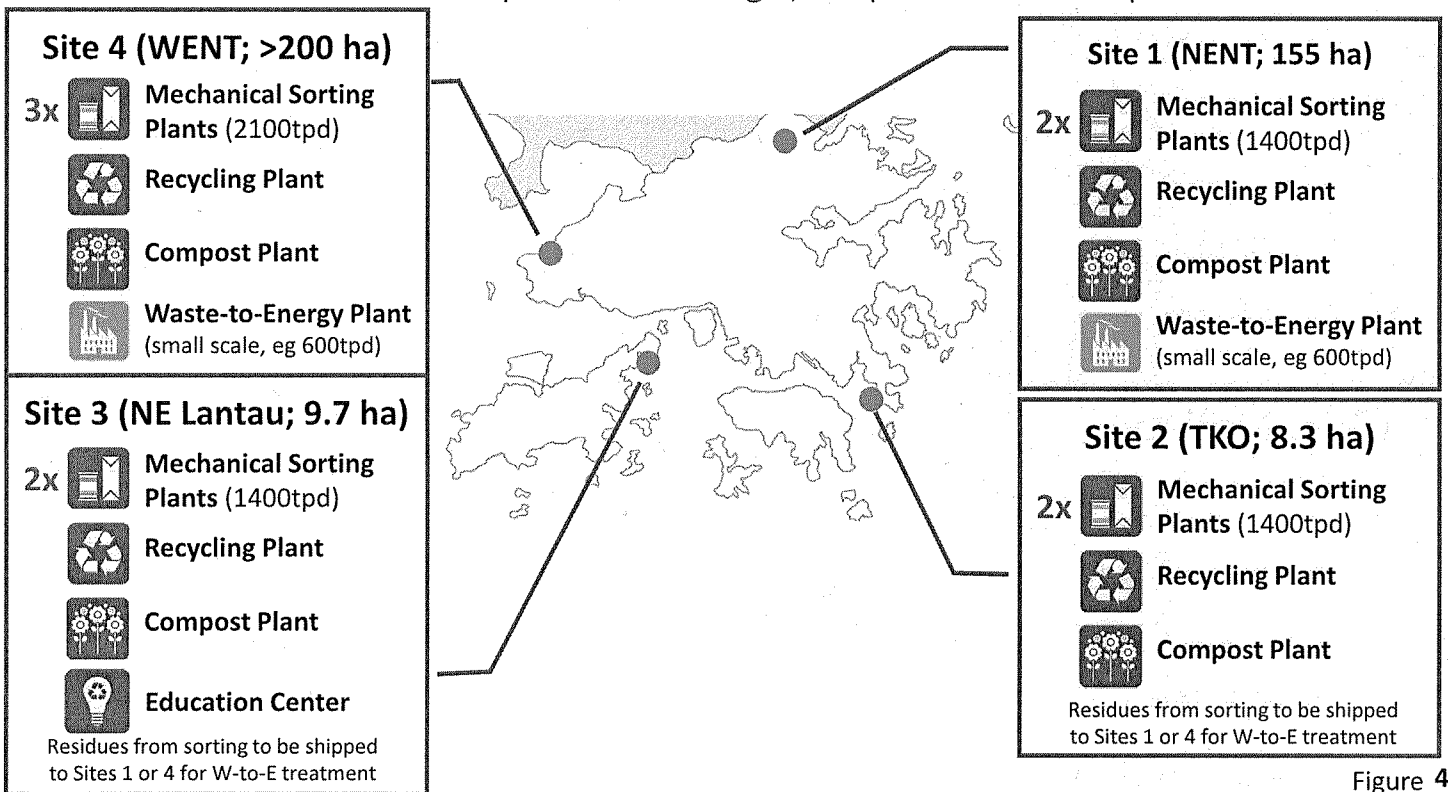


Figure 4

To: wklo@engineer.com, lcc.ntw@dab.org.hk, jkstolegco@gmail.com, klclegco@gmail.com, elau@dphk.org, yctam@dab.org.hk, arazack@netvigator.com, khwong@ftulegco.org.hk, info@cydho.org.hk, garychk@dab.org.hk, leungkl@leungkl.org, ipkh@dab.org.hk, contact@alanleong.net, albert.wychan@yahoo.com.hk, legco@michaeltien.hk, tpc@jamestien.com, frankieyick@liberal.org.hk, chiwaioffice@gmail.com, fankwokwaioffice@gmail.com, fkmaoffice@gmail.com, charlesmok@charlesmok.hk, benchanlegco@gmail.com, info@chankalok.hk, yhchan@ftulegco.org.hk, amlegco@gmail.com, info@cheungchiuhung.org.hk, helenawonghk@gmail.com, eq@eqweb.hk, chianglaiwan@gmail.com, office@chungsk.com, info@tonytsewaichuen.com
From: Dee Eadon [REDACTED]
Date: 04/15/2014 08:47AM
Cc: info@livingislands.org.hk, cb1@legco.gov.hk
Subject: Very concerned with EPD's approach to Waste Management

Letter of representation to Public Works Subcommittee Members

Dear Honourable Members of the Public Works Subcommittee,

Our organisation urges you to reject the current proposal by the Director of Environmental Protection (DEP), which is supported by the Secretary for the Environment, to upgrade 177DR to Category A at an estimated cost of \$18,245.7 million in money-of-the-day (MOD) prices for the design and construction of the integrated waste management facilities (IWMF) phase 1. [PWSC(2014-15)7]

While the Panel on Environmental Affairs has now approved (by 9 votes to 6) the same basic ENB proposal to "burn and bury" our waste that they rejected approximately 2 years ago, we urge you not to blindly follow their approval which is meant to have been based on environmental concerns. We believe that the 9 members of the EA Panel who voted in favour have clearly shown their lack of concern for the natural environment of Hong Kong.

As members of the Public Works committee, where your expertise is more on project management and

engineering solutions, you should see that the current proposal to extend 3 landfills and build a mega incinerator does not solve the problem we are facing with Municipal Solid Waste (MSW) in the most timely or financially responsible way. We urge you to reject the current proposal based on the clear project management perspectives of:

- **Timing:** building the incinerator next to Shek Kwu Chau (SKC) will take many more years than the alternative site of the Tsang Tsui Ash Lagoons.
- **Cost:** selecting a site that does not require reclamation would significantly reduce the cost of the project. The difference in costs has been estimated to be the equivalent of building a new hospital (\$2.5 Billion for the recently opened Tung Chung Hospital)
- **Technology:** the current proposal contains no practical proposal for mechanically sorting the majority of our waste before it is either sent to a landfill or incinerator. The proposed SKC pilot sorting plant will only be able to handle about 2% of the total MSW
- **Performance Measure:** There are no performance incentives within the proposal for the government to implement meaningful recycling services. How can you trust the government to implement the recycling services once you have approved the “bury and burn” based proposal?
- **Inefficient Land Use:** The land area of the existing landfills sites should be used as Integrated Waste Management Facilities (IWWMF) rather than being only used for landfill. An IWWMF should include building multi-storey waste sorting facilities to separately identify recyclables, organics and hazardous materials.
- **Private Sector Competition:** There have been numerous offers from the business sector over the years to help solve the waste issue from a commercial perspective. These have included offers to take 1/3 of the current MSW to piloting of the very latest thermal treatment technology.
- **Risk Management:** How can building one mega incinerator operated by one company out in the ocean provide contingency measures if this single plant has operational issues. Surely multiple smaller IWWMF's located around HK can truly represent a balanced spatial distribution of Waste Management Facilities and provide superior operational risk management.

Regards

Mrs Danelia Eadon - Cheung Sha, South Lantau

To: wklo@engineer.com, lcc.ntw@dab.org.hk, jkstolegco@gmail.com, kclegco@gmail.com, elau@dphk.org, yctam@dab.org.hk, arazack@netvigator.com, khwong@ftulegco.org.hk, info@cydho.org.hk, garychk@dab.org.hk, leungkl@leungkl.org, ipkh@dab.org.hk, contact@alanleong.net, albert.wychan@yahoo.com.hk, legco@michaeltien.hk, tpc@jamestien.com, frankieyick@liberal.org.hk, chiwaioffice@gmail.com, fankwokwaioffice@gmail.com, fkmaoffice@gmail.com, charlesmok@charlesmok.hk, benchanlegco@gmail.com, info@chankalok.hk, yhchan@ftulegco.org.hk, amlegco@gmail.com, info@cheungchiuhung.org.hk, helenawonghk@gmail.com, eq@eqweb.hk, chianglaiwan@gmail.com, office@chungsk.com, info@tonytsewaichuen.com
From: "Mark Presley e.com" [REDACTED]
Date: 04/15/2014 11:46AM
Cc: info@livingislands.org.hk, cb1@legco.gov.hk
Subject: Very concerned with EPD's approach to Waste Management

15 April 2014

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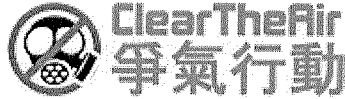
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Regards

Mark Presley

Mui Wo

Lantau.



Legco Finance Committee
Public Works Subcommittee
15th April 2014

Dear Hon Legco Members,

The IPCC **Intergovernmental Panel on Climate Change** has just issued its report on Climate Change and what Governments must change in order to stop global warming effects. The full report is downloadable here:

http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf

The massive climate damaging effect of the worldwide emissions of CO₂ are clarified within the report. The IPCC message is quite clear: the world must use more nuclear sources and gas instead of coal for power generation and must reduce CO₂ emissions drastically.

As well as highly toxic emissions to air, a waste incineration plant emits 1 tonne of CO₂ greenhouse gas for every 1 tonne of MSW that it burns (as well as leaving 30% by weight of toxic ash that needs treatment and landfilling). This disaster would add more than 1 million tonnes of CO₂ to the atmosphere per year.

Allowing Government to build this backward technology goes contrary to the advice of the hundreds of world experts and scientists and 200 Governments that have backed the IPCC report.

This Panel should be guided by the combined advice of the world experts towards recycling and away from burning of biomass MSW.

http://www.ipcc-nggip.iges.or.jp/public/gp/bgp/5_3_Waste_Incineration.pdf

CONCLUSIONS

The incineration of municipal waste involves the generation of climate-relevant emissions. These are mainly emissions of CO₂, but also of N₂O, NO_x, NH₃, and organic C, measured as total carbon. CH₄ is not generated in waste incineration during normal operation. It only arises in particular, exceptional, cases and to a small extent (from waste remaining in the waste bunker), so that in quantitative terms CH₄ is not to be regarded as climate-relevant.

In waste incineration plants, CO₂ constitutes the chief climate-relevant emission and is considerably higher, by not less than 102, than the other climate-relevant emissions.

In Germany the incineration of 1 Mg of municipal waste in MSW incinerators is associated with the production/release of about 0.7 to 1.2 Mg of carbon dioxide (CO₂ output).

<http://www.bloomberg.com/news/print/2014-04-03/air-pollutants-from-biomass-burning-exceeds-coal.html>

Bloomberg

Air Pollutants From Biomass Burning Exceeds Coal

By Andrew Childers - Apr 3, 2014

Website: www.cleartheair.org.hk Tel 26930136 Fax 26027153



Bloomberg BNA — Facilities burning biomass emit more air pollutants, including carbon dioxide, per megawatt-hour than those that burn coal, according to a Partnership for Policy Integrity report. The April 2 report, “*Trees, Trash, and Toxics: How Biomass Energy Has Become the New Coal*,” examined 88 Clean Air Act permits issued to industrial sources that burn biomass.

It found that sources burning biomass emit 50 percent more carbon dioxide per megawatt of electricity generated than coal-burning sources.

Download the report here: (37 Mb)

<http://www.pfpi.net/wp-content/uploads/2014/04/PFPI-Biomass-is-the-New-Coal-April-2-2014.pdf>

Additionally, the report stated that even the cleanest-operating biomass facilities emit 150 percent more nitrogen oxides, 600 percent more volatile organic compounds, 190 percent more particulate matter and 125 percent more carbon monoxide than coal on a per megawatt-hour basis.

The report calls for the Environmental Protection Agency to set more stringent air pollution standards for burning biomass to generate electricity.

“Compounding the problem, bioenergy facilities take advantage of gaping loopholes in the Clean Air Act and lax regulation by the EPA and state permitting agencies, which allow them to emit even more pollution,” the report said. “Electricity generation that worsens air pollution and climate change is not what the public expects for its scarce renewable energy dollars.” Half of the 88 facilities analyzed had avoided prevention of significant deterioration entirely by obtaining synthetic minor permits. Those permits establish emissions restrictions to keep sources below the level that would require more extensive pollution controls.

Carbon Neutrality Defended

The report questions the forestry industry's assertion that burning biomass is effectively carbon-neutral because those emissions would be released eventually once the plant matter decomposed. The report argued that decaying plant matter would release its emissions much more slowly than burning biomass. However, the forestry industry defended biomass as a carbon-neutral fuel source.

The EPA has begun to permit greenhouse gas emissions from sources burning biomass after the U.S. Court of Appeals for the District of Columbia Circuit in 2013 vacated a rule that had temporarily exempted them from the permitting requirements.

For more about Bloomberg BNA, click [here](#).

Visit www.bloomberg.com/sustainability for the latest from Bloomberg News about energy, natural resources and global business.

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Yours sincerely,

James Middleton

Chairman
Clear the Air NGO

<http://www.theguardian.com/environment/2014/apr/12/ipcc-report-world-must-switch-clean-sources-energy>

IPCC report: world must urgently switch to clean sources of energy

Website: www.cleartheair.org.hk Tel 26930136 Fax 26027153

UN panel's third report explains how global dependence on fossil fuels must end in order to avoid catastrophic climate change

- [The Guardian](#), Saturday 12 April 2014



An open-cast coal mine and power station near Grevenbroich, Germany. After concluding that global warming is almost certainly man-made and poses a grave threat to humanity, the UN-sponsored expert panel on climate change is moving on to the next phase: what to do about it. Photograph: Martin Meissner/AP

Clean energy will have to at least treble in output and dominate world energy supplies by 2050 in order to avoid catastrophic climate change, a UN report is set to conclude on Sunday.

The report produced by hundreds of experts and backed by almost 200 world governments, will detail the dramatic transformation required of the entire globe's power system, including ending centuries of coal, oil and gas supremacy. Currently fossil fuels provide more than 80% of all energy but the urgent need to cut planet-warming carbon emissions means this must fall to as little as a third of present levels in coming decades, according to a leaked draft of the Intergovernmental Panel on Climate Change (IPCC) report seen by the Guardian.

There is heavy emphasis on renewable energy, such as wind and solar power, and cutting energy waste, which together need hundreds of billions of dollars of investment a year. But despite the scale of the challenge, the draft report is upbeat: "Since [2007], many renewable energy technologies have substantially advanced in terms of performance and cost and a growing number have achieved technical and economic maturity, making renewable energy a fast growing category in energy supply," the report says.

It also highlights that the benefits of clean energy, particularly in reducing deadly air pollution and providing secure energy supplies, "outweigh the adverse side effects". The IPCC report is the last part of a trilogy compiled by thousands of the world's most eminent scientists which gives the most definitive account of climate change to date. The first report, released in September, showed climate change was "unequivocally" caused by human activity and prompted Ban Ki-moon, the UN secretary general, to say: "The heat is on. Now we must act."

The second, published in March, warned that the impact of global warming, from extreme weather to reduced food production, posed a grave threat to humanity and could lead to wars and mass migration. The International



Energy Agency said the IPCC's work showed "the urgent need of enabling a global transition to clean energy systems".

The report will address how to avert the worst dangers by cutting carbon emissions, which have been rising despite the global recession of 2007-08.

Nuclear power is cited among the low-carbon energy sources needed, but the draft report warns it "has been declining since 1993" and faces concerns about "safety, nuclear weapon proliferation risks, waste management security as well as financial and regulatory risks". Another way to produce low-carbon energy is to burn fossil fuels but capture and bury the carbon emissions. The IPCC experts note that, unlike renewable energy, this technology "has not yet been applied at a large, commercial scale".

The draft report concludes that increasing carbon emissions are due to rising coal use, along with increasing demand for energy from the world's growing population. But it notes that policies implemented to cut carbon emissions will also cut the value of fossil fuel reserves, particularly for coal. It also says increased use of gas could cut emissions in the "short term", if it replaces coal.

China's vast coal burning represents a huge challenge but a new analysis from Greenpeace, published on Friday, suggests it may have reached a turning point. "The range of coal caps and anti-smog measures put in place by the Chinese authorities could see the country cut its carbon emissions by more than twice the UK's annual footprint by 2020, making it possible for global carbon levels to peak before climate change spirals out of control," said Li Shuo, Greenpeace East Asia's climate and energy campaigner.

On Thursday, Nobel peace prize winner Archbishop Desmond Tutu called in the Guardian for an anti-apartheid-style campaign against fossil fuel companies. "It is clear that [the companies] are not simply going to give up; they stand to make too much money," he wrote.

Over half a trillion dollars a year are spent subsidising fossil fuels – six times more than spent supporting renewable energy – and US president Barack Obama and other leaders have pledged to phase these out. The draft IPCC report states this could be done without harming the poor: "Many countries have reformed their tax and budget systems to reduce fuel subsidies, that actually accrue to the relatively wealthy, and used other mechanisms that are more targeted to the poor."

The draft report runs counter to some of the UK's key energy policies. It states that decarbonising electricity is key to cost-effective cuts in emissions, but the coalition government voted down a plan to do this by 2030. The report also warns that building high-carbon energy infrastructure developments will lock societies into high emissions and may be "difficult or very costly to change", but UK ministers are strongly pushing shale gas exploration. The UK's carbon plan includes significant burning of biofuels and biomass (usually wood), which is supposed to be carbon neutral. But the IPCC report says scientific debate about whether biofuels cut emissions "remains unresolved" and that without policy safeguards "large scale bioenergy deployment could increase emissions".

Friends of the Earth's executive director, Andy Atkins, said: "We can only avoid catastrophic climate change if we reduce our dependency on fossil fuels – we're already on track for four degrees warming, which will be impossible for human society to adapt to. We have the technology to prevent dangerous climate change. What we lack is the political will of our leaders to strongly champion renewable power and energy efficiency." Li said: "We stand at a fork in road. One way leads to more dependence on dwindling fossil fuels that are wrecking our climate and damaging our health; the other to a world powered by a booming clean energy sector that is already driving growth and creating jobs. The sooner we act, the cheaper it will be."

<http://www.theguardian.com/environment/2014/apr/13/un-climate-change-report-on-how-to-cut-emissions-live-coverage>

Website: www.cleartheair.org.hk Tel 26930136 Fax 26027153

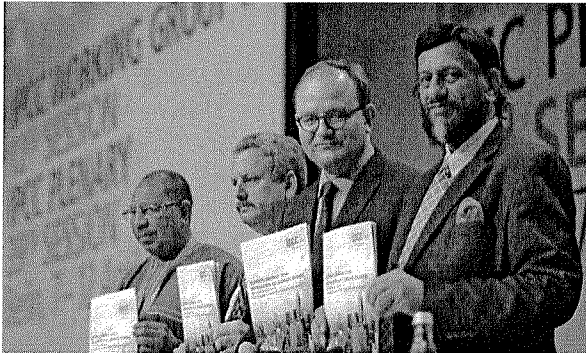


UN climate change report on how to cut emissions – live coverage

Join our live coverage as the [Intergovernmental Panel on Climate Change](#) releases its report on reducing global greenhouse gas emissions



- - [Karl Mathiesen](#)
 - [theguardian.com](#), Sunday 13 April 2014 14.33 BST



IPCC Working Group III co-chairs Youba Sokona, Ramon Pichs-Madruga, Ottmar Edenhofer and chairman Rajendra Pachauri (L-R) attend a news conference to present Working Group III's summary for policymakers at The Intergovernmental Panel on Climate Change (IPCC) in Berlin. Photograph: Stefanie Loos/Reuters

9.29am BST

Climate change report released today

Hello and welcome to our coverage of the release of the [Intergovernmental Panel on Climate Change's \(IPCC\)](#) roadmap for avoiding catastrophic global warming.

Today's report, *Mitigation of Climate Change*, is the third installment in the UN climate body's fifth assessment report (AR5). The first two sections have asserted that climate change is "unequivocally" caused by humans and will cause destruction and massive social upheaval if nothing is done to cut emissions. The third part, which will be released this morning at a press conference in Berlin, attempts to plot the course for the emissions reductions that will avoid the worst effects of climate change. Leaked versions of the report allow for a rare and slender ray of hope. The message from the panel is: where there's a will, there's a way. But it will take an energy revolution which utterly change the way in which we power the planet.

The Guardian's head of environment, **Damian Carrington**, is in Berlin covering the release. [He wrote yesterday](#) the report would conclude that clean (particularly renewable) energy output must at least treble in order to provide enough energy to supplant the world's reliance on fossil fuels.

Website: www.cleartheair.org.hk Tel 26930136 Fax 26027153



The report, produced by hundreds of experts and backed by almost 200 world governments, will detail the dramatic transformation required of the entire globe's power system, **including ending centuries of coal, oil and gas supremacy.**

Currently fossil fuels provide more than 80% of all energy but the urgent need to cut planet-warming carbon emissions means this must fall to as little as a third of present levels in coming decades, according to a leaked draft of the Intergovernmental Panel on Climate Change (IPCC) report seen by the Guardian.

There is heavy emphasis on renewable energy, such as wind and solar power, and cutting energy waste, which together need hundreds of billions of dollars of investment a year.

Stay with me over the coming hours as I report on the press conference (starting at 11am Central European Time) and the reaction to this landmark document.

Updated at 9.31am BST

9.43am BST

What is the IPCC?

The Intergovernmental Panel on Climate Change (IPCC) is the UN organ charged with providing assessment on climate change. It was established in 1988 "to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts", its website says.

Currently 195 nations, most of the world's population, are members of the IPCC. Through their membership, nations acknowledge the validity the Panel's findings, making it an important basis for policy.

The body does not conduct research itself, rather it compiles and reviews the latest work of thousands of scientists and delivers it to the global community. Its work is seen as the most comprehensive and authoritative source of knowledge about climate change.

What are AR5 and the working groups?

According to the IPCC, one of its main responsibilities is "the preparation of comprehensive Assessment Reports about the state of scientific, technical and socio-economic knowledge on climate change, its causes, potential impacts and response strategies".

Its fifth assessment report (AR5) is being released in four installments (of which today is the third). The IPCC has commissioned three "working groups" to create the first three parts. The fourth is a synthesis report.

Each working group focussed on a unique aspect of climate change.

- Working group I, The Science of Climate Change, assessed the current state of climate science. I found that human emissions were fundamentally responsible for observed warming of the climate.
- Working group II, Impacts, Adaptation and Vulnerability, looked at the how climate change would impact the world's environment and societies. It warned that the results of unchecked emissions would be catastrophic.



- Working group III, Mitigation of Climate Change, is charged with assessing the alternatives for global emissions reduction. Leaked drafts indicate the IPCC will call for an enormous global effort to shift the production of energy away from fossil fuels.

Updated at 9.53am BST

9.47am BST

The Guardian's **Damian Carrington** is at the press conference in Berlin. If you'd like to watch it, it will be streamed on the IPCC's site at 11am local time.

9.51am BST

While we are waiting for the flood of news reports, commentary and the press conference itself, here are some key quotes from a leaked version of the report's final draft.

"The upward trend in global fossil fuel related CO2 emissions is robust across databases and despite uncertainties (high confidence)."

"Economic and population growth continue to be the two main drivers for increases in global fossil fuel CO2 emissions over 2000-2010, outpacing the decline in energy intensity"

"Without explicit efforts to reduce GHG emissions, the fundamental drivers of emissions growth are expected to persist despite major improvements in energy supply and end-use technologies"

"The majority of scenarios reaching [safe] atmospheric concentration levels are characterized by a tripling to nearly a quadrupling of the share of zero- and low-carbon energy supply from renewables, nuclear energy and fossil energy with CCS by the year 2050 relative to 2010 [about 17%]."

"The next two decades present a window of opportunity for urban mitigation as most of the world's urban areas and their infrastructure have yet to be constructed." [The Guardian's **Suzanne Goldenburg** reported on this on Friday - At-risk cities hold solutions to climate change: UN report].

"Reduction of subsidies to fossil fuels can achieve significant emission reductions at negative social cost (robust evidence, high agreement)."

Updated at 9.56am BST

10.12am BST

The press conference has begun

The press conference begins with the opening statement from chairman of the IPCC, **Dr Rajendra K Pachauri**.

He says effective mitigation will not be achieved if the world acts independently. The global response "requires an unprecedented level of international cooperation".



If we want to limit temperature increase to 2c by the end of this century, there would have to be large cuts in emissions. Tripling to nearly quadrupling of zero to low co2 energy supply will almost get us there.

"A high speed mitigation train would need to leave the station very soon and all of the world will have to get on board."

10.15am BST

Youba Sokona, co-chair of working group III says the report is a roadmap "designed to safely navigate through shallow water and above steep cliffs".

He says the report provides a detailed comprehensive map of the future and is therefore highly important as a basis for policy making.

Updated at 10.16am BST

10.15am BST

The Guardian's head of environment, Damian Carrington, is in Berlin covering the conference. He says the IPCC has concluded that "catastrophic climate change can be averted without sacrificing living standards".

The authoritative report, produced by 1250 international experts and approved by 194 governments, dismisses fears that slashing carbon emissions would wreck the world economy. It is the final part of a trilogy that has already shown that climate change is "unequivocally" caused by humans and that, unchecked, it poses a grave threat to people and could lead to wars and mass migration.

Diverting hundred of billions of dollars from fossil fuels into renewable energy and cutting energy waste would shave just 0.06% off expected annual economic growth rates of 1.3%-3%, the Intergovernmental Panel on Climate Change (IPCC) report concluded.

"It is actually affordable to do it and people are not going to have to sacrifice their aspirations about improved standards of living," said Professor Jim Skea, an energy expert at Imperial College London and co-chair of the IPCC report team. "It is not a hair-shirt change of lifestyle at all that is being envisaged and there is space for poorer countries to develop too," Skea told the Guardian.

10.22am BST

235 authors from 58 countries have contributed to the report says co-chair **Ramon Pichs-Madruga**.

Co-chair **Ottmar Edenhofer** is presenting the report's key findings.

He shows the graph I posted earlier saying the last decade has seen a growth in the rate of emissions - despite efforts to reduce them. CO2 emissions have more than doubled since 1970. This is driven by economic and population growth.

Updated at 10.24am BST

10.31am BST

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Edenhofer says the business-as-usual scenario will lead to 3.7C to 4.8C rise in temperature before 2100.

If we are to stay within 2C," we need to bring the mitigation train on track". This would involve a fundamental upscale of low and zero carbon emission energy sources. It would also strongly depend on the removal of CO2 from the atmosphere.

Putting off mitigation action will make it more difficult to achieve less than 2C warming later. It will lead to greater reductions requirements and greater costs.

Reaching 450ppm of carbon in the atmosphere by 2011, which is considered to be a safe level of carbon, will only lead to a reduction in global consumption growth by 0.06% per year.

10.37am BST

Edenhofer says: "We need a new investment flow in particular sectors. In particular energy, renewables and in some parts of the world, nuclear."

This is a global commons problem, he says: "Effective mitigation will not be achieved if individual agents, countries, firms, individuals, advance their interests independently of others."

"This report shows there are some steps to resolve this issue... It provides hope, modest hope."

Updated at 10.46am BST

10.44am BST

Edenhofer is asked by the BBC what his major message is and why we should feel hopeful.

"My first message is, emissions are still increasing and they are increasing with an increasing growth rate."

While the report is not policy prescriptive, he says: "We need an international carbon price and inter-nation cooperation.

On hope, he says: "We are not saying this is a free lunch, but climate policy could be a lunch worthwhile to buy."

10.58am BST

11.00am BST

There is a question on the main points of contention. Pachauri says it saying the strength of the IPCC process comes from the interaction between the policy and scientific communities.

Damian Carrington from the Guardian asks about the 0.06% cost mentioned in the report - is it affordable?

Edenhofer says we cannot say in the report if it affordable or not. You have to carry out a cost-benefit analysis, which is difficult because of the uncertainties around the impacts, the ethical considerations and the risks. But what we can say is that these cost numbers are within the range of other economic policies. He says it is up to the



public and decision makers to decide if it is affordable or not. But he would say: "It does not cost the world to save the planet."

Pachauri says the question of affordability is very difficult to answer because it is difficult to assess the cost of a human life or the benefit of avoiding climate change.

11.10am BST

Edenhofer: "The IPCC has not said that carbon capture and storage is without cost and without uncertainties - such as uncertainties over the global storage capacity."

You can get you copy of the report [here](#).

11.15am BST

Edenhofer is asked why the report avoided recommending particular reductions for particular countries.

He says the IPCC felt it would be inappropriate to prescribe specific allocations to countries because the goals can be achieved under many different burden sharing scenarios. He said it would be up to countries to find the most effective and just way to achieve emissions reductions.

Pachauri says the cost estimates are consistent with the AR4 report.

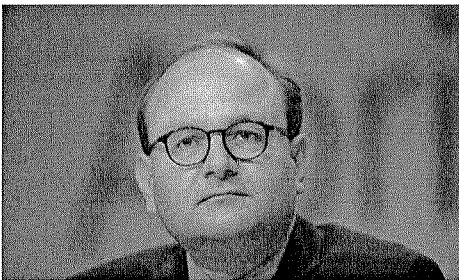
11.20am BST

Edenhofer is asked which scenarios required a carbon price.

"The carbon price was not an assumption, it was a result of some of the scenarios." Meaning some of the scenarios required a carbon price to achieve their results.

Q: What happens if some major polluters do not take action, should the rest of the world carry on?

Pachauri says this is the role of the UNFCC negotiating process. It is not the role of the IPCC to take the failure to act into consideration.



IPCC Working Group III co-chair Ottmar Edenhofer. Photograph: Stefanie Loos/Reuters

Updated at 11.35am BST



11.24am BST

The press conference has now ended but stay with us as we gather reaction from climate scientists, policy makers and the media.

Pachauri was asked twice which areas of contention lead to materials being left out of the 29 page summary for policy makers published today. Twice he has dodged the question. But Damian Carrington said today:

Objections from rich nations saw the complete removal of a section stating that hundred of billions of dollars a year would have to be paid by developed countries to developing countries, to ensure they grow their cities and economies in a non-polluting way.

Other objections, from major fossil fuel producing nations including Saudi Arabia, led to the weakening of statements that ending the huge subsidies paid for oil, gas and coal would help reduce emissions. But the final document retained the conclusion that policies to cut carbon could devalue fossil fuels reserves.

Updated at 11.29am BST

11.29am BST

Who is responsible for carbon emissions?

AP reporter Karl Ritter has done some number crunching from the report on the key issue of past and present responsibility for emissions. This will be a major factor in discussions between nations at the UN climate conference in Paris in 2015, which will seek to establish who's responsibility it will be to pay for the transition to a low carbon world.

Current emissions

At the time of the IPCC's previous climate assessment, in 2007, the U.S. was the world's top carbon polluter. It has since been overtaken by China, which now accounts for one-quarter of global emissions because of its rapidly expanding economy. The U.S. is No. 2 with 17 percent, followed by India (6.6 percent), Russia (5.1 percent) and Japan (3.7 percent).

Historical emissions

If you count back to when the Industrial Revolution started in the 18th century, the U.S. is the undisputed No. 1, accounting for nearly 28 percent of the world's cumulative emissions from energy and industry. China's share is 9.9 percent, Russia's 6.9 percent, Britain's 5.9 percent and Germany's 5.6 percent. Western countries rank high because they have been burning coal and oil for much longer than the rest of the world.

Per capita

Putting emissions in proportion to population size also puts Western countries - and oil and gas-rich Gulf states - at the top of the table. In per capita emissions, Australians, Canadians and Americans exceed 20 tons of carbon per year - more than twice as much as the Chinese. "Overall, per-capita emissions in the highly industrialized countries ... remain, on average, about five times higher than those of the lowest income countries," the draft report says.

Consumption

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The main way of counting emissions is by looking at where they are released. But some say you get a better picture of what's driving emissions by looking at consumption patterns. As the IPCC puts it: "A ton of steel produced in China but exported to the United States results in emissions in China when the fundamental demand for the steel originated in the U.S." Accounting for emissions based on where a product is consumed rather than where it's manufactured still puts China at the top, but with a narrower gap to the U.S. China accounts for 21.9 percent of global consumption emissions, while the U.S. accounts for 18.1 percent.

By sector

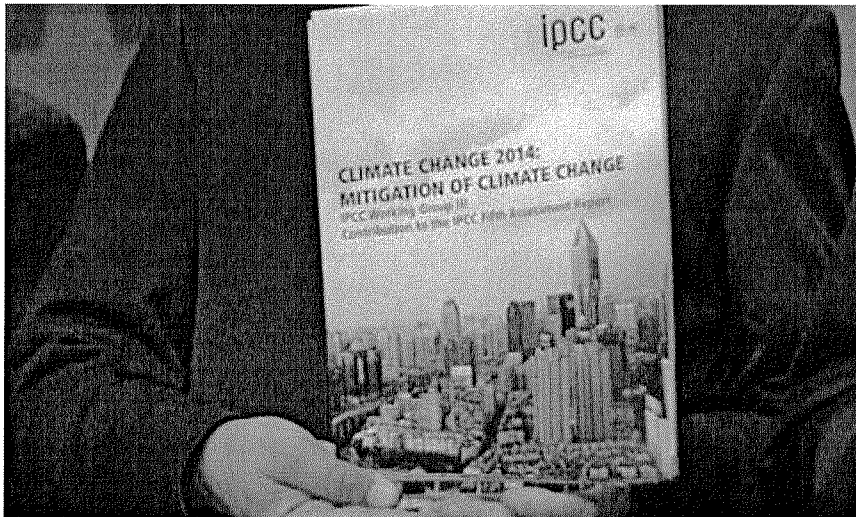
Energy production is the biggest source of emissions, representing about one-third of the world total. Of the fossil fuels, coal generates the highest emissions, followed by oil and then natural gas. Agriculture, forestry and other land use accounts for 24 percent of total emissions. Other big sectors include transport (13 percent) and buildings (7 percent).

Future

The IPCC gives a range of trajectories for global emissions, but doesn't break them down by country. However, it notes that nearly all growth in emissions is expected to occur in developing countries, as their populations grow and they try to catch up economically with the industrialized world. Developing countries say that's why they shouldn't have to face as strict emissions targets in a new treaty as industrialized nations. The latter say at least the biggest developing nations, including China, India and Brazil, must also make significant cuts. Both sides will likely point to selected statistics and projections in the IPCC report.

Updated at 11.29am BST

11.36am BST



The IPCC report. Photograph:

Stefanie Loos/Reuters

11.43am BST



As reaction begins to flow in, the Guardian's reporters have already published a series of articles analysing various aspects of the report.

Damian Carrington says: [IPCC climate change report: averting catastrophe is eminently affordable](#)

Catastrophic climate change can be averted without sacrificing living standards, according to a landmark UN report published on Sunday. It concludes the transformation required to a world of clean energy and the ditching of dirty fossil fuels is eminently affordable.

Robin McKie and **Toby Helm** said in the Observer: [UN urges huge increase in green energy to avert climate disaster](#)

[David Cameron's](#) commitment to the green agenda will come under the fiercest scrutiny yet this week when top climate-change experts will warn that only greater use of renewable [energy](#) – including windfarms – can prevent a global catastrophe.

Guardian US environment correspondent **Suzanne Goldenberg** looked at the role cities would have to play in reducing emissions: [At-risk cities hold solutions to climate change: UN report](#)

It is already taking shape as the 21st century urban nightmare: a big storm hits a city like Shanghai, Mumbai, Miami or New York, knocking out power supply and waste treatment plants, washing out entire neighbourhoods and marooning the survivors in a toxic and foul-smelling swamp.

Now the world's leading scientists are suggesting that those same [cities](#) in harm's way could help drive solutions to [climate change](#).

[11.48am BST](#)

Green groups reaction - "The age of renewable energy starts now"

This report is being heralded as vindication for many green groups because the UN panel has found that the renewable agenda supported almost unequivocally by the environment movement is the road to climate redemption. They are queuing up to ram home the message.

Kaisa Kosonen, senior political advisor for [Greenpeace International](#), said:

"Renewable energy is unstoppable. It's becoming bigger, better and cheaper every day. Dirty energy industries are sure to put up a fight but it's only a question of time before public pressure and economics dictate that they either change or go out of business. The 21st century will be the 'age of renewables'."

Samantha Smith, leader of the [WWF's](#) Global Climate & Energy Initiative said:

"The IPCC report makes clear that acting on emissions now is affordable, but delaying further increases the costs. The energy sector is by far the largest emitter of greenhouse gases and, therefore, is the key battleground of change.

"We know more effort is needed, and quickly. Delaying new mitigation efforts will make it much harder to transition the world's energy systems to a sustainable, equitable and low-emissions future."



Friends of the Earth executive director Andy Atkins said:

"Bold international action to cut our use of fossil fuels is urgently required to steer the planet away from catastrophic climate change.

"If we're to avoid levels of climate change that will be impossible to adapt to, governments must stand up to the fossil fuel industry and plug in to the huge potential of clean renewable power.

"Rich nations must take the lead by rapidly weaning themselves off coal, gas and oil and funding low-carbon growth in poorer countries.

"The IPCC report is clear: we already have the technologies to make the journey to safe, clean energy. But the clock is ticking, we must act now."

Li Shuo, climate and energy campaigner at Greenpeace China, said:

"China could break the deadlock in UN climate talks by presenting an ambitious new target with binding emission cuts. If China leads, the US and the EU will have no excuse for not being more progressive. The test of whether governments are willing to act on the IPCC's findings or turn their backs on public concern will come during next year's climate treaty talks in Paris."

Karsten Smid, climate and energy campaigner at Greenpeace Germany, said Germany, which plans to cut carbon emissions by 40% by 2020, was setting the pace in the new age:

"Germany's energy revolution is a practical reality and an example to the world. Clean energy owns the future. Politicians and investors need to catch up."

Jennifer Morgan, World Resources Institute's climate and energy program director and a review editor on the report said:

"We have the tools—now we need to use them. The report shows that by phasing out fossil fuels and significantly ramping up investments in renewable energy, we can reduce climate risks. At the same time, these actions would deliver benefits like cleaner air, new jobs, and more reliable domestic energy sources.

"World leaders can take decisive actions, like limiting power plant emissions in the United States to capping coal use in China. In the lead up to the UN climate summit in September, government officials can announce concrete steps to shape a low-carbon future. Governments can deliver strong commitments that will lead to an ambitious, universal climate agreement by 2015."

WWF's Samantha Smith on the key findings of the report.

Updated at 12.22pm BST

11.58am BST

Transport Environment says the IPCC confirmed today that transport will become the largest source of CO2 emissions by 2050 in a business-as-usual scenario, making it a key area for policy considerations. Transport accounted for 27% of final energy use in 2010 and could double by 2050 due to demand growth in emerging economies.

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A TE spokesperson said:

"Thanks to EU regulations CO₂ emissions from new cars are now falling, but the progress on trucks and vans is glacial. The IPCC report stresses the urgency of taking new initiatives to tackle vehicle emissions, but the European Commission's response is to repeatedly delay promised strategies to regulate car and van emissions after 2020 and to start addressing soaring emissions from trucks."

12.14pm BST

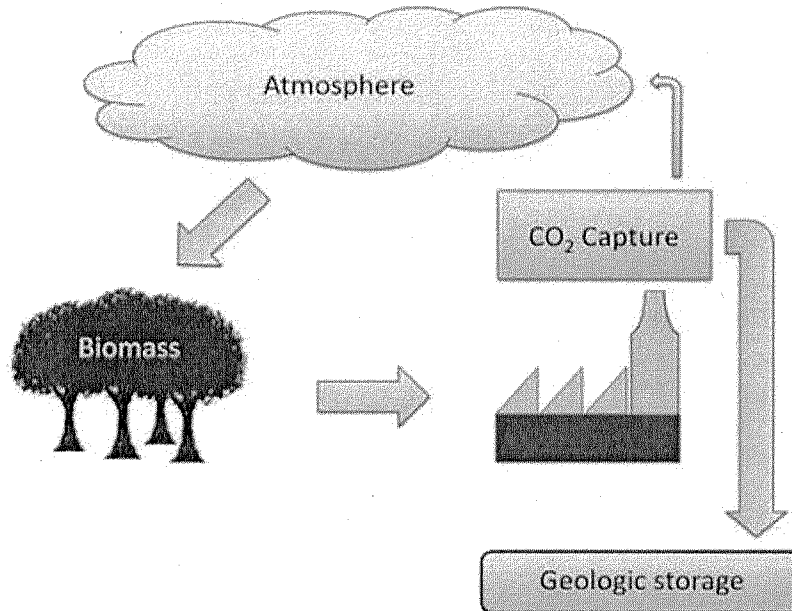
Carbon capture and storage is one of the more divisive aspects of today's report and generated some discussion in the last week because the leaked final draft contained the lines:

"Carbon capture and storage (CCS) technologies could reduce the life-cycle GHG emissions of fossil power plants (medium evidence, medium agreement)."

"Combining bioenergy and CCS (BECCS) could result in net removal of CO₂ from the atmosphere (limited evidence, medium agreement)."

"Bioenergy could play a critical role in stabilizing climate change...The scientific debate about the marginal emissions of most bioenergy pathways, in particular around land-mediated equilibrium effects (such as indirect land use change), remains unresolved (medium evidence, low agreement). The potential, costs and risks of BECCS are subject to considerable scientific uncertainty (low evidence, medium agreement)."

The technology is currently not developed, leading to large uncertainty about its potential to contribute to emissions reduction. It involves catching carbon dioxide as it is produced by an industrial process and storing it indefinitely underground. When used in bioenergy production, such as the burning of wood, this has the advantage of actually removing CO₂ from the atmosphere.



The bio-energy with carbon

capture and storage (Beccs) carbon cycle circuit breaker. Photograph: BBC

But many green groups don't like the technology. Almuth Ernsting, co-director of bio-energy watchdog Biofuelwatch told the Guardian this week:

"The technology is the dangerous spawn of two very bad ideas: it brings together the false premises and injustices of the bio-energy debacle with the risky, costly and unproven notion that we can bury carbon dioxide out of sight. That hardly seems a hopeful formula for calming the climate crisis. Such techno-fix fantasies will be welcomed by oil companies because they distract attention from the obvious solution of cutting fossil fuel use."

Neil Edwards, reader in Earth Systems Science at the Open University, said today:

"Such transformative changes remain eminently possible, but concerted action is needed. In particular, BECCS (bio-energy with carbon capture and storage) is a critical component of most strong mitigation scenarios, allowing negative effective emissions, but is still not demonstrated at large scale."

Stuart Haszeldine, Professor of carbon capture and storage at the University of Edinburgh, said:

"Extraction and combustion of fossil carbon can only continue if that easy energy is matched, tonne for tonne, by the recapture and storage of carbon. It doesn't matter if that is by Carbon Capture and Storage (CCS), by Bio Energy Capture and Storage (BECCS), by direct air capture, or by enhanced mineral weathering – all of these will be needed."

Dr Hannah Chalmers, lecturer in power plant engineering and carbon capture at the University of Edinburgh, said:

"The scientists of the IPCC have produced an excellent overview of the importance of developing and deploying a broad range of low carbon technologies. The UK has well-advanced plans to accelerate the deployment of carbon



capture and storage (CCS) as part of its wide-ranging reforms of the UK electricity market. This report confirms that this support is timely and has an important role to play in global CO2 emissions mitigation efforts.

"The increased emphasis given to the likely role of 'negative' emissions technologies that draw CO2 from the atmosphere is important. They could be essential to allow climate change mitigation to be delivered in ways that are acceptable to society. Some technologies are available today, but there is scope for improvement and also scientific breakthroughs in this area. Members of the UK CCS Research Centre are among the scientists currently working hard to ensure that priority technologies and effective strategies for using them are rapidly developed and implemented."

Updated at 1.19pm BST

12.14pm BST

Last-minute objections from rich countries scrapped a proposed section, which called for hundreds of billions of dollars every year to be paid to developing countries by developed countries, says the Guardian's **Damian Carrington**. This funding would have helped countries to develop their cities and economies without massive increases in carbon emissions.

Chukwumerije Okereke, an author on the report told the BBC this was a result of the "marginalisation" of developing country views in the IPCC process. He said that poorer nations were underrepresented on the panel. Around 30% of authors for the report came from the developing world.

"The argument has been shifting away from the view that the developed countries, who have been mainly responsible for the problem, should take leadership in solving it, to this centre-ground view that we are all in it together and we all have to do our share.

"In effect, this is shifting the burden onto the developing countries and is holding them down from developing; quite frankly this is reinforcing historical patterns of injustice and domination."

In response to the report, green groups called for climate justice. Oxfam's climate expert Jan Kowalzig said:

"Emissions are rising fastest in emerging economies and in the interest of their poorest citizens on the front line of climate change, they must play a bigger role than in the past. But rich countries cannot simply pass the buck - they must do their fair share by both slashing their emissions faster and finally providing the financial support for climate action in poor countries they have promised."

"If we fail to act on climate change, the chance of eradicating hunger from our world may be lost forever. This report shows cutting emissions sufficiently comes at little cost, so we have no excuse for letting that happen."

Christian Aid's senior climate change advisor, Mohamed Adow, said:

"The world's poorest nations are in need of economic development. But they need to be helped to leapfrog dirty energy and develop in a way which won't entrench their poverty by making climate change worse. With technological and financial help they can harness their natural, clean, energy resources and improve the lives of millions."

12.19pm BST



During the press conference, Damian Carrington asked co-chair Edenhofer about shale gas' role in the future of energy production.

Updated at 12.19pm BST

12.32pm BST

US political reaction

World leaders are declining to comment directly, passing the honour to their energy or science advisors. Assistant to the US president for science and technology **John P. Holdren** said:

The facts are clear—the more we and other countries do to curb climate change *and* prepare for the climate-change impacts that can no longer be avoided, the less suffering will be inflicted on our communities and on our children and grandchildren.

The IPCC's new report highlights in stark reality the magnitude and urgency of the climate challenge. It shows, even more compellingly than previous studies, that the longer society waits to implement strong measures to cut greenhouse-gas emissions, the more costly and difficult it will become to limit climate change to less than catastrophic levels.

The Obama Administration is committed to leading efforts to address this global challenge, both by example and by persuasion. And through the concrete steps laid out in President Obama's Climate Action Plan, real progress is already being made.

Democratic **U.S. Senator Barbara Boxer**, chairman of the Senate Environment and Public Works Committee echoed Holdren's statement:

"The newest IPCC report shows a wide range of options to cut carbon pollution, including the use cost-effective clean energy. The longer we wait to act, the harder and more expensive it will be."

Updated at 12.35pm BST

12.34pm BST

UK political reaction

Meanwhile, in the UK, energy secretary **Ed Davey** has told Sky News:

The UN climate change report is a stark warning that the world is "looking down the precipice".

He said it showed the UK should be "should be doing absolutely everything", although he argued the coalition has already "done more on the green economy than any predecessor" because it has doubled renewable electricity.

However, Davey acknowledged there were tensions within the coalition over green energy, including "a current discussion about onshore wind", which the Conservatives want to cap. Any cap on onshore wind could undermine the fight against climate change and end up increasing bills.



"The danger of that is you wouldn't be tackling climate change as effectively as you could, and actually you'd end up putting up people's bills because onshore wind is the cheapest," he said.

Updated at 1.58pm BST

12.35pm BST

EU political reaction

EU commissioner **Connie Hedegaard** said:

"The report is clear: there really is no plan B for climate change. There is only plan A: collective action to reduce emissions now. And since we need first movers to set a plan into motion, we in Europe will adopt an ambitious 2030 target later this year. Now the question is: when will YOU, the big emitters, do the same? The more you wait, the more it will cost. The more you wait, the more difficult it will become."

12.57pm BST

The IPCC report says divestment from fossil fuels is one path for reducing their consumption.

In an article for the Guardian last week, **Archbishop Desmond Tutu** wrote:

"We live in a world dominated by greed. We have allowed the interests of capital to outweigh the interests of human beings and our Earth. It is clear [the companies] are not simply going to give up; they stand to make too much money."

"People of conscience need to break their ties with corporations financing the injustice of climate change. We can, for instance, boycott events, sports teams and media programming sponsored by fossil-fuel energy companies."

On divestment, Jamie Henn, 350.org strategy and communications director said:

"The report makes it clear that in order to meet their agreed goal of keeping global warming below 2°C, governments need to get serious about leaving fossil fuels in the ground. That means stopping carbon-intensive infrastructure projects, like the Keystone XL pipeline, and shifting investments out of the fossil fuel industry and into solutions."

350.org European Divestment Coordinator Tim Ratcliffe said:

"Investors now have scientific evidence that if you put your money into fossil fuels you are complicit in wrecking our future. We know that 80% of fossil fuels need to stay underground in order to avoid a climate catastrophe. The fossil fuel industry however is spending billions every year to find yet new reserves, spread misinformation about climate change, corrupt political progress and block clean energy solutions. ExxonMobil, for example, recently spelled out that they are determined to burn through all the carbon they have and can get hold of."

Updated at 12.59pm BST

1.00pm BST



The IPCC has launched its [press release](#):

"Climate policies in line with the two degrees Celsius goal need to aim for substantial emission reductions," working group III co-chair Ottmar Edenhofer said. "There is a clear message from science: To avoid dangerous interference with the climate system, we need to move away from business as usual."

1.19pm BST

Scientific reaction

The Science Media Centre has put together a wrap of the reaction from climate scientists and those working in the mitigation field.

Dr Dan Osborn, independent consultant and former chair of the evaluation panel for the [AVOID](#) research programme, said:

"This report illustrates the challenges the world faces on mitigation but it could be good news for those businesses and countries willing to lead the way on all kinds of low-carbon technologies. Burning oil and gas will be frowned on by future generations because this resource is valuable for other purposes. The sooner we start on mitigation the lower adaptation costs will be. Relying on a non-existent Plan B is not a wise option. Time to act is limited. The world must not put its head in the sand. Global action is needed to reduce emissions whilst there is still time."

Dr Neil Edwards, reader in earth systems science at the Open University, said:

"The WG3 SPM highlights a number of key issues: Firstly, where we are in terms of mitigation and where we need to be (to have a good chance of respecting the 2C limit) are still a long way apart. The changes needed to bridge the gap include transformative, non-incremental changes, particularly of the energy system and behaviour in areas such as energy efficiency, modes of mobility, and potentially diet changes. Such transformative changes remain eminently possible, but concerted action is needed."

William Powrie, dean of the Faculty of Engineering and the Environment, University of Southampton, said:

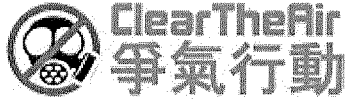
"Behaviour change and economic instruments will be as important as technological innovation; all should be viewed as opportunities rather than threats. Action must be swift, decisive and above all global. The report leaves no doubt that we really are in the last chance saloon as far as addressing climate change is concerned."

Prof Stephen Long, from the Department of Crop Sciences at the University of Illinois, wrote a long and interesting critique of the report's findings in relation to land use. I have published the full version [here](#).

"In 'approaches to climate change mitigation' the report espouses high ideals to which we can all agree, and that no policymaker would dare deny. However, these ideals are far from achieved in today's business-as-usual operations. The danger here is that we will be, and as evidenced by much legislation around biofuels and bioenergy between AR4 and AR5, holding new mitigation options to higher standards than business-as-usual. Such statements also encourage development of policies around imagined rather than proven issues. The result is obvious, maintain business-as-usual – it is so much easier.

"The section on 'Agriculture, Forestry and Other Land Uses (AFOLU)' clearly failed to see the elephant in the room. Output of primary foodstuffs such as grain and seed needs to increase 70% by 2050 to keep pace with demand. We are failing to increase yields per unit land area to achieve this goal. If we do not address this problem first, then the

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result is obvious: we will spill over on to less productive and less sustainable land which will prevent or even reverse other mitigation options of afforestation, bioenergy, and soil improvement."

Prof Godfrey Boyle, emeritus professor of renewable energy at the Open University and reviewer for parts of the WG3 report, said:

"In the light of this enthusiastic IPCC endorsement [of renewables], it is disappointing that the European Commission's recent policy proposals for growth in renewables are unambitious and unspecific. Post-2020, the EU will abandon its existing country-specific renewable targets, aiming instead for a modest Europe-wide target of 27% of energy from renewables by 2030. So instead of setting a leading example to the world by moving rapidly towards a low carbon future, the developed nations of Europe are in danger of falling well short of the IPCC's latest standards."

Dr Jeremy Leggett, associate fellow at Oxford University's Environmental Change Institute, said:

"It is useful to see so many experts agree that the electricity sector can be completely decarbonised as a major contribution to keeping global warming below unacceptable danger levels, but many of us on the front lines of renewable energy would say that the IPCC has underestimated the speed with which our technologies, in concert with energy efficiency, can displace fossil fuels in the years ahead.

"Similarly, growing numbers of financial analysts would say that the IPCC has given inadequate consideration to the soaring capital expenditures of carbon-fuel companies, and the extent to which that constraint can help drive capital to the declining-cost technologies that dominate the renewables family."

Dr Shaun Fitzgerald of Girton College, Cambridge University, said:

"The report states, 'Cutting emissions from electricity production to near zero is a common feature of ambitious mitigation scenarios. But using energy efficiently is also important.' What is intriguing is that the energy efficiency argument is often the second point, perhaps the after-thought. The world of energy is a set of scales - demand and supply. It is obvious that by cutting demand, or at least stemming the growth in demand, the issue of how to supply CO2 friendly power is made easier."

Prof Tim Benton, UK champion for global food security and professor of population ecology at the University of Leeds, said:

"Agriculture and forestry are responsible for about a quarter of all GHG emissions and there is significant scope to reduce this. Perhaps the most important route is via reducing deforestation – which is occurring widely for production of palm oil and soy – and increasing afforestation.

"Farming can become more 'climate smart' by, for example, increasing carbon storage in soils and this may have a range of other benefits for sustainability and resilience. Changing our diets, especially eating less meat, may have significant impacts, as will reducing our wastage of food."

Mike Hulme, professor climate and culture at King's College London said:

"This WG3 report draws attention to a range of methods for removing CO2 from the atmosphere, including afforestation, carbon capture and storage (CCS) and other means for removing CO2 from the atmosphere (CDR). It is good to see these methods analysed alongside policy measures to change the energy supply mix, since the former may have value in the future in a broad policy portfolio. The SPM makes no mention of unwelcome and



risky technologies to reduce incoming sunlight through solar climate engineering - and this is a good thing. Such solar radiation management (SRM) technologies offer only chimerical solutions to the inadequate policy goal of limiting global warming to no more than 2 deg Celsius."

Updated at 3.08pm BST

1.21pm BST

Damian Carrington, the Guardian's head of environment, has sent this dispatch from Berlin, where the mood sounds positively jovial - a sharp contrast to the usual feeling of impending armageddon that has accompanied AR5's previous installments.

Behind the scenes most of the IPCC people I have spoken too are pretty positive about the report and the final summary. As ever, politics intervened in the final draft with, for example, a line stating that 70% of carbon emissions comes from just 10 big countries being deleted.

Any hint of attributing blame for climate change is intensely sensitive, because the international negotiations to tackle the problem will ultimately have to decide who will cut emissions, by how much and who will pay. The IPCC people say they have set out the choices and now the politicians will have to make the choices about fairness.

Saudi Arabia, I'm told, played its customary role in objecting to any negative mention of fossil fuels, and the final language in the summary was weakened as a result. But all the statements remain in the main report.

Perhaps the reason the IPCC people are fairly upbeat is that they have had some sleep. Unlike previous IPCC report press conferences, this one was delayed a day, meaning time for recovery from the all-night negotiating sessions.

One IPCC author, Reyer Gerlagh, an economist at the University of Tilburg in the Netherlands, put the 0.06% annual cost of tackling climate change in perspective for me, by considering how accurately economic growth can be measured: "You could almost say that statistically, you can't measure 0.06%."

Updated at 1.26pm BST

1.35pm BST

PricewaterhouseCoopers have released an analysis of the report.

Dr Celine Herweijer, partner on sustainability and climate change, said the "Working Group 3 report on mitigation explains how to avoid the crash. But it also suggests that the brakes are not working".

"Fundamentally, the latest IPCC reports show that not only are the costs to act affordable if we do so early, but that we all lose if we fail to respond adequately. Uncertainties due to a handful of nascent economic models are not excuses for inaction. Policy-makers and business leaders have a mandate to act under the weight of the evidence at hand. This evidence suggests urgent and bold action is a must at the national and international level."

"The IPCC has provided some estimates on the global scale of the costs, both for reducing emissions (WG3) and for the impacts of climate change (WG2). Unfortunately they cannot be compared and used as a decision to act. What is certain is that the costs to act only become more expensive the longer we wait."

On carbon regulation and competitiveness, PwC climate policy economist, Lit Ping Low, said:

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"There is a pre-conception that carbon regulations impose undue costs on industry. But across all sectors, businesses are often faced with all sorts of regulations so carbon regulation is not exceptional. Indeed, for some companies and industries, particularly those with medium energy intensities, carbon costs are considered relatively immaterial compared to other costs, but a price signal can still drive tangible carbon reduction actions. The important thing for businesses is to have transparency, clarity and fairness in the costs they face."

On emissions reduction, Jonathan Grant, director of sustainability and climate change, said:

"Delayed action on climate change and reducing our emissions tends to involve a substantially more difficult pathway from 2030 onwards, or have a larger reliance on carbon dioxide removal (CDR) technologies which are today in their infancy (i.e. bioenergy with CCS or even geoengineering). [PwC's Low Carbon Economy Index \(LCEI\)](#) estimated that we could limit emissions to around 30 GtCO₂e by 2030 through reducing carbon intensity by 6% a year, every year. This has never been achieved globally and even in 2012 our analysis questioned the viability of the 2 degree target without a radical economic and policy transformation."

"A key message from the IPCC is that energy efficiency improvements and the switch from coal to gas would not be sufficient to deliver the scale of changes required. Indeed, our LCEI analysis shows that globally, almost all of the recent changes in carbon intensity can be attributed to improvements in energy efficiency, suggesting that other measures are yet to be adopted more widely. Nevertheless progress is still visible particularly for renewable energy, and more technologies are approaching technical and economic maturity to be deployed at scale. The challenge is about the rate of that deployment. Three G20 countries achieved more than 25% growth in renewable energy consumption in 2012, another 10 countries achieved between 10% and 25% growth."

Updated at 1.40pm BST

1.38pm BST

The [Prince of Wales's Corporate Leaders Group](#), a coalition of companies, including Acciona, Coca-Cola Enterprises, EDF Energy, Shell, Tesco and Unilever, said today the report was welcomed by the corporate community:

"This latest report from the IPCC is the one that many businesses have been waiting most eagerly to read – here is the latest scientific analysis of the solutions that we can employ to limit the stock of atmospheric greenhouse gases and the consequent climate change. The report contains some stark home truths about the scale of the challenge and the progress we're making to date. Rather than slowing and declining, greenhouse gas emissions are rising at a faster rate than ever before and no country has plans in place that are sufficient to keep warming below the globally agreed limit of 2°C.

"Many leading businesses are well aware of the need for a collective wake up call. The Trillion Tonne Communiqué, already signed by over 90 companies from 5 continents, and with fast-growing support, calls for an increase in the pace and scale of action. Specifically, the signatories urge policy makers to take a number of significant actions in line with the science of the IPCC, including setting a timeline for phasing out greenhouse gas emissions before the end of the century, designing a credible strategy to transform the energy system, and creating a plan to manage reliance on fossil fuels, especially coal."

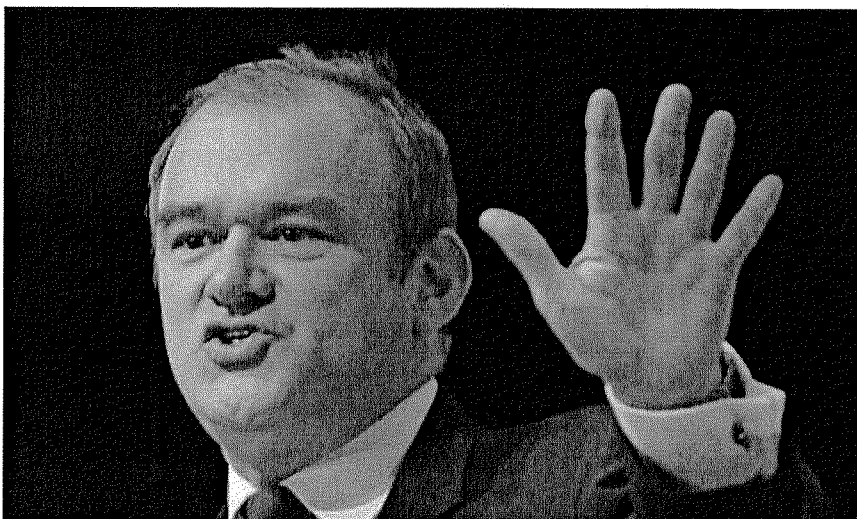
1.43pm BST

UK energy secretary Ed Davey has released [a statement](#).



"The risk is too great to stop here. We need a worldwide, large-scale change to our energy system if we are to limit the effects of climate change.

"I call for international leaders to work together with enforced vigour to reduce carbon emissions and secure an ambitious legally binding global agreement in 2015".



Ed Davey says 'we need a worldwide, large-scale change' to avoid catastrophic climate change. Photograph: Danny Lawson/PA

Updated at 1.44pm BST

1.48pm BST

The World Resources Institute has released a handy analysis of today's report: 6 Things You Need to Know About Reducing Emissions. I'll list the headlines here but they have more detail on their site.

- 1) Without Explicit Action, We Could See More than 4°C of Warming.
- 2) Limiting Warming to 2°C Is Still Possible.
- 3) Staying Within the Carbon Budget Requires Immediate Action.
- 4) We'll Need to Phase Out Emissions Entirely in the Long-Term.
- 5) We'll Need Action from All Regions of the World.
- 6) Shifting to a Low-Emissions Pathway Requires a Large-Scale Transformation.

1.54pm BST

More reaction

US Secretary of State **John Kerry** said:

Website: www.cleartheair.org.hk Tel 26930136 Fax 26027153



“Unless we act dramatically and quickly, science tells us our climate and our way of life are literally in jeopardy. Denial of the science is malpractice. There are those who say we can’t afford to act. But waiting is truly unaffordable. The costs of inaction are catastrophic.”

Sir Brian Hoskins, director of the Grantham Institute for Climate Change, Imperial College London, said:

“The science shows us that we need substantial and sustained reductions in greenhouse gas emissions if we are to limit the risks posed by climate change... Potential competitiveness issues, affecting a small number of very energy intensive industries, can be handled. We should stop wringing our hands and just get on with it.”

Professor Lord Stern of the London School of Economics, who wrote an authoritative economic analysis of climate change in 2006, said:

“The transition to sustainable low-carbon economic development and growth is an opportunity not just to avoid potentially catastrophic climate risks, but also to reap other benefits from cleaner and more efficient technologies, such as reductions in local air pollution. If we embark on such a transition, we are likely to discover new technologies and ways of organising production, consumption and cities that would bring costs down radically.”

Stephanie Pfeifer, chief executive of the Institutional Investors Group on Climate Change, representing 88 of Europe’s largest investors worth €7.5 trillion:

“At the UN summit in September, world leaders can agree the basis for a global climate deal which signals a serious, long-term commitment to a climate framework which supports low-carbon investment. Acting now to put the world on a low-carbon growth path is achievable, economically beneficial, and will help economies avoid the substantial adaptation costs and large uncertainties faced in the event of severe climate change.”

2.19pm BST

Summary

- **The IPCC report, *Mitigating Climate Change*, was released today.** It detailed the path by which the worst effects of climate change can be avoided and global warming, including how the world can avoid breaching the 2C limit agreed by world leaders in Copenhagen in 2009.
- **The report is from the last of three IPCC working groups**, the first two looked at the the state of climate science and the impacts of unchecked climate change.
- It was **produced by 1250 international experts** and approved by 194 governments.
- The report found that **carbon emissions were still growing** and the rate of growth was increasing.
- However mitigating the effects of climate change would **only limit global consumption growth by 0.06%** - a relatively tiny amount.
- If we want to limit temperature increase to 2c by the end of this century, there would have to be large cuts in emissions, said IPCC chair **Rajendra K Pachauri**. Tripling to nearly quardurling of zero to low co2 energy supply will almost get us there.
- **A business-as-usual scenario** will lead to 3.7C to 4.8C rise in temperature before 2100.
- Working group III co-chair **Ottmar Edenhofer** said the report contained "**hope, modest hope**" and that "**it does not cost the world to save the planet**".
- **Renewable energy** was seen as the major energy production platform in a sustainable future.
- **Carbon capture and storage, nuclear, bioenergy and shale gas** were mentioned alongside renewables as necessary contributors to the global energy mix.

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- **Last-minute objections from rich countries** scrapped a proposed section, which called for hundreds of billions of dollars every year to be paid to developing countries by developed countries.

Reaction

- US Secretary of State John Kerry said: "Unless we act dramatically and quickly, science tells us our climate and our way of life are literally in jeopardy. Denial of the science is malpractice. There are those who say we can't afford to act. But waiting is truly unaffordable. The costs of inaction are catastrophic."
- UK energy secretary Ed Davey said: "The risk is too great to stop here. We need a worldwide, large-scale change to our energy system if we are to limit the effects of climate change."
- Green groups pushed home the message that renewable energy would be the major platform of future energy generation in a low carbon world.
- Pricewaterhouse Coopers said: The "report on mitigation explains how to avoid the crash. But it also suggests that the brakes are not working".
- Some scientists agreed with the IPCC finding the carbon capture and storage may have a role to play in mitigating climate change.
- Lord Deben, chair of the UK's independent Committee on Climate Change said: "How can we expect poor countries to join in the battle against climate change unless we accept that we owe our wealth partly to pollution."
- World Resources Institute said that without action, we could see more than 4C of warming, but that 2C was possible with immediate action.

From: William Sha [redacted]
To: wmyeung@fehd.gov.hk, chris_cheung@epd.gov.hk, enquiry@epd.gov.hk, CHAN KAM LAM <kiclegco@gmail.com>, wklo@engineer.com, jkstolegco@gmail.com, elau@dphk.org, yctam@dab.org.hk, arazack@netvigator.com, khwong@ftulegco.org.hk, Cyd HO <info@cydho.org.hk>, garychk@dab.org.hk, leungkl@leungkl.org, ipkh@dab.org.hk, contact@alanleong.net, albert.wychan@yahoo.com.hk, legco@michaeltien.hk, Leung Sing Ng <lsngoffice2012@gmail.com>, frankieyick@liberal.org.hk, Chiwai Wu <chiwaioffice@gmail.com>, 范國威議員辦事處 <fankwokwaioffice@gmail.com>, FK Ma <fkmaoffice@gmail.com>, charlesmok@charlesmok.hk, Ben Chan <benchanlegco@gmail.com>, info@chankalok.hk, yhchan@ftulegco.org.hk, lcc.ntw@dab.org.hk, Alice MAK <amlegco@gmail.com>, info@cheungchiuhung.org.hk, cksin@dphk.org, eq@eqweb.hk, Lai Wan Chiang <chianglaiwan@gmail.com>, office@chungsk.com, info@tonytsewaichuen.com, 曾鈺成 Tsang Yok Sing, Jasper <tsangyoksing@gmail.com>, Chun yin HO <honstevenho@gmail.com>, tkwong@dab.org.hk, Wai King Lee <info@starrylee.com>, skdcadm@skdc.had.gov.hk, f_c@legco.gov.hk, f_pwsc@legco.gov.hk

Date: Tuesday, April 15, 2014 12:47PM
Subject: 請在 4/16 擴建將軍澳堆填區議題上投反對票 !!!

History: ➔ This message has been forwarded.

致: 各立法會議員及西貢區議會

作為一名香港市民, 期望各位能夠體恤民情, 解市民之苦 !!

住在將軍澳堆填區, 所受的屈辱是令人難以忍受的, 事實上, 堆填區的確是與我們的家近在咫尺, 無論黃局長是否承認政府曾經承諾 2014 年終極關閉堆填區, 我們買樓時是確信關閉堆填區是理所當然的事, 因為政府正在不斷發展將軍澳, 在將軍澳堆填區附近居住和工作的人是何其多, 而且在不斷增加, 負責任的政府, 怎會不認同終極關閉將軍澳堆填區是事在必行? 請各議員必須督促環境局一定要放棄擴建將軍澳堆填區及確定在 2014 年終極關閉將軍澳堆填區, 並在 4/16 擴建將軍澳堆填區議題上投反對票 !!!

雖然建築廢料沒臭味, 但建築廢料垃圾車仍然行走環保大道, 做成環境污染, 空氣污染及嘈音污染, 對市民身心健康有嚴重影響, 我們不是垃圾, 我們不要住在堆填區 !!!

此外, 接收及儲存公眾填料的將軍澳第137區填料庫的土地使用期本來于2013年屆滿, 這只是臨時填料庫, 請不要考慮延長運作期或改變用途作為其他廢物處理設施用途。

我們在香港土生土長, 不想移民外地, 但政府政策不能保障市民健康和權利的話, 我們實在有點心灰意冷 !! 眼見身邊的人很多往外走, 我們是既心痛, 又無奈 !!

將軍澳環保區已發展成為人口眾多的住宅區及工業區, 但區內建設緩慢, 現時連一間食肆也沒有, 交通亦不方便, 日常生活有點兒像與世隔絕, 但居民卻要天天往外區工作, 日出而作, 日入而息, 為生活打拼。雖然說此區樓價較便宜, 我們是靠自己能力買樓的, 我們沒有貪圖政府的福利, 亦沒有濫用政府資源從而加重政府負擔, 我們

不是公屋戶,但待遇卻比公屋居民差。我們是納稅人,對社會有貢獻,政府不能對我們置之不理,我們已不斷發出悲鳴,請議員一定要在 4/16 擴建將軍澳堆填區議題上投反對票及為我們改善將軍澳環保區生活配套而努力 !!!

請看看區外人是如何評價在堆填區居住和工作的影響,堆填區附近不可能建大型屋苑和工業村,請不要將錯就錯,還強行要擴建將軍澳堆填區,不要官逼民反,我們絕對不會支持擴建將軍澳堆填區 !!!

<http://hk.apple.nextmedia.com/financeestate/art/20140412/18687028>

<https://www.youtube.com/watch?v=WbawCXzqQxl>

To: "wklo@engineer.com" <wklo@engineer.com>, "lcc.ntw@dab.org.hk" <lcc.ntw@dab.org.hk>, "jkstolegco@gmail.com" <jkstolegco@gmail.com>, "klclegco@gmail.com" <klclegco@gmail.com>, "elau@dphk.org" <elau@dphk.org>, "yctam@dab.org.hk" <yctam@dab.org.hk>, "arazack@netvigator.com" <arazack@netvigator.com>, "khwong@ftulegco.org.hk" <khwong@ftulegco.org.hk>, "info@cydho.org.hk" <info@cydho.org.hk>, "garychk@dab.org.hk" <garychk@dab.org.hk>, "leungkl@leungkl.org" <leungkl@leungkl.org>, "ipkh@dab.org.hk" <ipkh@dab.org.hk>, "contact@alanleong.net" <contact@alanleong.net>, "albert.wychan@yahoo.com.hk" <albert.wychan@yahoo.com.hk>, "legco@michaeltien.hk" <legco@michaeltien.hk>, "tpc@jamestien.com" <tpc@jamestien.com>, "frankieyick@liberal.org.hk" <frankieyick@liberal.org.hk>, "chiwaioffice@gmail.com" <chiwaioffice@gmail.com>, "fankwokwaioffice@gmail.com" <fankwokwaioffice@gmail.com>, "fkmaoffice@gmail.com" <fkmaoffice@gmail.com>, "charlesmok@charlesmok.hk" <charlesmok@charlesmok.hk>, "benchanlegco@gmail.com" <benchanlegco@gmail.com>, "info@chankalok.hk" <info@chankalok.hk>, "yhchan@ftulegco.org.hk" <yhchan@ftulegco.org.hk>, "amlegco@gmail.com" <amlegco@gmail.com>, "info@cheungchiuhung.org.hk" <info@cheungchiuhung.org.hk>, "helenawonghk@gmail.com" <helenawonghk@gmail.com>, "eq@eqweb.hk" <eq@eqweb.hk>, "chianglaiwan@gmail.com" <chianglaiwan@gmail.com>, "office@chungsk.com" <office@chungsk.com>, "info@tonytsewaichuen.com" <info@tonytsewaichuen.com>
From: Mark Hoare [REDACTED]
Date: 04/15/2014 10:56AM
Cc: "info@livingislands.org.hk" <info@livingislands.org.hk>, "cb1@legco.gov.hk" <cb1@legco.gov.hk>
Subject: Very concerned with EPD's approach to Waste Management

Dear Honourable Members of the Public Works Subcommittee,
Our organisation urges you to reject the current proposal by the Director of Environmental Protection (DEP), which is supported by the Secretary for the Environment, to upgrade 177DR to Category A at an estimated cost of \$18,245.7 million in money-of-the-day (MOD) prices for the design and construction of the integrated waste management facilities (IWMF) phase 1. [PWSC(2014-15)7]
While the Panel on Environmental Affairs has now approved (by 9 votes to 6) the same basic ENB proposal to "burn and bury" our waste that they rejected approximately 2 years ago, we urge you not to blindly follow their approval which is meant to have been based on environmental concerns. We believe that the 9 members of the EA Panel who voted in favour have clearly shown their lack of concern for the natural environment of Hong Kong.
As members of the Public Works committee, where your expertise is more on project management and engineering solutions, you should see that the current proposal to extend 3 landfills and build a mega incinerator does not solve the problem we are facing with Municipal Solid Waste (MSW) in the most timely or financially responsible way. We urge you to reject the current proposal based on the clear project management perspectives of:

- **Timing:** building the incinerator next to Shek Kwu Chau (SKC) will take many more years than the alternative site of the Tsang Tsui Ash Lagoons.
- **Cost:** selecting a site that does not require reclamation would significantly reduce the cost of the project. The difference in costs has been estimated to be the equivalent of building a new hospital

(\$2.5 Billion for the recently opened Tung Chung Hospital)

- **Technology:** the current proposal contains no practical proposal for mechanically sorting the majority of our waste before it is either sent to a landfill or incinerator. The proposed SKC pilot sorting plant will only be able to handle about 2% of the total MSW
- **Performance Measure:** There are no performance incentives within the proposal for the government to implement meaningful recycling services. How can you trust the government to implement the recycling services once you have approved the "bury and burn" based proposal?
- **Inefficient Land Use:** The land area of the existing landfills sites should be used as Integrated Waste Management Facilities (IWMF) rather than being only used for landfill. An IWMF should include building multi-storey waste sorting facilities to separately identify recyclables, organics and hazardous materials.
- **Private Sector Competition:** There have been numerous offers from the business sector over the years to help solve the waste issue from a commercial perspective. These have included offers to take 1/3 of the current MSW to piloting of the very latest thermal treatment technology.
- **Risk Management:** How can building one mega incinerator operated by one company out in the ocean provide contingency measures if this single plant has operational issues. Surely multiple smaller IWMF's located around HK can truly represent a balanced spatial distribution of Waste Management Facilities and provide superior operational risk management.

Regards

Mark Hoare

Sent from my iPad

To: wklo@engineer.com, lcc.ntw@dab.org.hk, jkstolegco@gmail.com, kiclegco@gmail.com, elau@dphk.org, yctam@dab.org.hk, arazack@netvigator.com, khwong@ftulegco.org.hk, info@cydho.org.hk, garychk@dab.org.hk, leungkl@leungkl.org, ipkh@dab.org.hk, contact@alanleong.net, albert.wychan@yahoo.com.hk, legco@michaeltien.hk, tpc@jamestien.com, frankieyick@liberal.org.hk, chiwaioffice@gmail.com, fankwokwaioffice@gmail.com, fkmaoffice@gmail.com, charlesmok@charlesmok.hk, benchanlegco@gmail.com, info@chankalok.hk, yhchan@ftulegco.org.hk, amlegco@gmail.com, info@cheungchihung.org.hk, helenawonghk@gmail.com, eq@eqweb.hk, chianglaiwan@gmail.com, office@chungsk.com, info@tonytsewaichuen.com
From: rachael lerigo [REDACTED]
Date: 04/15/2014 02:32PM
Cc: info@livingislands.org.hk, cb1@legco.gov.hk
Subject: Very concerned with EPD's approach to Waste Management

Letter of representation to Public Works Subcommittee Members

Dear Honourable Members of the Public Works Subcommittee,

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Regards
Rachael Lerigo