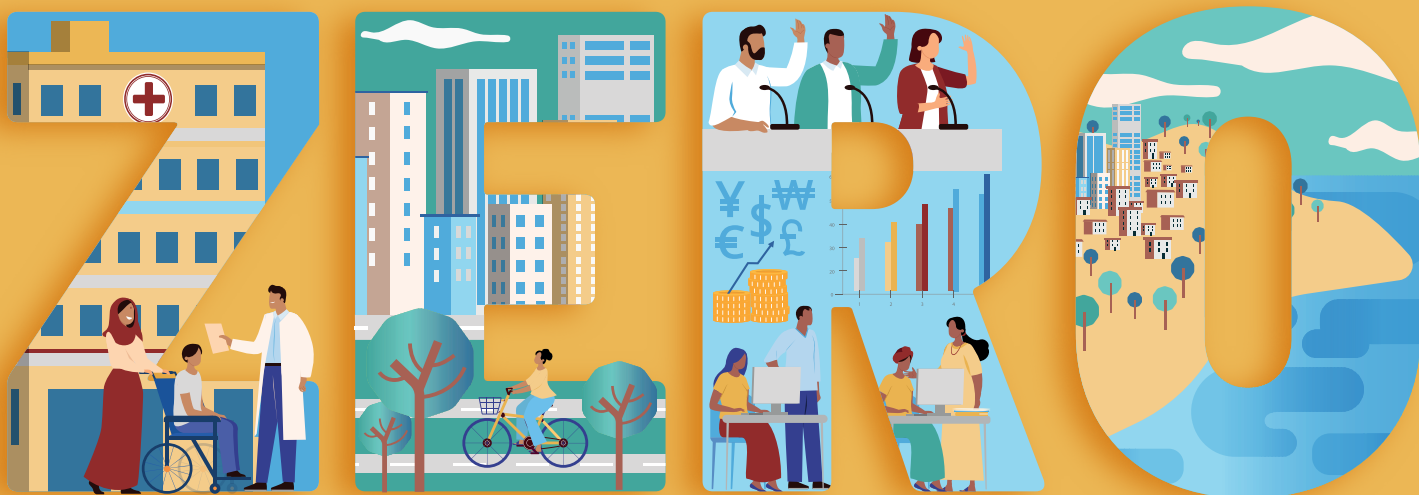




WASTE TO



EMISSIONS

How reducing waste is a climate gamechanger

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Isifinyezo esiphezulu

Njengoba isimo sezulu sikhula, kudingeka isinyathelo esiphuthumayo kuzozonke izinhlangothi ukuze kuqedwe ukukhishwa kwesisi esibamba ukushisa (GHG) nokujwayela isimo sezulu esiguquka ngokushesha. Umkhakha wemfucuza unikeza ithuba elibalulekile lokuthi amadolobha athathe isinyathelo esizonciphisa kakhulu ukungcola, ukuqinisa ukumelana nezimo, futhi unikeze izinzuzo ezinkulu zezempilo nezomnotho zomphakathi. Umkhakha wemfucuza ungumthombo wesithathu ngobukhulu we-anthropogenic methane emissions, ukwehliswa kwawo kuzoletha izinzuzo ezisheshayo ngokufudumala okugwenyiwe. Empeleni, izindlela ezinhle zokuphatha udoti zinganciphisa ukukhishwa kweminye imikhakha, zilethe ukuncishiswa kokungcola okungaphezulu kuka-100%. Ngesikhathi esifanayo, le ndlela, eyaziwa ngokuthi yi-zero waste, inganciphisa izikhukhula, inqande ukusakazeka kwezifo, ithuthukise impilo yomhlabathi, futhi ilethe amathuba ezomnotho. Lo mbiko uchaza ukuthi i-zero waste iyingxenye ebalulekile yanoma yiluphi uhlelo lwesimo sezulu.

Amaphesenti angamashumi ayisithupha nambili we-greenhouse emissions emhlabeni jikelele avela emnothweni wezinto ezibonakalayo, ngokulahlwa nokukhishwa. Ezihlalweni zezwe lonke, lokhu kukhishwa kubalwa emikhakheni yezimboni, yezolimo, yezokuthutha, nezamandla, kanye nomkhakha wemfucuza. Nokho ukunqanda ukudalwa kukadoti nokusebenzisa amasu angcono okulawula udoti kugwema ukukhishwa kuwo wonke umjikelezo wempilo wezinto ezibonakalayo-kusuka ekukhishweni kuye ekupheleni kokuphila. Amandla okunciphisa

umkhakha wokulawulwa kwemfucuza abukelwa phansi kakhulu.

Izinhlelo ze-zero waste zingamasu ahlukahlukene ahlose ukuqhubeka nokunciphisa imfucuza ngokunciphisa imithombo, ukuqoqwa okwahlukahlukeni, ukwenza umquba, nokugaywa kabusha. Omasipala abangaphezu kuka-550 emhlabeni wonke sebesebenzisa i-zero waste, ezimweni eziningi zezomnotho, ezenhlalakahle, zesimo sezulu kanye nezomthetho. ngaphezu kwalokho, lezi zinhlelo zonga kakhulu ukuzisebenzisa futhi zikhqize imiphumela esheshayo.

Lo mbiko uhlelwe ngokuzungeza imithelela emithathu emikhulu emihle yokuhlanganisa amasistimu kadoti angekho ezindleleni zamanje zokulawula udoti: ukunciphisa isimo sezulu, ukuguquguquka kwesimo sezulu, kanye nezinzuzo ezengeziwe zomphakathi (ezibizwa nangokuthi izinzuzo zokubambisana). Isahluko sokugcina sombiko sinikeza izifundo eziyizimo ezibonisa imiphumela yamasu we-zero waste emadolobheni ayisishiyagalombili ahlukeni, okubonisa ukuthi i-zero waste yisu elinamandla lokunciphisa elivumelana nezimo ezahlukahlukeni. Amadolobhakazi emhlabeni jikelele asevele wasebenzise izinhlelo ze-zero waste; ngalezi zifundo eziyisishiyagalombili, lo mbiko unikeza ukuhlolwa komthamo okusha kwezinzuzo zokuncishiswa zalezo zinhlelo.



Ukunciphisa isimo sezulu

Izinhlelo ze-zero waste zifaka isandla ekwehliseni ukukhishwa kwesisi esibamba ukushisa ngezindlela ezintathu: **ukuncishiswa kwemithombo nokuqoqwa okuhlukene kanye nokwelashwa kukadoti wemvelo** kugwema ukushiswa nokulahlwa kwemfucumfucu ye-methane; **ukusetshenziswa komquba** noma ukugaya kuthuthukisa ukumuncwa kwekhabhoni enhlabathini; **kanye nokuncishiswa kwemithombo futhi nokugaywa kabusha kwayo yonke imifudlana kamasipala yemfucuza kunciphisa intuthu “enyukayo”** evela ekumbiweni kwemithombo yemvelo, ekukhiqizeni nakwezokuthutha;

Key takeaway 1

Ukwenza umquba kushintsha isimo sezulu.

- Ukuqoqwa okuhlukene kwemifudlana yemfucuza kubalulekile ukuze kugwenywe ukungcoliswa; inketho yokwelapha esebenziseka kalula kakhulu yemfucuza yezinto eziphilayo ukwenza umquba.
- Ukuqoqwa okuhlukaniswe ngomthombo kanye nokwelashwa kwezinto ezi-organic kunganciphisa ukukhishwa kwe-methane ezindaweni zokulahlwa imfucumfucu ngo-62%, ngisho noma unesifiso sokuvelela esisesilinganisweni.
- Ukutholwa kwemfucuza eyinsalela ngemishini nokusetshenziswa kwebhayoloji kanye nesembozo sokulahlwa imfucumfucu esebenzayo yizinyathelo ezinhle ezihambisanayo zokuthola ukuqoqwa kwemfucuza e-organic ngokwehlukana; ngokuhambisana, la masu anganciphisa ukukhishwa kwe-methane ngesilinganisano esingango-95%

Key takeaway 2

I-zero waste modeli yemfucuza ingaguqula umkhakha wemfucuza ube umthombo ongemuhele we-GHG.

- Ukwehliswa kwezinqubomgomo ezingcono zokulawulwa kwemfucuza njengokuhlukanisa imfucuza, ukugaywa kabusha, kanye nokwenza umquba kunganciphisa ukungcola okuvela emkhakheni wemfucuza ngo-84% ngamathani angaphezu kwezigidigidi eziyi-1.4, okulingana nezimoto ezikhipha ikhabhoni ezingangezidigidi ezingamakhulu amathathu - noma ukukhipha zonke izimoto e-U.S. emgwaqeni unyaka wonke.
- Ukuqoqwa okuhlukene kanye nokwenza okuthile mayelana nemfucuza yezinto ezi-organic kuyisihluthulelo sokusikeka okujulile kokukhishwa kwe-GHG yemboni kadoti.
- Izinhlelo ezilwa nokuvuselela kabusha zinciphisa ukukhishwa kwezimayini, amahlathi, ezokukhiqiza, namandla. Ukwenyuka kokugaywa kabusha kuzonciphisa ukukhishwa kwe-GHG unyaka wonke emkhakheni wemfucuza ngo-35% e-Detroit, ngo-30% e-Sao Paulo, kanye ngo-21% e-Lviv ngo-2030.
- Kuhlenganiswe, lezi zindlela ezimbili zingakhiqiza ukuncipha okujulile kokukhishwa kwegesi kunokukhishwa komkhakha kadoti. I-Detroit, i-São Paulo, ne-Seoul zonke zizozuza ukukhishwa kwe-net-negative ngaphansi kwezimo 'ze-road-to-zero-waste'.
- Lokhu kuyiqiniso ngisho nasezinhlelweni ezinesizotha; ukuqaliswa okuphelele kokulahlwa kwemfucuza nge-zero waste kuzoveza ukuncipha okukhulu ezintweni ezishiswayo.

Key takeaway 3

Ukuncishiswa komthombo kadoti kuyindlela engcono kakhulu yokunciphisa ukukhishwa kwe-GHG, ikakhulukazi ukudla nepulasitiki (okungcono kunokugaywa kabusha).

- Ukuncishiswa kwemithombo kuyisu elibalulekile lokubhekana nokulahlwa kokudla, okwamanje okuhlanganisa ingxenye eyodwa kwezintathu yakho konke ukukhiqizwa kokudla futhi ebhekene ne-10% yokukhishwa kwe-GHG emhlabeni jikelele.
- Amanye amasu okunciphisa imithombo ahlanganisa imikhawulo ekukhiqizeni

- nasekusabalaliseni izinto ezisetshenziswa kanye nokupakishwa.
- Ukuncishiswa komthombo kubaluleke kakhulu kupulasitiki, iningi lawo elingasebenziseki futhi ukukhiqizwa kwawo kuphindeka kabili njalo eminyakeni engamashumi amabili.

Key takeaway 4

Ukuthola kabusha amandla akulona isu lokunciphisa elisebenzayo

- Ukuthunjwa kwegesi ye-Landfill akuthembeki, kuvumela inqwaba ye-methane engase ibe khona ukuba iphume.
- Amandla aphuma kumfucumfucu angumthombo omkhulu wokukhishwa kwe-GHG: ithani ngalinye lepulasitiki elishisiwe liphumela ekukhishweni kwamathani angu-1.43 we-CO₂, ngisho nangemva kokutholakala kwamandla.
- Amandla anganele atholakele ukuze asuse indawo yekhabhoni yalobu buchwepheshe.

Ukuzivumelanisa nesimo sezulu

Izinhlelo ze-Zero waste zisiza amadolobha ukuthi akhe amandla okumelana nezimo zezulu ezivame ukweqisa kanye nobungozi bezempilo obulethwa ukushintsha kwesimo sezulu. Ukuqoqwa nokungaphathwa kahle kwemfucuzo kuphakathi kwezinto ezishiya amadolobha echayeke kakhulu kulezi zimo. Izinhlelo zemfucuzo ze-zero waste zisiza amadolobha ukuthi akwazi ukumelana nalokhu: **ukunciphisa izikhukhula, ukunciphisa ukudluliswa kwezifo, kanye nokwenza ngcono izinga lomhlabathi.**

Key takeaway 1

Ukuvinjela kwamapulasitiki asetshenziswa kanye (ama-SUP) kuyadingeka njengoba udoti wepulasitiki ubhebhethekisa izikhukhula.

- Ukuvinjela kwepulasitiki kanye nezinhlelo zokuqoqwa kwendawo yonke kuyisihluthulelo sokuvimbela izikhukhula njengoba imfucuzo elawulwa ngendlela engafanele—ikakhulukazi izikhwama zepulasitiki—okuholela ekuvaleni kwamapayipi amanzi.

- Ngemuva kwezigameko ezimbi zezikhukhula, amadolobha amaningi amukele ngempumelelo nangokushesha ukuvinjela kwepulasitiki.

Key takeaway 2

Ukuvimbela ama-SUP kanye nokuqoqwa kwemfucuzo okungcono kuzogcina amagciwane ezifo ekude.

- Imfucumfucu engaqoqiwe, ikakhulukazi ipulasitiki, idala indawo yokuhlala (isb., amanzi amile) kubathwali bezifo, kuyilapho imfucuzo yokudla ihlinzeka ngokudla kwezilokazane.
- Ukunciphisa imfucuzo ngokuvinjela kwama-SUP kanye nokunciphisa ukudla okulahlwe kungasiza ukuphazamisa uchungechunge lokudluliselwa kwezifo.

Key takeaway 3

Ukwenza umquba kwenza izimanga ukuthuthukisa ukuqina komhlabathi..

- Ukusetshenziswa komhlabathi ongumquba kusiza umhlabathi ongenazo izakhamzimba ngokwandisa umthamo wokugcina izakhi, izakhiwo ze-biochemical, ukukhiqizwa kwezitshalo, nokugcinwa kwamanzi.
- Izinga lenhlabathi elingcono livimbela izikhukhula, ukuguguleka kodaka, nokulahlekelwa yizitshalo zokudla.

Izinzuzo ezengeziwe

Amasu e-zero waste asetshenziswe kahle kadoti azuzisa imiphakathi ngezindlela ezedlula amandla ayo okunqanda umthelela wokuguquka kwesimo sezulu: bathuthukisa izindlela eziningi eziyisisekelo umphakathi osebenza ngazo- ngezinzuzo **ezihambisana nemvelo, ezomnotho, ezenhlalo, nezombusazwe kanye nezikhungo**. Lezi zinzuzo ezengeziwe zihlanganisa ukuthuthukisa impilo yomphakathi, ukunciphisa ukungcoliswa kwemvelo, ukugqugquzela ukwakhiwa kwamathuba emisebenzi, ukusekela ukuthuthukiswa komphakathi, nokubhekana nokungalingani kanye nokungalungi komphakathi. Ngaphezu kwalokho, izixazululo zemfucuzo phezu ohlwini lwezibi azigcini nje ngokuba nezinzuzo ezinkulu kakhulu ezengeziwe, kodwa futhi zithola amaphuzu aphezulu kakhulu

ekuncishisweni kokukhishwa kwekhabhoni.

Key takeaway 1

Amasistimu kadoti e-zero waste enza okwengeziwe empilweni yethu kanye nemvelo kunamazinga aphantsi e-GHG: i-zero waste system kadoti:

- Yehlisa ubungozi bomdlavuza kanye nezifo ezihambisana nokusabalala komlotha onobuthi ophuma ezindaweni ezishiswayo nasezindaweni zokulahla imfucumfucu ngokuwenza ungasasebenzi;
- Ilondoloza imithombo yemvelo ngokunciphisa isidingo kanye nesidingo sezinto ezisetshenziswayo;
- Ivikela impilo ye-ecosystem ngokunciphisa ukungcola okubangwa ipulasitiki, futhi okuthinta zonke izinto eziphilayo;

Key takeaway 2

Izinhlelo zemfucuzo ezingenasici zinomthelela emnothweni ophumelelayo. I-zero waste system kadoti:

- Yonga kakhulu ukudlula amasu endabuko okulawula udoti;
- Inikeza amathuba omsebenzi amaningi futhi angcono kunemisebenzi evamile yokulawula

- udoti;
- Ithuthukiswa ukukhula kwamabhizinisi: ukuvinjela kwamapulasitiki asetshenziswa kanye kuvule umnyango wamabhizinisi amasha;

Key takeaway 3

Izinhlelo ze-Zero waste zinikeza izinhlobo ezinzuzo zomphakathi. I-zero waste system kadoti:

- Inciphisa ubumpofu nokungalingani ngokufaka abacofi bemfucuzo abangahlelekile;
- Yenza ngcono impilo yomphakathi ngokunciphisa inani lamakhemikhali anobuthi endaweni ezungezile;
- Yenza ngcono ukuvikeleka kokudla namanzi ngokusebenzisa umquba kanye ne-biogas, esekela imvelo yokudla namanzi;
- Yehlisa izingcindezi zemvelo ezihlobene nezindawo zokulahla imfucuzo.

Key takeaway 4

- I-zero waste iqinisa ikhwalithi yokuphatha ngokwayo
- Ihlanganisa abahlanganyeli abahlukahlukene, i-zero waste system isebenzisana kakhulu futhi ibonisa amazinga aphezulu okusebenza ngenxa yalokho.

Case Studies

Ukwenza imodeli yebhizinisi njengenjwayelo kuqhathaniswe nesimo sokungabi nodoti emgwaqeni esisuka ku-zero emadolobheni ayisishiyagalombili kwembule ukufana okuningana mayelana nokusebenza kahle kanye nomthelela wezinhlelo zokulahla imfucuzo. Ukuqoqwa nokwelashwa okuhlukaniswe ngomthombo (kumvamise ngokwenza umquba) kadoti wezinto eziphilayo kuwukhiye wokunciphisa ukungcola okujulile, njengoba indawo yokulahla imfucumfucu njenge-methane iwumthombo oyinhloko wokukhishwa kwe-GHG emfudlaneni yemfucuzo kuwo wonke amadolobha ngaphandle kwase-Seoul. Kuphela kwendlela lena esebenzayo yokubhekana ngokugcwele nalokhu kukhishwa, kulula futhi akubi-zi ukwenza ngalendlela. Ukugaywa kabusha nakho kubalulekile, njengoba kunciphisa ukushiswa, futhi, kwezinye izimo, kube okwanele ukwenza imboni yemfucuzo yedolobha ibe i-net negative. Njengoba amasu okunciphisa imithombo esetshenziswa kancane kulo lonke, yonke inqubomgomo nezinhlelo zikadoti, ngisho nalapho isetshenziswe ngokungaphelele, kuholela ezinzuzweni ezinkulu zokunciphisa yonke indawo. Izimo 'zendlela eya ku-zero waste' ezimodelwe lapha ziyalondoloza, izimo ezingokoqobo; amadolobha amaningi asevele eqile amabhentshimakhi kulezi zimo, futhi imiphumela ngaleyo ndlela ikhom-bisa izinhlelo ezifisa ukuvelela. Ukugwema ukushiswa kungalindelwa kwabafuna ukuvelela okwengeziwe ukuqaliswa kwe-zero waste

I **ZERO** WASTE KUFINYELELA KU-**ZERO** EMISSIONS

Ukunciphisa imfucuza kuwushintsho olunjani kwisimo sezulu

