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Underground saline, depÃoceÃ nica water, aging oilfields or other carbon sinks, bioenergy with carbon capture and storage, biocarbonÃ³ improved meteorization and direct air capture when combined with storage.[5] Forests, seaweed beds and other forms of plant life absorb carbon dioxide from the air as they grow and bind it to biomass. However, these ³ biolÃ ³ gicos sites are considered carbon sinks, since their long-term retention cannot ³ guaranteed. For example, less natural fenÃ³ such as forest fires or diseases, economic pressures ³ changes in policy priorities can cause sequestered carbon to be released back into the atmÃ ³ sphere[6]. The extra³ carbon dioxide of the atmÃ ³ sphere can also be stored in the Earth's crust by injecting it into the subsoil, or in the form of insoluble carbonate salts (mineral sequestration). This is because it is removing carbon from the atmosphere ³ and sequestering it indefinitely and presumably for a considerable ³ (billions of years). Description ³ a global proposal vs. annual CO2 sequestration applied. They have more than 75% of the proposed gas processing projects, with figures corresponding to other industrial projects and projects of electrical power plants of approximately 60% and 10%, respectively [7]. Carbon carbon is the process involved in carbon capture and long-term storage of atmospheric carbon dioxide (CO2) ³ [4] and may refer specifically to: Ã"The process of removing carbon from the atmosphere³ and depositing it in a depÃ ³ site."[8] When carried out deliberately, it can also be called carbon dioxide removal³ which is a form of geoengineerÃa. Carbon capture and storage, where the carbon dioxide ³ extracted from the flue gases ³ n (e.g. in power plants) before being stored in underground ³. Natural biogeochemical cycle of carbon between the atmosphere ³ the dep³sites, for example through the meteorization ³ the rocks. Carbon dioxide can ³ captured as a pure by-product in processes related to the refining of oil³ or fuel gases ³ the generation of energy.[9] CO2 sequestration includes the storage part of carbon capture and storage, which refers to the large-scale artificial capture and sequestration of industrially produced CO2 using underground saline aquifers, reservoirs, ochÃÃÃÃÃÃÃÃ³ene deposits, or other carbon sinks. Carbon sequestration describes long-term storage of carbon dioxide ³ other forms of carbon to mitigate or postpone global warming and prevent dangerous climate change. It has been proposed as a way to curb the ³ and marine accumulation of greenhouse gases, which are released by burning fossil fuels ³ industrial livestock production³[10]. Carbon dioxide ³ naturally captured from the atmÃ ³ sphere by biolÃ ³ gico, quÃ mic or fÃ sic processes. Some artificial sequestration techniques exploit these natural processes,[3] while others use entirely artificial processes. This kidnapping can be carried out in three ways: post-combustion capture³ n, capture and oxchcombustió. A wide variety of separation techniques, such as separation of soft phases, absorption in a hair and adsorcion in a symore, as well as hybrid processes, such as adsorcium and membrane systems. These previous processes bibly capture capture emitting from power plants, factories, fuel-burning industries, and new-generation livestock production facilities ³ as they move to restorative farming techniques, which organizations use as they seek to reduce carbon emissions from their operations. BiolÃ processes ³ according to the sixth IPCC assessment report³ land-use changes that improve natural carbon capture have the potential to capture and store large amounts of carbon dioxide ³ each year. These include the conservation³ management³ and restoration ³ ecosystems such as forests, peatlands, wetlands and grasslands, as well as the most carbon sequestration in agriculture. [11] Biosequestration A ³ of oceÃ nicos phytoplankton in the Southern Atlantic Ocean, off the coast of Argentina. Encouraging such flowers with iron fertilization can ³ block carbon at the bottom of the sea. Biosequestration is the capture and storage of carbon dioxide ³ atmospheric greenhouse gases through continuous or improved biolÃ ³ gical processes. This form of carbon sequestration occurs through higher rates of photosynthesis through land-use practices such as reforestation ³ sustainable forest management. [12] [13] Peatland Peat Bogs acts as a sink for carbon because they accumulate partially decomposed biomass that otherwise continues to decompose completely. There is a variation ³ how peatlands act as a carbon sink or carbon source that can be linked to different climates in different parts of the world and at different times of the day. [14] When creating new or improving existing marshes, the amount of carbon sequestered by marshes increases. [15] Forestry ³ the establishment of a forest in an area where there was no previous tree coverage. Proforestation is the practice of growing a forest intact towards its full ecological potential. [16] Reforestation is the replanting of trees on marginal cropland and pasture lands to incorporate carbon from atmospheric CO2 into biomass. [17] For this carbon carbon ni ekil ,selacs rellams no deniatniam dna decitcarp yllareneg si tI]72[.eert eht fo emitefil eht revo srucco nobrac fo noitartseuqes eht dna setis eert wen gnidda yb seitic ni pu nekat nobrac fo tnuoma eht sesaercni yrtserof nabrU yrtserof nabrU]62[."esu dnal suoiverp dna ega tnereffid fo slios ni noitartseuqes nobrac cinagro lios no tceffe esrevid evah nac seert faeldaorb dna suorefinoc taht" dedulcnoc srehcraeser tnemeganaM latnemnorivnE fo lanruoJ ni dehsilbup yduts a nI]52[.9102 ni snoissime labolg fo htrow syad 7 tuoba fo tnelaviuqe eht si sihT .deretseuqes eb dluow nobrac fo snot noillim 007 taht stcudorp doow %09 dezilitu noitcurtsnoc wen sraey 03 txen eht gnirud fi taht dedulcnoc yehT]42[]32[.stcudorp doow fo tnuoma eht gnisaercni susrev secitcarp tnerruc ot gnidrocca dliub ot gniunitnoc fo tceffe ten eht deiduts srehcraeser ,ytilibaniatsuS erutaN lanruoj eht ni dehsilbup repap a nI]22[]12[.snoissime nobrac lla fo sdriht owt tuoba si hcihw ,latot ni nobrac fo snot noillib 502 tuoba erutpac dluow dlrow stserof dedarged lla gnirotseR .ngiapmaC eerT noillirT eht yb detroppus si hcaorppa sihT]02[.nobrac fo snot noillib 502 retseuqes dna snoissime 2OC fo sraey 01 emos tesffo dluow meht gnitcetorp dna gnitnalP]91[.seert noillirt 2.1 lanoitidda na tnalp ot moor hguone sreffo htraE .yrutnec ts12 eht gnirud tcapmi etamilc s'nobrac gniziminim ,yllaudarg desaeler eb dna doirep laitnatsbus rof nobrac retseuqes lliw)sraey 001>(seert devil-gnol htiw noitatserofer ,revewoh ,ytiutepreр ni htworg fo trohS .noitcurtsnoc ,.g.e ni esu yb 'derots' ro llifdnal ,)SCEB(egarots nobrac htiw ygrene-oib ,rahcoib aiv ,.g.e ,deretseuqes eb flesti tsum meht morf doow eht ,ylevitanretlA .stneve emertxe diova ot redro ni yrassecen eb thgim secnabrutsid fo ycneuqerf eht fo tnemeganam dna sesu rehto ot detrevnoc eb ton tsum seert eht ot dettolla dnal ,dne siht oT]81[.eid seert eht nehw gnittor ro gninrub ssam morf erehpsomta eht ot nruter ton tsum nobrac eht deeccus ot ssecorp ,2OC led sotnitsid oredanrevni otcefe ed sesag rarebil nedeup selademuh sonugla ,siÃmedA]93[.onobrac ed oredimus nu omoc ranoicnuf ed iÃrajed ametsisoce le y arefs³Ãmta al a oveun ed iÃrarebil es sotnemides sol y satnalp sal ne odanecamla onobrac le ,arenam anugla ed abrutrep es iS .otcatni recenamrep ebed lademuh le ,otix©Ã agnet ortseuces ed osecorp le euq arap ,seuqsob sol ed osac le ne euq laugi lA]83[.senoicadnuni sal ed lortnoc la riubirtnoc y auga led dadilac al rarojem ,dadisrevidoib al ravreserp a riubirtnoc nedeup selademuh ed n³Ãicavresnoc y n³Ãicaruatser al ,sociti Ãmilc soicifeneb sol ed siÃmedA]73[]63[]53[.odnum le odot ne y sodinU sodatsE sol ne n³Ãicaruatser ed sotceyorp sohcum ahcram ne otseup nah es y]43[]33[]23[2OC ed sovitcudorp soredimus ne esritrevnoc nedeup sodaruatser selademuh sol euq odartsomed nah soidutse soL]13[.selademuh rop atseupmoc iÃtse laidnum arreit al ed %8 le y 5 le ertne ol³Ãs euq sartneim ,selademuh sol ne artneucne es laidnum oleus led onobrac led %03 le y 02 le ertne ;onobrac ed otis³Ãped etnatropmi nu neyutitsnoc]03[,samsiram sal y saniram sagla sal ,seralgnam sol omoc soretsoc selademuh sol ne etnemralucitrap ,selademuh soL]03[.luza onobrac omoc econoc es arenam atse ed odartseuces onobrac le y ,ociti Ãmilc oibmac led n³Ãicagitim ed aigetartse elbisop anu omoc otseuporp ah es n©ÃibmaT]92[.n³Ãicatilibaher o otneimicelbatser us etnaidem lademuh nu ed selarutan sacimÃuq y sacig³Ãloeg ,sacig³Ãloib senoicnuf sal ed n³Ãicaruatser al acilpmi selademuh ed n³Ãicaruatser aL selademuH]82[.aÃgrene rimusnoc ed dadisecen al ricuder la onobrac le erbos sotceridni sotcefe renet edeup n³Ãicategev al ,ebrosba es euq onobrac ed odix³Ãid ed latot daditnac al erbos otcefe ocop renet ecerap orep ridem ed licÃfid se euq ,satnalp sal rop ortseuces led siÃmedA]82[.senoisime ed etneuf omoc n©Ãibmat orep oredimus omoc ranoicnuf edeup euq ol rop ,ecilitu es euq n³Ãicategev ed opit le nºÃges setnerefid sodatluser renet nedeup anabru arutlucivlis al ed sodatluser soL Methane, which could counteract possible climatic benefits. The amounts of CO2 kidnapped by wetlands can also be different from measuring. [38] Agriculture In comparison with natural vegetation, cultivation soils are exhausted in orgal carbon (SOC). When a soil becomes natural or semi-natural lands, such Forests, forests, meadows, steppes and savannas, the content of SOC on the ground is reduced by approximately 30â »40%. [40] This paid is due to the elimination of plant material containing carbon, in terms of crops. When land use changes, carbon in the ground will increase or decrease, this change will continue until the ground reaches a new balance. Deviations of this balance can also be affected by the climatic variations. [41] The decrease in the SOC content can be counteracted by increasing carbon contribution through various strategies, for example, leaving the harvest residues in the field, using rcol as fertilizer or including perennial crops in rotation. Perennial crops have greater subterride biomass fraction, which increases the content of SOC. [40] Perennial crops reduce the need for tillage and, therefore, help mitigate the erosion of the soil and can contribute to increasing the organic matter of the soil. Worldwide, it is estimated that the soils contain> 8,580 gigatons of organic carbon, about ten times the amount in the atmosphere and much more than in the vegetation. [42] Researchers have discovered that the increase in temperatures can lead to a demographic boom in the microbes of the soil, turning the carbon stored into carbon dialog. In laboratory experiments, soils rich in fungi release less carbon diaxide when they heat up than other soils. [43] The modification of agricultural practices is a recognized carbon kidnapping, since the soil can act as an effective carbon sink that compensates for up to 20% of annual carbon dioxide emissions in 2010 [44] (V © Ace Zero Labranza). The restoration of organic agriculture and earthworms can completely compensate for the annual excess of CO2 of CO2 to the year and reduce the excess of residual. [45] (V © ase compost). All ³ of carbon emission reductions in agriculture can be grouped into two categories: reduction ³ or displacement of emissions and improvement of carbon ³. Some of these reductions involve increasing the efficiency of farms (e.g. more fuel efficient equipment), while others involve disruptions in the operation of farms. agricultural. 155[.Lakitneop Noitartseuqes Noitarc tnacifingisis Evah yam rebmit oobmab fo gnamraf eht ,eroferehт .noitatnalp eert ro tserof eruyam that naht eptambmab oobmab a ,rec sretamab sretamab sretamb hguohtlA noitavitluc oobmab :elcitra niaM gnimraf oobmaB]45[.)sdnaltaep dna sehsram sa hcus(sdnaltew gnirotser dna ssamoib detrevnoc yllaciboreana yb decudorp rahcoib gniyrub ,stserof gnirotser/gnitnalp edulcni gnimraf htiw denibmoc eb nac taht seuqinhcet tnemeganam dnaL]35[.smargorp tnereffid evah lliw stnemnrevog tnereffid dna ,gnimraf nobrac fo esu eht morf tiforp ot yaw a deen srenwo-dnal dna sremraf gninaem ,tsoc a evah yllacipyt lliw sdohtem gnimraf nobraC]35[.stnemnrevog yb detaerc seicilop hguorht nobrac retseuqes lliw taht sdohtem etargetni ot dna esu ot evitnecni nevig era Ohw srenwod dnal laudividni yb netfo ni gnamraf nobrac nobrac fo ecitcarp eht]25[. AM STSETERF ,Seitivitca larutlucirga ot noiitdddaddada]15[]05[.dnalmraf dlrow Fo)serca 0101â—ãƒ2.1 []84[1[.esu rezlitreef ecuder dna]71[ettyneter retaw lios evorpmi ,tnetnoc latot esaercni ,htworg tnalp dia nac tnetnoc rettam ciagro ssolssol alcpssole elcssom] Eht htiw lairetam tnalp dna otni deretseuqs Nobrac Hcihw ta Eht Eht Eht esaercni ot snimraf Nobrac Nobrac Fo Mia Eht .Senvael dna Doow ,Stoor Porc Dna Lios Eht tirht tnirec tnia tnam smate]Tide[.gnimraf Nobrac Morf tprecxe his Noitces siht gnamraf nobrac .)gninub yb dearetsed ton sdeew lac ot edicreh desercni(snrevne rehtagnuhto elbbetnuht elbbetnuhn elbbetnuhnuhnuhnuhnuhnuhnub Soils contain four times the amount of carbon stored in the atmosphere³[56] About half is in the depths of soils.[57] About 90% of this deep soil C is stabilized by mineral-organic associations.[58] Reducing emissions Increasing yields and efficiency generally also reduces emissions, as more food results from the same effort or less. The techniques include more precise use of fertilizers, less soil disturbance, ³ irrigation and cultivated crop strains to obtain beneficial characteristics at the local level and higher yields. The replacement ³ energy-intensive agricultural holdings can also reduce emissions. Reduced or zero-tillage farming requires less use of machinery and consequently burns less fuel per acre. However, zero tillage tends to increase the use of chemicals for weed control, and the residue now remaining on the soil surface is more likely to release its CO2 into the atmÃ ³ sphere as it disintegrates, reducing net carbon ³.[citation required] In practice, the largest number of agricultural holdings incorporating residues, wastes and by-products from post-harvest crops into the soil provide a carbon storage benefit. [citation required] This is particularly the case for practices such as burning stubble in the field, instead of releasing almost all stored CO2 into the atmosphere³ tillage incorporates biomass back into the soil.[citation required] Improved carbon removal ³ All crops absorb CO2 during growth and release it after harvest. The objective of the elimination ³ the agricultural carbon is to use the crop and its relationship ³ the carbon cycle to permanently retain the carbon in the soil. To do this, select culture methods that return the atnemof atnemof otsE .etnememrofinu orep etnemevaus netsap euq arap zev al a saÃd etnarud sodarp so±Ãeuqep ne odanag le rartnecnoC arbmeis ed sadaropmet sal ertne laropmet arutreboc omoc sabreih salam y sotsap omoc arutreboc ed sovitluc rasU :neyulcni olrargol arap sodot©Ãm soL .elbatse odatse nu ne iÃranecamla es y latnemele azelarutan us a iÃricuder es satnalp sal ed onobrac le euq sal ne senoicidnoc sal nerojem y oleus la eb nac taht nobrac fo stnuoma tnacifingis erutpac dna ,saera latsaoc dna wollahs ni worg deewaeS gnimraf deewaeS]86[]76[]66[]56[]46[]95[.tnetnoc nobrac lios desaercni yltneiciffus evah yeht taht tnemucod yeht ecno stiderc nobrac lles ot sremraf gniwolla gniredisnoc era dnalaeZ weN dna ailartsuA sa hcus stnemnrevoG .tifeneb cimonoce ro ,lios ,porc raelc a ton si ereht nehw seuqinhcet larutlucirga evisnepxe erom tpoda ot tnatculer eb nac sremraf ,nrecnoc mret-gnol a si 2OC cirehpsomta fo noitcuder esuaceB .egamad latnemnorivne neeserofnu dna egakael sa hcus seitilanretxe suoirav dna stsoc noitcasnart ,ytilauq lios gnidulcni noitartseuqes nobrac fo stsoc eht tceffa srotcaf ynaM]36[.dloh nac lios taht nobrac fo tnuoma eht ot timil labolg a si ereht taht seilpmi sihT .nobrac brosba ot sesaec dna detarutas semoceb lios ,noitartseuqes fo sedaced lareves retfa yllacipyT .sesag esuohneerg fo ecruos ten a semoceb lios eht ,desu era secitcarp egallit evisnetni ro detpursid si lios eht fI .desrever eb nac noitartseuqes lios fo stceffe ehT]dedeen noitatic[.saepwoc rof ah/gk 1 ot 5.0 dna ,eziam rof ah /gk 02 ot 01 ,taehw fo eratceh rep smargolik 04 ot 02 yb dleiy porc esaercni yam loop nobrac lios fo not 1 fo esaercni na ,sdnalporc dedarged nO .noitcudorp doof dnapxe dna ,efildliw ot laicifeneb eb ,ytilauq retaw dna ,ria ,lios no stceffe evitisop evah yam secitcarp noitartseuqes larutlucirgA]26[]16[.noitategev fo noitceles reporp yb decnahne rehtraf eb nac hcihw C lios erots ot laitnetop hgih yfralucitrap evah loop nobrac lios wol htiw dnal dedargeD]06[.esu rehto ro erutlucirga ot dnal eht gninruter elihw esaeler nobrac swols hcihw ,dnal denodnaba dna ,lanigram ,dedarged erotseR]95[.seborcim gnirutpac-nobrac ot evitcartta erom eb dna retaw erom dloh ot lios eht swolla dna nus eht morf lios stcetorp sihT .noitategev daed ro yah htiw skcoddap erab revoC]95[.lios eht otni serunam dna ssarg dlo gnidnirg ,sevooh rieht htiw lios eht llit osla kcotS .lios eht otni repeed worg ot ot to the ocean depths by oceanic mechanisms; Algae that reach the oceanic depths kidnap the carbon and prevent it from exchanging with the atmosphere for millennia. [69] The cultivation of seaweed on the high seas is being investigated in order to sink them into the depths of the sea to kidnap carbon [70]. In addition, algae grows very rapid and can be harvested and processed to generate biomethane, by anaeróbic digestion to generate electricity, by means of cogeneration/CHP or as a substitute for natural gas. A study suggested that if algae farms covered 9% of the océ, could produce sufficient biomethane to supply the demand for the land of the earth, eliminate 53 gigatons of CO2 to the year of the atmosphere and produce in a sustainable way 200 kg of fish to the year, per person, for 10,000 million people [71]. The ideal species for such cultivation and conversion include Digitata Laminaria, Fucus serratus and Saccharina Latissima. [72] Natural iron fertilization The events of natural iron fertilization (for example, the deposit of iron rich in iron in oceanic waters) can increase carbon kidnapping. The sperm act as fertilization agents. It has been shown that the whale sperm increases the levels of primary production and carbon export to the oceanic depths when depositing iron stools in the surface waters of the anthestic océ. Iron stool makes phytoplankton grow and absorb more carbon from the atmosphere. When the phytoplankton dies, part of it sinks into the ocean depths and takes the atmosphered carbon with rich. By reducing the abundance of sperm whales in the unstartic océ, whale hunting has produced 200,000 additional carbon tons that remain Atmosphere every year. [73] Physical processes Biochar can be eliminated in landfills, used as a soil improvement or burned by carbon capture and storage related to biomass with carbon capture and storage. and storage Bioenergide with carbon capture and storage (BECCS) refers to biomass in electrical and boiler plants that use carbon capture and storage. [74] [75] The carbon kidnapped by biomass would be captured and stored, eliminating the carbon dialog from the atmosphere. [76] The buried biomass (such as the onrox) [77] directly mimics the natural processes that created the fodium fuels [78]. Biochar funeral Main Article: Biochar Biochar is vegetable carbon created by biomass residues pirólisis. The resulting material is adhere The organic carbon additional pyrogenic (Biochar) is a novel strategy to increase the le soil in the soil in the long term and mitigate global warming compensating the C atmosphel (up to 9.5 gigatones C per year). 81] On the ground, carbon is not available for oxidation to CO2 and the consequent atmospheric liberation. This is a technique defended by scientist James Lovelock, creator of the Gaia hypothesis. [82] Simon Shackley, "people are talking more about something in the range of one to two billion tons to the year." [83] However, concerns have been raised about biochar potentially accelerating carbon release Already present on the ground. [84] Mechanisms related to biocarbon are called bioenergide with carbon storage, BECS. Geological kidnapping Main: Carbon capture and storage The geolic kidnapping refers to the underground storage of CO2 in petróleo and exhausted gas depths, salt formations or deep and inexplicable carbon beds. Once the CO2 was captured from a punctual source, such as a cement fabric, [85] would compress up to ã ¢ â ‰ 100 bar to be a supercrytic fluid. In this way, the CO2 would be easy to transport by pipe to the storage place. The CO2 then injected underground, typically around 1 km, where it will be stable for hundreds to millions of years[86]. In these storage conditions, the density of supercrÃtico supercrÃtico CO2 600-800 kg/m3.[87] Important parameters for determining a good site for carbon storage are: rock porosity, rock permeability, absence of faults, and rock layer geometry. Ideally, the medium in which the CO2 is to be stored has a high porosity and permeability, such as sandstone or limestone. Sandstone can have a permeability ranging from 1 to 10 Å‡ 5 Darcy, and can have a porosity as high as Ã¤ 30% Å‡. The porous rock must be covered by a low permeability layer that acts as a seal, or caprock, for the CO2. The shale is an example of a very good caprock, with a permeability of 10Â¢ 5 to 10Â¢ 9 Darcy. Once injected, the CO2 column will rise through buoyant forces, as it is less dense than its surroundings. Once you find a caprock, it will extend laterally until you find a hole. If there are fault planes near the injection site, there is a possibility that CO2 may migrate along the fault to the surface, filtering into the atmosphere, potentially endangering life in the surrounding area. Another hazard associated with carbon sequestration is induced seismicity. If CO2 injection creates too high pressures underground, the formation will fracture, potentially causing an earthquake.[88] While trapped in a rock formation, CO2 may be in the supercritical fluid phase or dissolve in groundwater/salmu. Was. It can also react with minerals in geological formation to precipitate carbonates. See CarbFix. Global storage capacity in oil and gas fields is estimated at 675 Å 900 Gt of CO2, and in non-minable coal seams it is estimated at 15 Å 200 Gt of CO2. Deep salt formations have the largest capacity, estimated at 1,000 Å 10,000 Gt of CO2.[87] In the U.S., it is estimated that there are at least 2,600 Gt and at most 22,000 Gt of CO2. of total CO2 storage capacity[89]. There are a number of large-scale carbon capture and sequestration projects that have demonstrated the feasibility and safety of this carbon storage mass, which are summarized here [90] by the CCS Institute. The dominant monitoring technique is the sysmic image, where vibrations that spread through the subsoil are generated. The geolgic structure can be visualized from the refraged/reflective waves. [88] The first large -scale CO2 kidnapping project that began in 1996 is called Sleipner, and is located in the North Sea, where Norway Statoilhydro extracts the carbon dioxide from natural gas with amine solvents and eliminates it in a deep saline aquaverero . In 2000, a symptomic natural gas plant fed with carbon in beulah, north, became the first floor of the world that uses carbones to capture and store carbon dialog, in the Weyburn-Midale carbon dialog project . [91] [You need to update] several other kidnapping projects have followed. Energy Impact Center launched the OPEN100 project in February 2020, the world's first open code project for the design, construction and financing of a small water reactor to the pressure. [92] In September 2020, the United States Department of Energy granted $ 72 million in federal financing to support the development and progress of carbon capture technologies [93]. CO2 has been widely used in improved recovery operations of raw oil in the United States from 1972. [10] If there are more than 10,000 wells that inject CO2. The gas comes in part from anthropogy -nicing sources, but proceeds mainly from large natural geological formations of CO2. It is transported to the oil deposits through a large network of more than 5,000 kilos (3,100 miles) of CO2 gas pipelines. The use of CO2 has also been proposed to all improved petróleo recovery (rep) in heavy petróleo sites of the Western Canadian sedimentary basin (WCSB). [94] However, the cost of transport remains an important obscure. In the CMCSB it does not exist naÃrdop naÃrdop euq sodasep odurc oel³Ãrtep ed sotneimicay eicifrepusbus led etron la sortem³Ãlik ed sotneic a iÃtse 2OC ecudorp euq sarefÃlortep sanera ed n³Ãiccartxe acsabahtA .2OC ed sotcudosag ed ametsis oilpma nu of the injection of CO2. Chemical processes developed in the low countries, an electrocatã iby a copper complex helps reduce carbon dialing into the oxy? [95] This conversion uses carbon dialogue as a raw material to generate oxalic. Carbon carbon, CO2, can be eliminated from atmosphere by chemical processes, and stored in stable carbonated mineral forms. This process (CO2 A stone) is known as "carbon kidnapping by mineral carbonatation" or mineral kidnapping. The process consists in reacting carbon dialog with abundantly available methods â € â "magnesium (MGO) or calcium (Cao) â € â € â" to form stable carbonates. These reactions are rumicly exotic and occur naturally (for example, the weathering of the rock during geolic perisms). [96] [97] Cao + Co2 ã ¢ â † Caco3 mgo + CO2 ¢ â † Mgco3 Calcium and magnesium are found in nature as calcium and magnesium silicates (such as Forsterite and serpentinite) and not as binary Óxides. For Forsterite and serpentine the reactions are: mg2sio4 + 2 CO2 ¢ â † 2 mgco3 + sio2 mg3Si2O5 (OH) 4+ 3 CO2 ã ¢ â † 3 mgco3 + 2 si2 + 2 h2O In the following table the main ones are listed Metallic Os of the earth's cortex. Theoretically up to 22% of this mineral mass is capable of forming carbonates. Part of a series on biogeochemical cycles Water cycle Water cycle Deep water cycle Carbon cycle Global carbon cycle Atmosphel terrestreat HYDRYGEN CYCLE Nitrógen Cycle Human Impact Nitrification of nitrógen and the fixation of the lãquenes oxygen cycle assimilation of the cycle of the fesphor Marino Cycle Bio -ogic Cycle Methane Methane methane methane clatrate Hipphãesis de la pistol methane clatrade methane emisiones Ártico Otros aluminum cycles arsion boro bromine chlorine chromium copper gold iodine lead lithium manganese mercury ozone "oxygen selenium vanadio zinc related topics related biogeochemical cystic chemical chemical environmental environmental environmental Biosecuestration Deep biosphere In the carbonate enthalpide of the cortex (kj/mol) SiO2 59.71 AL2O3 15.41 Cao 4.90 Caco3 ã ¢ 179 mgo 4.36 mgco3 ã ¢ 117 Na2o 3.55 Na2CO3 ugly 3.52 feco3 k2o 2, 80 K2CO3 FE2O3 2.63 FECO3 21.76 All carbonates These reactions are slightly favorable at low temperatures. [96] This process is produced naturally in geological temporal frames and is responsible for much of the superficial limestone of the earth. However, the reaction speed can be more rose, reacting to temperatures and/or high pressures, although this world requires some additional energy. Alternatively, the mineral could be ground to increase its surface, and exposed to water and constant abrasion to eliminate the inert serce, as it could be achieved naturally by the olivine discharge in the high energy waves of the beaches. [98] The experiments suggest that the wear process is reasonably wipped (one year) due to the porous basal rocks. [10] The CO2 reacts naturally with the rock of the peridotite in superficial exposures of ophthely, especially in Omén. It has been suggested that this process can be improved to carry out the natural mineralization of CO2. [101] [102] When the CO2 dissolves in water and is injected into hot basis underground, it has been shown that the CO2 reacts with the basalt to form sympolid carbonates. [103] In October 2017, an experimental plant was inaugurated in Iceland that extracts up to 50 tons of CO2 at the time of the atmosphere and stores it under ground in basal rock. [104] British Columbia researchers have a low-cost process for the production ³ magnesite, also known as magnesium carbonate, which can sequester CO2 from the air or at the point of air pollution, for example in a power station ³. The El ed odix³Ãrdih le ne o ,sodiuqÃl selbitsubmoc raerc arap esrazilitu edeup euq ,oisatop ed otanobrac le ne sadasab onobrac ed odix³Ãid ed n³Ãicaruped ed setnairav netsixE .tfarK ed osecorp led etnairav anu odnazilitu etnemlareneg ,eria led 2OC le ranimile arap onobrac ed odix³Ãid ed n³Ãicaruped ed sosecorp soirav otseuporp nah eS onobrac ed eria ed arutpac y onobrac ed otneimanecamla y arutpaC :selapicnirp solucÃtrA]611[.2OC ed selatot senoisime sal ed %11 la 01 led y osonobrac 2OC led %56 la 06 le ³Ãidemorp adarutpac 2OC ed daditnac aL .2OC ed selarenim ed ortseuces le arap setnebros omoc esrazilitu naÃrdop sacirtc©Ãle selartnec sal rop sadareneg osonimutib otsiuqse ed sazinec sal ,ainotsE nE]511[.lanoicidart n³Ãgimroh le euq ocig³Ãloce siÃm se y odipiÃr siÃm ecerudne es euq n³Ãgimroh nu ,¢ÃÂ ¢ÃETERCN2OC amall es n³Ãgimroh ed otcudorp uS .n³Ãgimroh ne 2OC azilitu euq aserpme arto se ALCU gnilcycpU nobraC]411[.alczem es sartneim otercnoc ne atceyni ol y odarutpac 2OC amot seigolonhceT eruCnobraC esneidanac putrats aL]311[.2002 edsed "tnemeCocE" odneicudorp odatse ah euq ,ocEceT rop arenoip euf ralimis acinc©Ãt anU]211[.otneimicerudne le etnarud etneibma eria led 2OC rebrosba nedeup]111[mecavoN ed sodallorrased n©Ãicer otnemec ed sopit sol orep ,onobrac ed odix³Ãid ed sedaditnac sednarg arebil otnemec ed lanoicidart n³Ãicacirbaf aL lairtsudni osU]011[.sosap sonem noc y etnemadipiÃr siÃm rarepo y ,ajab siÃm arutarepmet anu a rarepo arap ojabart us ³Ãzilautca opiuqe le ,2202 nE]901[]801[]701[.etneibma arutarepmet a azilaer es odot©Ãm etsE .onobrac ed sadil³Ãs samacse ne etreivnoc es 2OC lE .2OC evleusid es euq le ne ocitÃlortcele odiuqÃl nu y odiuqÃl latem ed rodazilatac nu azilitu odot©Ãm ortO acimÃuqortcelE .]601[oiclac ne socir ohcesed ed selairetam nos euq ay ,larenim n³Ãicatanobrac al arap etsoc ojab ed selaicnetop selairetam n©Ãibmat nos odalcicer odarutirt n³Ãgimroh le o n³Ãicilomed ed n³Ãgimroh ed soudiser soL]501[.atnel yum res eleus n³Ãicalumuca al orep ,larutan amrof ed necudorp es These include, in particular, the artificial unions proposed by Klaus Lackner to eliminate the carbon dialog from the atmosphere by chemical purifiers. [120] [121] Geoingenieré tics in oceanic storage Main article: Main: ed n³ÃicazilitrefaI ed otcartxe nu se n³Ãicces atsE orreih ed n³ÃicazilitreF .onobrac le rartseuces arap lepap us ne etnatropmi orutuf nu yah on ,otnat ol roP]521[.onobrac ed daditnac a±Ãeuqep anu etnemetnenamrep rartseuces aÃrdop olos euq ³Ãirigus 0202 ed adac©Ãd al ed soipicnirp a n³ÃicagitsevnI al oreP .)setneirtunorcam sobma(orofs³Ãf y oneg³Ãrtin noc o)orreih ed n³ÃicazilitrefI odamall(etneirtunorcim orreih le rop n³ÃicazilitrefI al adiulcni ,sacinc©Ãt ed eires anu otseuporp nah eS .arefs³Ãmta al ed onobrac ed odix³Ãid le eriteR arap y]421[soniram sotnemila ed n³ÃiccudorP al ratnemua arap]321[roirepus ona©Ãco le ne selategev setneirtun ed lanoicnetni n³Ãiccudortni al ne adasab aciti Ãmilc aÃreinegni ed opit nu se ona©Ãco led n³Ãicatnemila al o ona©Ãco led n³ÃicazilitrefI aL]ratidE[.ona©Ãco led n³Ãicazilitref al ed otcartxe nu se n³Ãicces atsE aciniÃeco n³ÃicazilitreF .acinc©Ãt atse ed osu le rative o rignirtser nedeup oniram oditrev erbos selanoicanretni senoicaluger saL]221[.onobrac ed otneimanecamla le ratnemua arap aedi atse areidnuh euq oneitimrep y ram la sovitluc ed sohcesed sol omoc lairetam ed etropsnarT .selis³Ãf selbitsubmoc ecudorp etnemlanif euq osecorp led etrap omoc ona©Ãco la abirra oÃr led otreum lairetam y setneirtun ed sedaditnac sednarg neart oÃr led sacob saL]96[.soniram sotnemides ne asamoib ed savitacifingis sedaditnac odnartseuces ,odnuforp ona©Ãco la etnemlarutan ratropxe nedeup es euq sagla res edeup acig³Ãloib n³Ãiculos anU]68[.dadilibatse us erbos senoicapucoerp sal y aciniÃeco adiv al ne otcapmi le erbos senoicapucoerp sal a odibed etnemavitca nat riuges edeup es on ortseuces ed aÃv atse ,ograbme niS .2OC ed sadalenot ed senollim lim ed siÃm renetnoc aÃrdop ona©Ãco lE .ona©Ãco led odnof le ne selbatse 2OC ed sairanoicatse sanicsip renet aÃres ona©Ãco

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