

# အိမ်ထောင်ရေးနှင့် အသက်မွေးဝမ်းကျောင်း

## အသက်မွေးဝမ်းကျောင်း

အိမ်ထောင်ရေးနှင့် အသက်မွေးဝမ်းကျောင်း





# 13

## Environmental sustainability

Edited by Rachel Blackman and Isabel Carter

Contributions from Jude Collins, Sara Shaw, Mike Wiggins and Sarah Wiggins

Design: Wingfinger

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1992 &ð wtdl ur&h&x&ly&ob&n&v&mc&lonf ywDefusi lq& & m jyó emrsm; ul aq&faE&w&ly& f& t p&lt& t m Pmy& f acg& faqmi frm; \ t&u&dr& m; q&laom p&la0; r&wp& & yf jzp&lygonf/ v&e&ch&om Ep(20) cellu usi b&h&ch&om rDg' rsm; ES h vly&faqmi &sur& m; ul jyj&ly& f&jymi f v&apaom a&&shwnwtdl jrb& h z&zt&wtdl wufi ES h py&ql& lonf t "d&pn&fr&Ofism; t a&Lumi f ES h yw&bou&aom onf f O i b&ab&mw&n&tsur& m; ul x&h&v&mc&lu jz&pay: v&map&clonf/

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- vli , frm; - (t em\* w& r&qu&obp& rsm; \ vlt y&csur& m; ul jynDap& E&eft w&uf)
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&ð wtdl ur&h&x&ly&ob&n&v&mc&lonf p&wi& h yð a&&shwnwtdl jrb& h z&zt&wtdl wufi ES h py&ql& faom o&ab&mw&n&tsur& m; ES h p&h&u&e&f& rsm; ul E&li fi w&um& t q& i lu jyj&v&ly& x& m; ygonf/ Oyr& m-

Agenda 21 onf j&ð &ð rDg' rsm; t ay: ay; q&y&ri&u&h&zm&ly& &ef vly&faqmi f rlt p&dt p&O&w&pc& jz&py&gonf/ Millennium Development Goal 7, Target 9 onf obmOywDefusi ft & i f t jr&pr&sm; q&h&ur&ul& ajymi f jyel v&e&ly&p&E&li &ap&eft w&uf a&&shwnwtdl jrb& h z&zt&wtdl wufi lq& & m p&n&f& r&Of& rsm; ul E&li fi h&w&ml& rDg' rsm; ES h t p&dt r&h&sm; w& f a&oc&sm& x& n&ob& f& r&n& jz&p&al&umi f& az&mf&y&ygonf/ uk&or& \* &mo&D&w&aj&ymi f& v&h&ql& & m rab&mi b&ab&mw&n&tsu&lonf t E& & m & mo&D&w&aj&ymi f& v&h&ul& umuG &ef & n&f& & x& m; ygonf/

t x&u&ly&g o&ab&mw&n&tsur& m; onf a&&shwnwtdl jrb& h z&zt&wtdl wufi t a& & b&u&dy&u&ly&f& em; v&n&b&ab& m ay&gu&v&map&on&ft& jyi? p&m& & l&up&mw&r&f& rsm; ES h aq&faE&g& rsm; t &- u @rsm; p&h&w& f& aumi faom w&w&ur& rsm; ul n&e&f&ja&ey&gonf/ o&h&om& i x&lt& jyn&fyn&lq& & m o&ab&mw&n&tsur& m; & &hom&iv&n&f& ur&h&ft& & i f t jr&pr&sm; t ay:

1 Bruntland, H (1987) Our Common Future, WCED, UN Reports 1987

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### 1. 3 uElywN obmOywDefusi f ajc&m

b&m;ocif yll qll faom pur&ajr&ub&uull x&ef&orfapmi fa&&hufjci f uElywN t vlyES h b0  
t p&wft yll f t m; v&w&f x n b0 f p O f p m; & r n j z p l o n / u E l y w N t m; v & w & f u E l y w N y w D e f u s i f t a y :  
v f r i r l w p c & y g o n / t r s m; t m; j z i h x l v f r i r l o n '  
q l l u s t a y ; a o m v f r i r l w p c j z p l o n / O y r m - t & i f t j r p  
r s m; u l l o t y p j c i f o l r [ l w i y w D e f u s i f n p h r r l u l j z p a y :  
a p j c i f w j z p l o n / o h o m i u E l y w N a e y k l l y l o n f y w D e f  
u s i f t a y : x & m u a o m t u s t o u a & m u r l w p c l u l p f f  
a q m i E l l y g o n /



b0w&f uElywN l y a q m i f a o m t & m t r s m ;  
p l w & f w l u t z l u a o m v n f a u m i f ? o f O l u e n t j z p a o m  
v n f a u m i f y w D e f u s i E S h t j e f t v e f w e l l y e  
r l r s m ; y g & y g o n / O y r m - x r i f O l l f w p O l l f j y i q i  
j c i f w l l x l t p m ; t p m r s m ; u l l p l u y s t x l w v l y E l l a p  
o n l c s u f y k w E l l a p o n h p f f t i f u l l v l l t y l y g o n /  
] b u p j u m ; w p p i f u l l p d e i f j c i f o l r [ l w i , m O l w p c l u l  
a r m i f E S j c i f r s a v x l n p h r r l u l j z p a y : a p y g o n /

½ E k b l v r f a v o u b o r ; a o m t c g a j c & m r s m ; x i f u s e b u b l u E l y w N b 0 t o u l w m u l  
a v o u l v s f o b r ; a o m t c g y w D e f u s i w l l t r s w f t o m ; w p c l u l x i f u s e a p c l y g o n / x l t r s w f t o m ; o n i  
o b m O y w D e f u s i f q l l & m y l l a j c & m j z p l o n / t c l l a o m o l r s m ; o n i q i b o w O g u b l j z p l o n / o l w N p m ; o l r ?  
n p h r r a p r E S h p f f t i f t o h y k r w l u l a z m j y & r n l q l v O l f x b l w b n l t y i f r s m ; u l l e i f a j c i z s u l q u m o b r ; a o m  
a i f w l l a j c & m u l t w e f v l u j r i f a w E l l o n / t c l l a o m o l r s m ; o n i ' & , f r s m ; u b l l E t n h i f o m p h v r f a v o u f  
l l u o n / x b l w N a j c & m u l l j r i f a w E l l & e f t v e t u c b n /

x l y l l a j c & m o n i o b m O y w D e f u s i f y s u p d r l u l j z p a y : a p E l l j y ? t j c m ; o l r s m ; t w l u l a e m u l q u l w f  
q l l u s t r s m ; u l l v n f j z p a y : a p o n / & m o D w a j y m i f v h o n l t " l u y O y r m w p c j z p l o n / u E l y w N ½ k y u i f  
a v m i p m o l p r E S h o p a w m j y e f w l a p r b o n i u r q w p O s f u & a o m v l o m ; t m ; v l l t w l u l a e m u l q u l w f q l l u s t  
& v ' f r s m ; u l l j z p a y : a p o n h & m o D w a j y m i f v h u l l j z p a p o n / o h o m i x l q l l u s t & v ' f r s m ; u l l t q l l & h ; q l l c p m ; &  
o l r s m ; r h q i f & b m ; v l w e f p m ; r s m ; o m j z p l o n /

y w D e f u s i f q l l & m t " l u t & i f t j r p ( 2 ) c k j z p l o n h a & E S h o p a w m r s m ; u l l , c a v l v m o l l o y f r n i  
j z p l o n / x l a e m u f & m o D w a j y m i f v h E S h o u b l l o n h & m o D w a j y m i f v h u l l j z p a y : a p o n h t a L u m i f t & i f ?  
a i f \ x c l l y s u p d r E S h u E l y w N w e l l y e r w l u l a v l v m o l l o y o b r ; r n j z p l o n / x l t & m r s m ; o n i a e m u l t c e f  
r s m ; t w l u l t a j c c b a b m w & m ; r s m ; u l l j y i q i f a y ; v l l r n f j z p l o n /

### 1. 4 a&t&i&f&t&jrplullem;vnbabmaygufci f

t y i f r s m ; E S l o w O g r s m ; t o u e s & a e E l l & e a & v l l t y l o n / a & o n i t v e l t z l x l u l w e l o n h  
t & m j z p a o m a L u m i h t e m \* w p p y f r s m ; o n i a o m u b a & t a y : c k y u l l j c i f ? a i f t a y : t o h y l c o & & f w E S h  
q u p y i v s u & v l l r n i [ k b u l w i c e f e l l u o n /

u r q t s u E h j y i N 7 0 % E S f i t x u l o n f a & E S z l v f v s u & a o m v n f a & t r s m ; p l o n f o r k & m x l w f  
w n & y ? t v e l i e a o m a L u m i f a o m u b a & t j z p l o l p j c i f r j y E l l f a y / t c l l a o m u r q h a x l o n i a & c j r p r s m ; E S h  
O i z l p e f a ' o & l a & c j y i f r s m ; w l f w n & a e o n / u r q h a x N 1 % x u e n f a o m a & y r m P o m v l i a o m u b l l

Ell haom a&c&trm; jzpjy&? x&h&c&trm;onf jrprsm;ES h  
 t i f t l l rsm; o l r [ kwajratmuisr;ü wn&belluon/  
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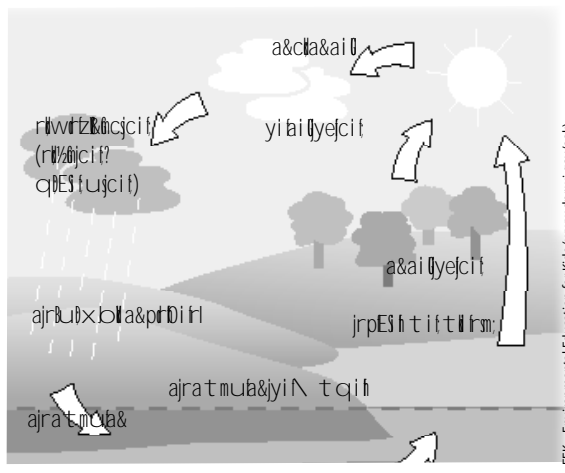
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 ajymi f v&bn; jy&? jrl t jzpr&S bu&x&ll; v m&? aemulq&ll wll f r&la&? rll&ob&ES h ES f c&llt oll b P&h&llt jzpl aumi f u i r S  
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 a&c&llt i f t l l rsm; o l r [ kwiyi&v, l x&ll p&ll o i haom jrprsm; x&ll p&ll q i fo&h; Ell lonf o l r [ kwajr&bu&x&ll v n f  
 p&ll d i b&h; Ell yg onf x&ll jrat m u&ll&rm;onf ausmu&ll q m i rsm; x&ll wll f Espaygi rsm; p&ll u&fa&t m i f Ell jy&? a&  
 c&ll p r f a y g u i rsm; t jzpaom v n f a u m i f? t y i rsm; r S p l y i, l t o l l y j c i f j z i haom v n f a u m i f j y e l v n x&ll u&ay:  
 v m j c i f j z i h a o b & m j y e l v n f a p o n f

a&yrmPt ajrmult rsm;onf pu&ll t v l y&ll rsm;\ n p l n r f a p r? r y l y i & a o ; a o m r l v m?  
 owll wll f v l y i e f rsm;? a&el&kwll, l r? p l u y&ll a&wll f y l o w a q ; E S h a j r l o z m rsm; t o l l y j c i f r S n p l n r f E S h  
 t n l u i rsm; y l k m j c i f p o n h n p l n r f rsm; allumi h x&ll&mu&llt u&ll&ll p&ll o l l p E l l j c i f r&ay/

o&ll v u h Ell f i&ll t j y n j y n q l l & m a& p l r t e b a& ; o y h u s m i t t & - u r q h v D a& \ a v ; y l w p y l t e b n f  
 a&u l p u i r? p l u y&ll a& ; E S h t r f w l l f u p i rsm; t w l l f ( a o b & m p u D l l f v u b E l l l o n h t w l l f t w m x u l  
 v l e u p h ) t o l l y j a e o n h a v h a v m u p h r&& E l l haom ae&mrsm;wll f v u l l h e x l l v s u l l b o n f x l l y i f  
 v l e f a y g i f w p a x m i t e b n f a j y w l v y r j y o e m E S h & i q l l h a e y g o n f t b, h a l u m i q l h a o m i o w l l  
 t p l l t m P m y l l rsm;wll f v l c l a b ; u i f a o m a o m u l o l h a& j z e l a O r y j E l l B e f t w l l f t & i f t j r p rsm; E S h p l r f a q m i f  
 & n rsm; r&ll&om allumi f z p l o n f

a&jywlvyrjy& emonf q i f& b m ; rsm; u l l t rsm; q l l ' l u&ll&mu&ll p y g o n f O y r m - a j r a t m u l a& rsm;  
 q l w l , w l o h ; o n l t E l l E l l h l l b& b j y n e , B& q i f& b m ; v , l o r m ; rsm; t a e j z i h a&&ll&ll& ; t w l l f t O p w l l rsm;  
 w l a z m l m w l l f u l e u r n h a i u l l w w E l l r n r [ k w a c y / q i f& b m ; rsm; o n f y l r e f t m ; j z i h a o m u b l l e f t w l l f  
 a b ; u i f o e l l S f a o m a& , b h p E l l j c i f r&ll&om allumi h u e f r m a& ; x&ll u j c i f ( o l l ) a b ; u i f o e l l S f a o m a& u l l  
 & , B e f t v l e a o ; a o m c&ll u l l r f a v h u b o j z i l t u&ll&ll o m t c&ll a u m i rsm; q l l h j c i f p o n j y o e m rsm; u l l u l l  
 a w l l c l p m ; a e l l u& o n f

&moDwajymi f v h o n f u r e l l w l l r e l l t m ; x m ; a e&a o m a o b & m p u D e f u l l y s u p l a p o n f /  
 t y c e f r i rsm; v m r l o n f O i l l p e f a& c j y i rsm; u l l t & n a y m l a p j c i f? y i l v , h a& u l l y a E l l v m a p j c i f E S h u s , j y e l  
 a p j c i f w l l u l l j z p l a y : v m a p l y o b \* l v m ; a ' l u b o l h a o m a j r e h y l l f w l l & l o n E l l f i l rsm; u l l ' l u&ll&mu&ll a p o n h  
 y i l v , h a& r s u E l l j y i f r i l w u l m r l w l l u l l a y : a y g u l v m a p o n f /  
 a&c&ll j r p rsm; t & n a y m j c i f o n f t m&ll w l l u l l w l l f&ll t i f l v p E S h j a [ y l l v j r p rsm; u l l o l h a o m v D l a& x l x y p h  
 a e x l l & m j r p O f t v l l j y i rsm; w l l f n l u m c P a& v f r i r l u l l c P w m j z p l a y : a p j y o ? a&jywlvyrjy& emrsm; u l l  
 l u m&ll p h c l p m ; a p o n f b u l l a w l l c l p m ; a e l l u& o n f



urhlt cllae&mrsm;wlf rllzhoefrl yll rsm;vmapjci f (wpcgwp&h rlefll frsm; usa&muvmly? a&vfrllrll  
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1.5 opawm t&iftjrprsm;tay: em;vnfbabmaygujci f

oplyi frsm;wll f ta&bulonhobmOES hpyqll faom? vbm;wES hpyqll faom t u&ausZl frsm; &lygonf  
oplyi frsm;onf a&ob&mpuDef ullvnywaeap&el tultnlay;onf/ t b, tallumi qllh omf oplyi f  
rsm;onf a&jrlyubll rlla&rsm;ull yll f t celuplyf, jci fES h xkway;jci f wll jlykly aomallumi jzplygonf  
opawmrsm;onf rlljyif xepb&h oeflyfaemul jzplay:av&h om a&vfrlljci f? a&wllupm;jci f? ajrlyllujci f  
wllullumug lay;onf/ xlljyif oplyi frsm;onf w&paerfsm;\ obmO usupm;&mae&mrsm;ES h obmOaygujyif  
ae&mrsm;ull jyi lqilay;onf t jyi f tumtug lvnlay;onf/ vlt rsm;pbnl pi ppl t pm;t pm? xil f? clvll  
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opawm{&d monf urhllpplaygi ajrtus, ft Oef\ 30% cel&onf/ o&h omf tar&ueell fi hll &ll  
aom urhlt &iftjrplqll &mtzll t pnf\ tqll t &- v&h om Eplaygi f 300 twll f urhllpawm {&d m  
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vly&el pluly&ta&ES h t ajcc&axll lonh ae&mrsm; jlykly&eft wll oplyi frsm;ull clw&S fjci fES h oprsm;ull  
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opawmjylefwrllonf a' oqll &m &modwll xclulapaygonf/ t b, tallumi qllh omf opawmrsm;onf  
e, l'jra' otvllf rllzhoefrlull x&el nlay;ae aomallumi jzplonf/ oplyi frsm;onf ãi f wll bur&h;rl  
t qilqilwll f wll wll rsm;ull jzplay:apaoma&ai Oull avx&bbll xkwvllway;onf/ xllwll wll rsm;onf  
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apallumi f cel&ef x m;onf/ oplyi frsm;onf &S be&ud&h;ell &eft wll avx&h s umA&el ll fatmulqll lull  
plyf, llujci fjzi h umA&er sm;ull x&ef ortay;onf/ xll tallumi h oplyi frsm;ull j umA&el p&h Di &mae&mrsm;} [ lvnf  
ac:qll uonf/ oprsm;onf rllavmi lull rllf o&h;aom t cgl o&h [ kwll aqjrnll b&h;aom t cgl umA&er sm;ull avx&  
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umA&er sm;ull quvul x&ef ortay;x m;aom lvnf? xll oprsm; rvllt y&avmlaom t cgl xll umA&er sm;ull avx&  
x&bbll xkwvllwll rll jzplonf/ clw&S h om oplyi frsm;\ ae&mwll f oplyi frsm;ull jyefvnblluly&ay;jci fjzi h  
oprsm;t o&h jci f \ qll u& rsm;ull avsmenfpell lonf/ xllubll vly&aqmi lay;jci f u&h a&&hwnwlljra& obmOywdDefusi f  
opawm p&h ll yll hll [ kac:qll onf/ o&h omf ell fi h rsm;t jym;wll f opawm x&ef ortajci f qll &m Oya' rsm;x m;&h  
o&h [ kwll ãi f Oya' rsm;t u&h ou&mu&aprllwll t m;enfv su&h om allumi h urhllwpD&f opawm{&d m  
avsmenfrsm; quvul jzply&h;vsu&onf/

tallumi t& i f u l l  
avɛmɔloyjci f

opawm t& i f t j r p r s m ; u l l j y e l v n a u m i f r e l v m a p j c i f

Maradi Integrated Development Project (MIDP) onɛ r m & m ' D (Maradi) j y n e , P E l l f ' s n E l l f i l l i (Niger) p w i f v l y a q m i p o l w i l p x l a ' o u o p l y i f t e n t i , l o m & B y g o n / t b , l a l u m i t a l b o m i v , l o m ; r s m ; o n f a u m u l y b o E l l f r s m ; u l l p l u l y d e f t w l u f a j r a e & m r s m ; u l l 1 / 2 l l & m ' a v l t w l f & s f v i f c l u a o m l u m i t j z p o n / x l y i f x l a ' o w l f o p r s m ; u l l t a q m u f t t l r s m ; t w l u f r s m ; p h t o h j y k c l u o n / x l a l u m i h a j r b u o n i a v ' P l a e y l ' P l j y i f x e a o m r l e l w l f r s m ; ' P l u l l c l b m ; a e & l y o c s u f y k w & e s h t t r a q m u & e l o p r s m ; ? x i f r s m ; u l l r t a ' o w l f r & E l l l a w m l a y /

MIDP onɛ o p i l w l w l r s m ; u l l j y e l v n f b u d x h ; a y : a y g u a p a o m t a v l t x r s m ; u l l t m ; a y ; v l y a q m i h a p c b o n / o p i l w l w p c k w l f t w u f 5 w u l u l l x m ; c l e f v , l o m ; r s m ; t m ; w l u l w e t c h i w p E p i v l i f o p l y i l w p l y i l u b m c l w l v & o l a y j y l ? t j c m ; t y i l w p l y i l u l l x l a e & m w l f b u d x h ; a p y g o n / x l t w u f c l w l v & m w l f j z w c s a o m o p l z l u r s m ; u l l a j r a y : w l f c e l x m ; c l a p o n / x b l u s e f & p a p j c i f o n f a j r q b i n w l u p m ; r l u l l a v s m e n t a p l y l ? a j r l o z m u l l a u m i f r e l a p y g o n / y x r E p i w l f x i f t w l u f v l a v m u a o m o p l y i f r s m ; u l l & & v m d o n / ' l w l E p i w l f t u l l i t c u l r s m ; o n f o p l o m ; t j z p a & m i f e l x k n b u d r m ; v m d o n / p i p p l o p l y i f r s m ; o n f u l l E l l r s m ; t w l u f t p m r s m ; ? p m ; E l l l a o m t o b a w m i f r s m ; E s h a q m u l y a & ; t w l u f o p r s m ; ? y o l r s m ; u l l x l w l v l a y ; o n / o p l y i f r s m ; w n & l a e j c i f o n f a v w l u E l e f u l l a v s m e n t a p j y l ? a u m u l y b o E l l f r s m ; t w l u f t & y j z p a p y g o n / , c k t c g v , l o m ; r s m ; o n f o p l y i f r s m ; u l l t a E n i f i t , l u f j z p a p a o m t & m r s m ; t j z p l r j r i l a w m l b ? a & & ŋ w ŋ w ɛ ɛ l ɛ ɛ l ɛ ɛ p l u l y d a & ; \ r & r j z p l v l t y a o m t p l w f t y l l f w p c k t j z p l o w i r s v l m l u o n /

& m o d w l a j y m i f v r h o m v l i f o p a w m r s m ; \ a u m i f p h e s b e r l u l l y s u p b a p o n / u r h t y c e f j r i l w u f v m j c i f E s h r l i l o e f a o m y p h a j m i f v l m j c i f a l l u m i h o p a w m \ t c l l a o m a e & m r s m ; a j c m u a o l v m u m a w m r o t E & m , l u l l p l l e r t z ; j z p l v m & o n / a w m r o r s m ; o n f a v x l x b l u m A e l l l a t m u l q l l y r m P b u b p h x l w l v l a y ; j c i f t m ; j z i h u r h u d u l l y a E g v m a p o n /

p i p p l o p l y i f r s m ; o n f u m A e l l u p p n f x m ; a o m a l u m i h & m o d w l a j y m i f v r h u l l a v s m e n t v m a p & e f t u l t n a y ; E l l l o n h t v m ; t v m a u m i f r s m ; y l l q l l f x m ; l u o n / o p a w m t o p r s m ; p l u l y d z e l w b r l ( a f f o r e s t a t i o n ) t m ; j z i h o p l y i f r s m ; t m ; a v x l x h s u m A e l l l a t m u l q l l l u l l z , & h ; E l l l a p y g o n / E l l f i h a & ; O d w n c s u l r s m ; ? o i l a v s m a o m O y a ' r s m ; E s h x e a m u l r & l a p a o m e n t p e p r s m ; o n f o p a w m r s m ; t m ; w n l w l l l r m p h p r b u l l u y E l l l e f t w l u f r & r j z p l v l t y a o m t & m r s m ; j z p l y g o n /

j y e l v n b l o y j c i f

o i l a e x l l o n h t & y a ' o & l o p a w m t u s , f t O e f E s h i f w l \ t a j c t a e u l l a z m j y y g / o p l y i f r s m ; t m ; c l w l v s E s h p l u l y d r l w l f i r n b o n i t & m u y l l r s m ; o e n f / t r a q m u l y l e f t w l u f o p r s m ; E s h x i f r s m ; & E l l l r l u l l a & & ŋ x l e t o d f x m ; E l l l y g o v m ; /

t a j c t a e \ a e m u l u g l w l l a o m j y o e m r s m ; u l l a z m j y y g /

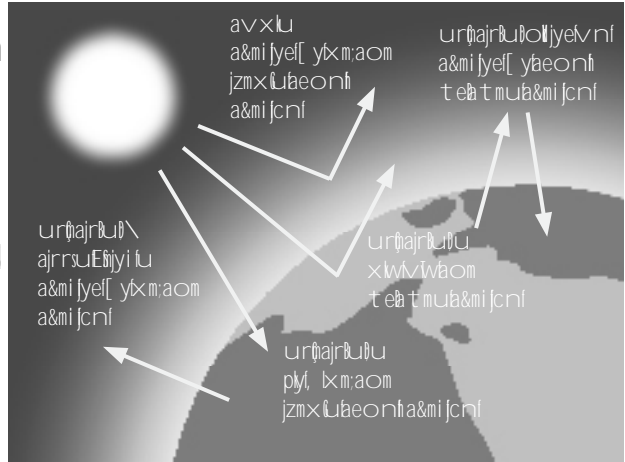
1. 6 & m o d w l a j y m i f v r h t a y : e m ; v n b a b m a y g u j c i f E s h w e l l y e j c i f

& m o d w l a j y m i f v r h a l l u m i h j z p a y : v m a o m o b m O y w D e f u s i f y s u p b r r s m ; o n f y l l r s m ; j y m ; v m j y l ? v s i f r e p h w l y h ; v s u l l o n / u l e l y l w l s x l y s u p b r r s m ; u l l x e a m u p h w e l l y e E l l l e f & m o d w l a j y m i f v r h u l l j z p a y : a p a o m t a l l u m i f e i f r s m ; E s h & m o d w l a j y m i f v r h a l l u m i h j z p a y : v m a o m q l l u d r s m ; u l l a u m i f p h e m ; v n b a b m a y g u l e f v l t y l o n /

& m o d w l a j y m i f v r h u l l e m ; v n b a b m a y g u j c i f

zelvlt rñ tustoua&murñ

aepñtitionf urñajrBub\ ajrrsuEñjiyuñ yaEñpygonñ xltcsewñf tcllaom  
pñtitiñsm;onñ tmumool jyelvna&mu&ñ;onñ obomñ tcllaom pñtitiñsm;onñ  
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Based on an image from the COMET program

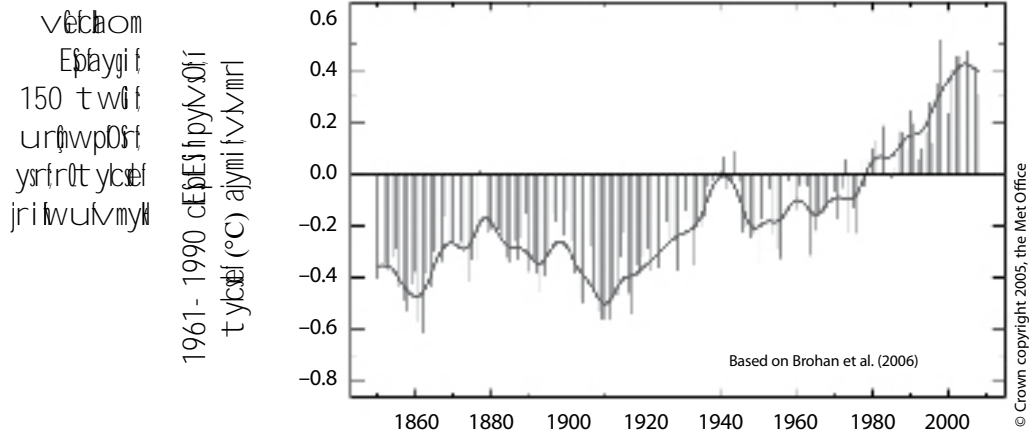
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vñyññsm;twñuf ðñyñuññfavmññpmrñsm;ull tñolñyñjcionñ avxkñ&ñ obmO"mwai ðrñm;ull twññf  
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"mwai ðrñm;Pñubñññ xñwñvñwñygonñ

wpsñewññññyññf avxkñbññ umAñef ðññatmuaqññrñm; xñwñvñwñjcionñ jzpay:aponññ opñawñm  
jyñefwññrñm; yññ wñjñññvñmcbñññ umAñef ðññatmuaqññES h tñjm; zelvlt rñ"mwai ðrñm; Oyrñm-  
rññeñ"mwai ðES h ulñxñyñatmuaqñññpñonñ"mwai ðwññymPonñyññññwññyññ;vsuñ&ñonñ pññppñ  
xñ"mwai ðrñm;onñ vñebñom q, pñEññ Oefusi cñellrñññ tññozññ ðaumiñfavmuañtñmññqññ&ñ;ññ  
wñyññ;vññjcionñ jzplonñ/ xññtñjcionñ tñmwñullññolñoyñjcionñ tñm;ñjñññyñññ rñm;aom tñycñebññfavxkñwñlñf  
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ajymññfvñwñwñomñvññf? , ðñtñcñg urññemrññausñññ oñyñññmñ&ññrñm;uñ &modwñonñ vsññjñreñññ  
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4 'D&D t x d jri l wu l v m a l u m i f o d y l n m & s i r s m ; u a w l & v m l u o n l / x j r i h w u l v m r l o n l r a j y m y a v m u a o m l v n f u r q w p O s f w l f t h o z g l a u m i f a v m u o n h i y s u p o r i r s m ; u l l j z p a y : a p l y j z p o n l / x l y i f o u l & m z i 2 1 0 0 O e f u s i w l f u r q w p O s f t y c e l j r i l w u l v m r l o n l 1 . 8 ' D & D r s 4 ' D & D t w l f w n l & v m E l l a l u m i f c e l e t x m ; l y l ? x l y o e m t a y : v u l & u l E l y w l x a & m u l v s i j r e p h w e l l y e r t a y : r l w n l y l 6 . 4 ' D & D t x d j z p l v m E l l y g o n l / t c e l u m v t w l l t w m w p c k w l f u r q w p O s f t y c e l o n l o b m O t a v s u l j r i l w u l v m j c i f ? a v s m e n t v m j c i f w l j z p l v m w w a o m l v n f ? , q j r i a w l & a o m a j y m i f v h E e f o n l r s w l w r t t & t v s i j r e q h a j y m i f v h j z p l y g o n l / t u , l i u r q w p O s f t y c e l o n l y s r f r o t m ; j z i h 2 ' D & D t x u j r i l w u l v m c h n l q l v l ? x l & m o D w a j y m i f v h a l u m i h j z p a y : v m a o m y s u p o r i r s m ; u l l u l l f w l f a j z & s f E l l v r t r n f [ l w a c s /

& m o D w a j y m i f v h a l u m i h j z p a y : v m a o m y s u p o r i r s m ;

1970 O e f u s i f p w i l i u r q l & m o D w l x l j c m ; v s i j r e p h a j y m i f v h E s h y w l o u l y l v l t r s m ; u p l l r f v m c l u o n l / x p l l r h o n l o d y l n m & s i r s m ; t l u m ; p w i j z p a y : c l a o m l v n f r s m ; r l u m r l u v l r t t a y g i f w l t l u m ; ? a ' o c l v , l o r m ; r s t j y n j y n l q l l & m t q i l u & a o m t p l l t m P m y l l r s m ; t x d a q l a E l v s u l & e o n h i u r q l t a & ; B u l a o m j y o e m w p c k j z p l v m c o n l /

& m o D w a j y m i f v h a l u m i h & m o D w l y l f e l v n l y w l r l u l a j y m i f v h a p y g o n l / O y r m - j y i f x e p h a v w l u l c w l j c i f E s h i r l o n t x e p h l o e l j c i f p o n l w l z p o n l / t a l l u m i f r n - a o l b & m p u D e f v n l y w l r l j r e q e l v m j c i f a l u m i j z p o n l / x j z p & y o n l r l a c g i f E s h i a & v f r l r l w l l B u r t z e r s m ; p h w l y l h ; v m a p y g o n l / x l y i f v l t r s m ; u l l a j y m i f a l l a p j c i f ? a & m \* q l a j r w l u p m ; r l o l x l u E e f u l a v s m e n t a p j c i f ? a w m r l ? t o u l a r G o r f a u m i f v l y l i e f r s m ; ? t a j c c h t a q m u f t t l r s m ; ? t o u l a r G o r f a u m i f v l y l i e f r s m ; ? t p m ; t p m E s h i a o m u l o h a & & f w l u l l q l l h ; p h y s u p o a p j c i f p o n l w l t j y i f v l o m ; r s m ; t w l u l t o u l t E l m , f j z p a p a o m j z p & y l r s m ; u l l v n f j z p a y : a p y g o n l /

& m o D w a j y m i f v h q l l & m t p l l r s m ; t l u m ; t z l ( I P C C ) <sup>2</sup> E s h i t j c m ; t " l u o l a w o e j y l v l y a o m o l r s m ; \ t q l l t & -

y i f v , l a r s u E h j y i l o n l j r i l w u l v s u l y g o n l /

u r q w p O s f y s r f r o t y c e l o n l y l j r i l w u l v m o n E s h i t r l a & c j r p l r s m ; E s h i O i l l p e f u & a o m a & c j y i r s m ; o n l t & n l a y s m l v m j y l y i f v , l u l y l y a E l v m a p j c i f ? u s , j y e l v m a p j c i f w l l j z p a y : a p o n l / a e m i E p a y g i f 1 0 0 c e l w l f y i f v , l a r s u E h j y i l o n l r l v m ( u l u ) a y g i f a j r m u l r s m ; p h j r i l w u l v m E l l y g o n l / e i f j z p & y o n l a & v f r l r l r s m ; E s h i v l l v l u o r s m ; w v d y l w u l v m a p j c i f w l l j z p a y : a p j c i f ? a & e p a o q l r l r s m ; w l y l h ; v m a p j c i f ? v l t r s m ; u l l a j y m i f a l l a p j c i f ? a j r q d l h E s h i a & c l r s m ; w l f q m ; i e l m w l r s m ; w l y l h ; v m a p j c i f ? t a j c c h t a q m u f t t l r s m ; E s h i t o u l a r G o r f a u m i f v l y l i e f r s m ; u l l q l l h a p j c i f p o n l w l u l l j z p a y : a p r n j z p o n l / o b m O y w D e f u s i E s h i u l l h o n h r s m ; p h a o m a \* [ p e p l r s m ; o n l ( O y r m - p h a j r t & y l o E h a u s m u l w e l r s m ; ) q l l h ; p h t z s u l q l o c h e & o n l /

j y i f x e a o m & m o D w l a z m u f y e l r s m ; o n l t a & t w l u l t m ; j z i l a o m l v n f a u m i f ? j y i f x e l v m r l t y l l w l f a o m l v n f a u m i f w l j r i l v m v s u l b o n l /

y l l y a E l v m a o m t y c e l o n l & m o D w l y l f e l v n l y w l r l u l a j y m i f v h a p y g o n l / O y r m - j y i f x e p h a v w l u l c w l j c i f E s h i r l o n t x e p h l o e l j c i f p o n l w l z p o n l / t a l l u m i f r n - a o l b & m p u D e f v n l y w l r l j r e q e l v m j c i f a l u m i j z p o n l / x j z p & y o n l r l a c g i f E s h i a & v f r l r l w l l B u r t z e r s m ; p h w l y l h ; v m a p y g o n l / x l y i f v l t r s m ; u l l a j y m i f a l l a p j c i f ? a & m \* q l a j r w l u p m ; r l o l x l u E e f u l a v s m e n t a p j c i f ? a w m r l ? t o u l a r G o r f a u m i f v l y l i e f r s m ; ? t a j c c h t a q m u f t t l r s m ; ? t o u l a r G o r f a u m i f v l y l i e f r s m ; ? t p m ; t p m E s h i a o m u l o h a & & f w l u l l q l l h ; p h y s u p o a p j c i f p o n l w l t j y i f v l o m ; r s m ; t w l u l t o u l t E l m , f j z p a p a o m j z p & y l r s m ; u l l v n f j z p a y : a p y g o n l /

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Source: Tearfund (2005) Dried up, drowned out: Voices from the developing world on a changing climate

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Jim Loring Tearfund

t v e f qñ wñ; a o m rñ a c g i f o n u m v r m; wñ f r m; pñ a o m j r pñ r m; Eñ f a c m i f r m; o n f c e f a j c m u bñ; a v ñ bñ

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By Jeff Woodke, JEMED, Footsteps 70

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vñyom t&mrs;uñ oi pñi pm;azmñkwñEñ lygovm;/  
oi wñuñuñfñtt m;xm;ae&aom t&iftjrprsm;Esh oç Oñuñfaomenfjzi h rñtt m;xm;ae&aom t&ift  
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ur&moDwajymi fvhu ll t rsm;qll jzpay:apaom t "lutaLumif t&ifyijzpon/ x&mod  
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**"ra [ mifynwtsursoif, jci<sup>3</sup>**

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<sup>3</sup> Based on C Wright (2004) Old Testament Ethics for the People of God, IVP

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<p>wpDbay:wpDh wmoebolvwvci fES hywouf ly? "repiusrfxlvdi &amp;haom ocia, ½N oebitsurms;rs rsm;pth oif, Eil ygon/ &amp;sfmuc&amp;pDif 12; 28- 31 ull zwlvavlvmy/ uElywvbnf rrtit ay: w&amp;m;r½vrluifpñ jyfrquqjcti full rvlrm;ay/ xlvbvlvdi rw&amp;m;rlul cpm;ae&amp;aom wpplvwpDitay: arwinxm;jcifqbnrtñ t b, ent/, aebcw umvwiif rnbntw&amp;m;rlsm;ull vit rsm;ll awlvcpm;aellu&amp;oent/ obmOywDefusi f qll &amp;m jyó emrsm;ES hiquET beaom rnbnt rw&amp;m;rlsm;ull , aebcwumvwiif vit rsm; llawlvcpm;aellu&amp;oent/ prw&amp;m;rlsm;ü uElywllrnublvlyoi beo ent/ uElywll aeykll ylrsm;onf &amp;mod Owk ajymi fvlrsm;ull jzpay:apEil jci f&amp;fr&amp;ull qi jci bloylyy/ uElywvbnf obmOywDef usif t ay: rnublv pvlvabmxm; &amp;bnlul</p>	<p>azmfyyg/ ocia, ½bnf uElywlltm; rnublvwlv jyebpvbent/ &amp;sfvlumc&amp;pDif 10; 25- 37 ull zwlv avh vmly/ uElywES hipyql haomobnf rnbjzpf oent/ obmOywDefusi ES h ywouf ly? uElyf wES hipyql haomobnf rnbjzpbent/ urfvwpDsf &amp;vlt rsm;ES h tem*wf rñquobprsm;tay: obmOywDefusi qll &amp;m ysupbrsm; \ tuñqufrsm;ullazmfyyg/  , aebcw vlom; tm;vll vll yf csl rsm;ull jznqñf ay;onbmr tuem*wf rñquobprsm; \ vll ycsul rsm; jynp &amp;f aocmaprnñ rnbntit &amp;mrsm;ull vlyaqmi Eil f rnent/</p>

### 2.3 vuławuāomwelyerf

uElywll vlyf efcft avlit xsm;ES h toulvmwvi onrurtpmrāz:  
jyxm;aom b&ci zelqif jci fES h xllt &mrsm;ulyjlpapmi ba&h u&rñh uElywll  
vmOeDw&m;rm;ull vuławvlyaqmi Eil haom t &mrsm;pth ygon/ c&pñ, mel rsm;  
onf vuławuāom tallumif t &ifrsm; oñ [ lv vlom;csi fpmemaxmuxm;rl  
qll &m tallumif t &ifrsm;oubouāalumitom obmOywDefusi f xlvofortjci f  
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befemrawmlul xi&ñ;apvlhaomallumi h obmOywDefusi full cpxci jrweEjci f?  
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t &mrsm;onf tenfi, lom&allumi fES h uElywll Butyrfaqmi ½lvcsul onf  
vu&jzpay:aeaom obmOywDefusi qll &m bulrsm;onñ jyó emrsm; tay:  
xlv&mpñ vlyaqmi Eil rñ&allumi full awlvrcpm;vmEil ygon/ xlvcpm;&aom  
t cel rsm;wñf qi jci bloyEil tonñ t cslft vuft cllrñ-

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(urfvDusrf 1; 28? &sfmuc&pDif 12; 28- 31)  
uElywll Butyrfaqmi ½lvcsul rsm;t wlv qlvmbtrsm; ay;tyjci full  
cl&rnjzplonf (aumavmollbOg' pm 3; 23- 24)  
b&oci bnf uElywlltm; t ult nly;vlygon/ uElywvbnllaw&aom  
jyó emrsm;t wlv qlawmi f&rnjzplonf (&sfvlumc&pDif 11; 1- 10)



## a&&shwnwvlll rhaom pff t i f

½kyuifavmi pmt ohyjci f u l l t a j c c k m : a o m p l y b n : a & : z b z k w l w u r l o n i f & m o d w u l l q u l l & n p h x c l u f a j y m i f v p a o m t a l u m i f t & i f w p c j z p o n / t b , l a l u m i l q l a o m i x l o w l n t o h y j r l o n i u m a e f l l a t m u l q u l l e s h r p o e f " m w b a i o u b l a o m z e l v k t r f " m w b a i o r s m ; u l l x l w l v t w a o m a l u m i h j z p o n / x l a l u m i h a & s h w n w v l l l r h a o m o l r [ l w l j y e j n l r t & i f t j r p r s m ; r s p f f t i f r s m ; x l w l , l & e l l o n h t c o f t v r f t m ; v l u l l u e l y w l o l o y & e l v l t y a e l y j z p o n / u r q h t q i f & b q l v l w e f p m ; r s m ; o n i o l w b l a v & a o m p e l y p l y p i n t z d a v m i p m r s m ; ( O y r m - x i f ? p l u l y l a & ; r s a b ; x l u f t u i f t u e r s m ; e s l w & p i n e a c s r s m ; p o n t ) t j y i f t j c m ; p f f t i f u l t e n f i , l o m o l r [ l w l v t o & , b o p & e f v u l v s f r r l u y / x z d a v m i p m r s m ; u l l & s h a z i r & e l l a o m t c g t e k m , f r s m ; a o m t q d l " m w b a i o r s m ; u l l x l w l v l w a p o n h y v w p w p r s m ; ? t o w l t x n r s m ; p o n l w l u l l a v m i f p m t j z p u s , l u s , j y e l y e l t o h y j v m l u o n / p u b l a o m a v m i p m r s m ; u l l t o h y j c i f o n i o b m o y w d e f u s i f y o e m r s m ; u l l j z p l a y : v m a p o n l t j y i f v b m ; r s m ; \ u e f r m a & ; e s h v a e r l b o t & n f t a o f r s m ; u l v n f x c l u f a p e l l y g o n / u r q h a w m i f y l l f w l f a e x l l v s u l l a o m o r s m ; o n l v n f u r q h a j r m u l y l l f w l f a e x l l a e a o m o r s m ; u l b l " m w b a i o r s m ; ? ' z , l q e s h " m w l q l p o n l a v m i p m r s m ; u l l t o h j y k l u o n / o l a o m i x p f f t i f t r s m ; p l o n i f & m o d w u l l a j y m i f v p a o m ½ k y u i f a v m i p m r s m ; r s x l w l v l y x m ; j c i f j z p o n i ( t r s m ; t m ; j z i h x l a v m i p m r s m ; o n i t v e l a p s b u l a v & y g o n l ) / p t c e f ( 3 ) w l f u r q h a w m i f y l l e s h a j r m u l y l l f e s t z u p v l t w l u f p f f t i f r s m ; u l l a & s h w n w v l l l j r p h a ½ c s , f t o h y e l l o n h e n f v r f r s m ; u l l a v l v m o l o y l o b n ; r n j z p l y g o n /

### 3.1 pff t i e s h z b z k w l w u r l

u r q h b p n a z m f y c s u l t & -  
 u r q h l o b a & o e f a y g i f 2400 e l y g ; o n i c s u f y l w & e e s h t a e g " m w l & e f t w l u f ½ l l & m z d a v m i f p m r s m ; u l l t o h y j u o n /  
 u r q h l o b a & o e f a y g i f 1600 c e l b n i v l y p p p f f t i f u l l t o h r j y e l l u a y /  
 v l y p p p f f t i f & , b o p e l l j c i f r & a o m v l 5 a , m u x l s 4 a , m u b n i a u s v u l a w m i ½ h r s m ; w l f a e x l l u o n /  
 x l o j z p a o m j i m ; v n f ? p f f t i f o n i z b z k w l w u r l t w l u f r & j z p l v l t y o n / p f f t i f o n i e l l i l p u l l t v l y l l r s m ; e s h p l y b n : a & ; p o n l w l z b z k w l w u r l a p e f t w l u b m v l t y o n l r [ l w l y / p f f t i f t o h y j e l l r l o n i q i f & b m ; r s m ; \ a e l p o l s l o e a e x l l r l b o r s m ; t a y : r s m ; p h t u s t o u b & m u r l & e l l o n l / O y r m - v l y p p p f f t i f & j c i f j z i h v l x l t w l f t a o ; p m ; p d y b n : a & ; v l y l e f r s m ; u l l z b z k w l w u l v m a p y g o n / x l y i f p f f t i f t o h y j e l l r l o n i t j c m ; q i f & f i a w r l q l l & m u @ r s m ; t a y : v n f t u s t o u b & m u r l & y g o n / O y r m - n a r h i c e l u v l y p p l r t o h y j e l l j c i f o n i a u s m i f a e u a v ; o l i , f r s m ; p m u s u e l l l y d a u s m i f w l f t r s v a u m i f r s m ; & e l l a p y g o n / x i f a v m i p m a c l w m a & ; r l z l e n f y n m r s m ; o n l v n f t r s t o r d r s m ; x i f p l a q m i f & o u b m a p l y b ? x i f r b c l r s m ; ½ b o f & j c i f r & a w m h a o m a l u m i h r o m ; p l n u e f r m a & ; u l v n f w l w u l v m a p y g o n / u r q h u e f r m a & ; t z d ( w h o ) u e i f r d z l t o h y j c i f u l t m ; a y ; y g o n / t b , l a l u m i l q l a o m i ½ l l & m r d z l r s m ; r s x l w l v t w a o m r l c l l r s m ; o n l r o m ; p l n u e f r m a & ; u l l q l l ½ h ; p h x c l u f a p a o m a l u m i j z p o n / x l y i f x l r d z l r s m ; u l l t o h j y l c i f o n f a ' o w l f o b m o y w d e f u s i f t a y : a u m i f u s t r s m ; j z p l a y : a p l y b ? t r s t o r d r s m ; t m ; t j c m ; O i l a i w l v l y l e f r s m ; e s h v l r a & ; u @ r s m ; w l f y l a y g i f y g o i & e l t c e l y l r s m ; & e l l a p y g o n /  
 a e m i l v m r n h 25 e s p w l f u r q h p f f t i f l t y h y r m p \ o l y e s p y l c e l b n i u r q h a w m i f y l l e l l i l r s m ; r s j z p l v l r n l [ k u r q h b p i u c e l l e f x m ; y g o n / x l e f e f c s u l t & q l u l l i f & m o d w k a j y m i f v r e l e l u l l v l r s l a p o n h o p a w m j y l e f w r e l e l u l l t & e l t [ l e l j r i l r m ; v m a p v l r n j z p o n / u r q h a j r m u l y l l e l l i l r s m ; \ ½ k y u i f a v m i p m r s m ; t o h y j c i f j z i h p u r l y l l q l l & m w l w u b a j y m i f v l

vmrlonf &modwluitt "du ajymi f vapaom t alumi f i fwp&yjzponf/ t v&ft a&&buonh  
t csufwpcsuhrn jzpEll fac&bonh rnbont c&ürqll a&&šhwnlwtll jrbnh t&i f t jrprsm; ułł  
tołlyr somv űi włł vlt yvmaom určlawmi lył f ES h ajrmulył f \ avmi pmvlt yrfjyó emułł  
ajz&š f Ell rnzponf/ t pł&t mPmył rsm; onf tjnfnqll &m t qilū xlt jci f t &mułł t od  
trSwly/xm; lulyjzponf/ ułlor\*¼ &modwłajymi f vrl qll &m rabmi babmwln csuft &  
určłajrmulył f &š Ell fi hrsm; onf qif &aom Ell fi hrsm; a&&šhwnlwtll jrbn zllz włwulvmap&e ES h  
pftif i ullył x&amult uđ&pn t olly Ell łap&eft wul ai łalu; ES h entynmył f qll &m yłlyhrsm;  
jykyly&rnjzponf

p t jci f t &m ES h ywoulył axmubłł && & aqmi ½ űrt wul owi f t csuft vulrsm; ułł  
yrl b&v włł i t cef- 6 włł f zwłavlv m Ell lygonf

a&&šhwnlwtll jraom pftif

wpcgwp&lvtrsm; ułł pftif i j [ lonlpum; vluł vlypprł] xlvlyjci f ES fa&max Gem; vniwvll  
onf vlypprł onf pftif i rsm; xrs trst t pm; wprł omjzplygonf/ t jcm; trst t pm; rsm; włł f  
tyay; jci f? t vifa&mi łay; jci f ES h pulvył, mOrsm; włł f tołlylaom avmi pmql vlygOif ygonf/  
v&člaom q, p&šł tenti, włł fausv u&evixkt wul vlypprł rsm; ajymi f vlyvyqil łay; jci f  
onf olwł pftif i vlt yrl uljznlnqnfay; Ell lonf [ kxi f swłluonf/ rnlolql pufrlajymi f  
vłwłwulv mrl alumi h vł ty! t vi f ES h puavmi pmvlt yhrsm; ułł t vsi f t jrejznlnqnf  
taumif t xn&azmłay; Ell laom t jcm; pftif i p&prsm; vnf ay: ayguv mlyjzponf/ vlypprł  
jyi łil łay; &ef vlt yaomae&mrsm; włł f, ckt cg jyefynr pftif i t &i f t jrprsm; jzi h vlxkt włł f  
vlypprł xlvlylyay; Ell &eft wul a&&cs, Ell laom entvrfaygi rsm; pn &&v mlyjzponf/  
entvrf a&&cs, &mwłł vlxł pftif i t ollyhrsm;? vlt ycsu rsm; ES h xlvł, łlp Ell lonh t cł h  
t vrf rsm; tay: rlvnl csi c&ebolloya&&cs, &rnjzponf

a&&šhwnlwtll jrbn pftif i t ollyjci f ES h ywoulył pOf pm; olloy&rnlft "du t csu(3) csu&ygonf

jznlnqnfay; jci f- t člaomae&mrsm; włł f vtrsm; onf olwł vlt yaom pftif i ulł&, łlp Ell jci f r  
&łay/ vlxul włł f ½ lykui favmi pmpftif i ES h jyefynr pftif i t &i f t jrprsp&kt eul rnbont h  
pftif i onf rlvlt em\*włł wul yrl ulu h dt uđ&bn ul pOf pm; olloy&rnjzponf/

t ułłjz p&prł wpcgwp&lvtrsm; onf olwł &&laom pftif i rsm; ułł t uđ&amult &čł  
entvrf jzi h tołlylyay/ xlvł tołlylyjci f onf pftif i axmulyrl ulł zlt m; ay; cucap onf/  
xlvł jz pvlvł i pftif i ulł x&amult uđ&bn entvrf rsm; jzi łlp &eft b, łalumi h vlt yalumi f  
vlxkt włł f tołlynmjrš łwi ł& rsm; jykyly &ef vlt yonf/ vrlt zlt pnt Oif rsm; rš pftif i ullył  
t uđ&pn olly Ell &ef vlxkt m; taxm ult uljz p& Ell lonh u&d m rsm; tołlylapjci f (ol) yłł D  
Zil rsm; a& qłapjci f jzi h t m; ay; ul Ell lonf

x&ef olł jci f- ullylywł rš t člaom olrsm; onf vlt yonh t c&lvł włł f pftif i rsm; t oi &š  
aejci f ulł usi łom; &aeaom alumi h jzlet włwvll uonf/ t člae&mrsm; włł f vlrsm; onf vlypprł?  
, mOf olł [ łwł avat; ay; pulrsm; ułł rvlt yaom vnf zlxm; wvll uonf/ ]] o&š faom)) ent  
vrf jzi h xlvlylyxm; onh pftif i yi jz p&? xlvł laom ty jzlet włł jci f up&yhrsm; ulł  
ajz&š &ef vlt ylygonf/ avmi pmpftif i łacłvm x&ef olł rlonf pftif i t rsm; qłt ollylaeom  
určłajrmulył f Ell fi hrsm; t wul rlyó embuđwpcjzponf/ určławmi lył f &š Ell fi hrsm; rš  
włł rly monh avmi pmpftif i vlt ycsu rsm; ułł jznlnqnf vmon ES h rł t vm; włł jyó emrš  
jzplył; rł &łap &ef \*½ lyk&rnjzponf

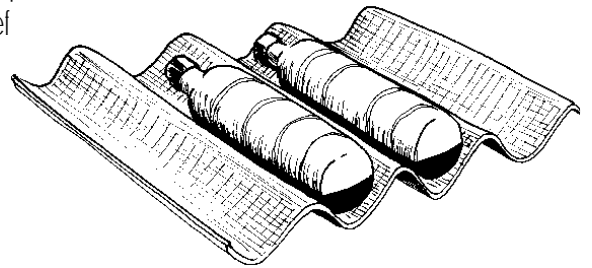


3.2 jyejynlrpftt i ES ha&&shwlvwvll rhaom pftt i ft & i ft jrprsm;

jyejynlrpftt i ft & i ft jrprsm; ull tohlylonh entpeprsm; onf a&&shwlvwvll & mod wlaymi fvlull tjcm; entpeprsm; xul avsmlyg; oulomapon/ rnbldqap pftt i rsm; \ xkwlvyr? o, f, lybaqmi rES h wyqi rlvwvS zelvlt r' mwa i O xkwlvwvll r cull jzpay: apaom vnf a&&shwlvwvll t vbenfaom yrm Pomjzpon/ vu&tt ajctaeu pftt i yll f qll & m tolltaqmi ypinrsm; r&bnh vlxrsm; taejzi hvnt jzpeh lygu jyejynlrpftt i ft & i ft jrprsm; ull tohlyl&ef t bullywlvwvll vlygon/ pftt i rsm; ull xkwlvlyvnywae Ell faom vlxrsm; taejzi hvnt xlt olltaqmi ypinrsm; ull aumi r&epn x&efort x m; & rnzjzpon/ xlypinrsm; ull tust&pn quvult ohrjy Ell lawmh aomt cg ohr [ kwlv pftt i jrsvi wv &ef vlt yaomt cg jyejynlrpftt i yll f qll & m entynmrsm; ull wvclt pm; xlt ollpbi bon/ jyejynlrpftt i ft & i ft jrprsm; tay: tajcykr pftt i xkwlv, &eft wlvf a/2cs, ft ohrjy Ell f onh entvrfwvclull avlvmluygp/ u Ell ywlvonh ae? avES ha& ponh jyejynlrpftt i ft & i ft jrprsm; ull tqi bi hlylyi bon Ell bon/ entvrfsm; pn & bnht eul wyqi &ef vnyw&eES h x&efort p&lvoubomí qif&om; vlvwvpm; rsm; twlv tqi bajap Ell rnh entvrfsm; ull Oipm; ay; avlvmo&h; rn/

qvlma&jym; rsm;  
Solar water panels

qvlma&jym; rsm; onf tyl' mwiull tyl' mwlvavni bef ohr [ kwlv a&pnoll a&mu&apaomt & nfi wpr&ull tyay; &ef ae\ pftt i ull tohlylygon/ xlt cg tcefwpceft m; tyl' mwlay; &ef ohr [ kwlv a&yirsm; xkwlay; &ef vlvavmubompftt i ull &&apn/ qvlmjym; rsm; onf jykvly&ef vG fulyd oitavsmoioi wvef rsm; wua&muixm; ygu a' ocl rsm; ull kwlv xkwlvlyjci? x&efort jci f jy Ell bon/ xlxul yll ½ pifaom qvlment ynmrsm; yim G f nph rfaoma& rsm; ull aomub Ell latmif yllow&mwv f tohlyy Ell lygon/ (sodis www.sodis.ch ull unlvavlv m Ell lygon)



qvlmAllym;  
Solar voltaic panels

zlvwlvwvll t pf (Photovoltaics) onf aea&mi jcnf ull vlypppftt i ft jzpl ajymi f vlay; Ell faom ent yn mwpcjzplygon/ penfynmonf wpcgwv&h t uleff usrm; aomallumi h a' ocl rsm; twlvf a&&shwlvwvll &ef t cuft c& Ell bon/ ohr omf, dkt cg ao; i, fi t uleff usoubomnh qvlmjym; i, rsm; ull && Ell lyd jzpon/ xlvqvlmjym; i, bonf "mwlv rwpvll? rlvwvll ohr [ kwlv rlvll f zef wvll ull t m; ogt ohr cap Ell bonf (Light Up the World www.lutw.org ES h Solar Aid www.solar-aid.org ull unlvavlv m Ell lygon)/ t uleff usent onh qvlmjym; jzi hvnyw Ell faom a&chaowirsm; ull vnt wlv G ft ohrjy km Ell lyjzpon/ xlvlaom a&chaowirsm; ay: ayguvlm jci fonf usef rma& Xmer sm; twlvf aq; Og; rsm; ohravni x&efort f&mut v&eft ust&hpygon/ penfynmrsm; onf vsi jre p&h wlvwvly jzpaom allumi h t uleff usent ygy; í aygy; um vlt yf ovlt ohrjy Ell faom qvlmjym; rsm; ull E pft ent i, ft wv f wv f us, jye p&h, bonp& m Ell lawm rnf jzpon/

xifavmi pmaclwv  
a&&rDzlrm;  
Efficient wood  
stoves

cllrmi pepusoni entynmji trftrlylyixm;  
aom xifavmi pmaclwvma&&rDzlrm; onf toly&ef  
vG lufi 0, f, blp& tqifajapon/ , ifxif  
avmi pmaclwvma&&rDzlrm; onf omrel&&mrDzlrm;  
xufavmi pmsm; uylif tust&pbh toly&Eil fapon/  
xlrDzlrm; onf a&ai DES h "mwai Orsm; ul jyi fyol  
xlwvfw&ef tclxlwpepultt olijykf xif  
avmi pmul ywiumxm; aom ae&mtwftuom  
avmi lufafapon/ pentjizh xifavmi lrujci rs  
xluvmaom typftifuf tjc; olys vG lap  
jci fr&bl x&amuph tust&apon/ (Household  
Energy Network [www.hedon.info](http://www.hedon.info) ul Munl  
avhmEil ygon)/ vrtzla& tzt pntfsm; xif  
avmi pmaclwvma&&rDzpbhufetrm; u& ifEjrfyErfyk  
jci onf tvfta&uboni pftifipruefjzpf  
onf/ tb, balumi qhomi xibl xifavmi pmacl  
wvma&&rDzlrm; olijciftm; jzi h opawmjyketwdrES h  
umAef mwai Oxlwvfwfwll obbmom avmsuapzfru vlxN usefma& ulvnt wfwuf  
aumi rfevmapon/



Geoff Crawford Tearfund

av\ pftftm;  
Wind power

av\ pftftifula, blk stm; jzi h pOquirjywxwv, blpEil faom pftiftjzpf tm; rxm; oih  
ay/ ohaom av\ pftftm; ul qn&ajrmi fa&og fay; &mwof a&wi Eil &eft wluhaomlvnt  
aumi f? "mwfES h bux&trsm; ul "mwftm; of fi pftifobavni brfqntxm; &ehaomlvnt  
aumi f toly&Eil ygon/ avrs pftiftixwv, blp& onf entynmrm; onf tufetusrm; i  
avxe&om ae&mrsm; wfbom x&amulrit & qijzpon/ ao; i, faom avwmAl lrm; onf aps  
oubmaomlvnt? tjc; entynmrm; xupmvGf vlyppf mwftm; tenfi, bm xlwvay; Eil f  
onf xlyif tjc; vlypppftif entpeprsm; ES pmvGf ysubdrism; ylf jzplay; Eil faomlvnt  
xlvwmAl fav; rsm; onf a' ocllrm; \ A [ blwvrm; ES h ulrfusi rlvzih jyevnlylyi blp&ef ylf  
vG lufon/

a&t m; vlyppf  
Hydro-electric  
power

a&wmAl lrm; ul jrprsm; ? acsmi fsm; \ a&pd tm; ul t olijykf vnyw&ajci fjzi h vlyppf mwftm; ul  
xlwv, Eil ygon/ tao; pm; a&t m; vlyppf (micro-hydro) entynmrm; onf rlacgi fa&&bn;  
a' orsm; ? a&trsm; plul aom ubla&ES h qn&ajrmi fa&t wubom t "luxm; olijp&e&om a' o  
rsm; twuf ul lnr&rb&cy ohaom rifentynmonf aumi rfebh tajccl haom? , Munl  
tm; ul Eil faom entynmwpczpon/ xlyif trsm; tm; jzi h xlvwmAl lrm; ysubvGf lvnt  
oifwefwub&muxm; aom a' ocllrm; uylif tvG lwlyevnlylyi Eil lon/ a&t m; vlyppf  
tjc; tustaus Ziwpcrsm; n t c&lu xlwvlyfaom vlypppftif jzi ha&avni fuetsm; oha&wif  
tjc; a&vlt ylv&u&haom vlxlrm; tm; axmulyay; Eil jci fjzpon/

pelyypintZD  
pfttif  
Biomass power

ZDpelyypintqbnrsm; pftiftixwvlyEil &eft wuf avmi pmtjzpf toly&Eil faom ZDaA' qll  
&myprism; jzponh tyifsm; tui ft usefsm; ES h w&p&ne&acsrm; ul qllygon/ tclhaom  
ZDpelyypintfsm; onf pftiftifqll & n lG lcsulrm; twuf oboepluy&xm; aom  
aumuly oDEfsm; r&&lygon/ xlvhaom pftiftiqll & modEpluy&trul aumi rfebh prlyyufEil f  
jci fr&vGf a' owof pm; ey&ul rzmrlul ylf qll&h; apEil ygon/ Oym-pftiftiqll & modEfsm;  
pluy&jcifoni pm; yiaumuly bDEfsm; pluy&jcif xul v, brm; rsm; twuf tustjrwyf  
jzplay; apEil ygon/ rnbqlap ZDpelyypintfsm; ul a&&shwlnwlll lrbapaom entvrtjzi h  
taumif xn&azmaqmi Eil lvGf to h ohaom pftiftif&iftjrpf wpczplvmEil bonf (Oym-  
pm; yibDEfsm; pluy&jcif rsm; xlv&maom ab; xult uift useypintfsm; r&xlwv, jci f) Oym-  
]avvGf ylf wvrbh; pluy&a& pepwof tyifwpr& (Oym- ajymif tcd) \ t pwt ylf rsm; ul

t pm; t pm? avmi pmES h w&pineft pm t jzpl t rstr t o h y E l l o n / x h e m u f u e & b e c o n h  
t y i f t p l w f t y l f r s m ; E S h w & p i n e a c s ; r s m ; u l v n f a e m u x y p l u y t r n h a u m u y b o E l r s m ; t w l u f  
a j r l o Z m r s m ; t j z p l t o h y E l l o n /

ZD t p m c s u p e p  
Bio-digesters

w & p i n e E S h v l w l \ t n p f t a l l u ; w l \ a v r l a q j r n j c i f r s x u & l m o n h r i b e f " m w a i l o n i c s u f  
j y k w & e S h t y a y ; & e f t w l u f t v e u l u n b i l a v m a o m " m w a i l t & i f t j r p i u l j z p a y : a p o n /  
x u & l m a o m r i b e f " m w a i l o r s m ; u l l a v m i p m p f t t i f t j z p l j y e l v n f t o h y k w l u a o m l u m i h a v x k  
x b l a & m u & E l l j c i f r & a w m i o j z i h z e l v t t f " m w a i l x k w l v i r l j z p a y : a p j c i f r & a w m l y g /

### 3.3 pftt i y l f q l l & m p h u e f w p c l u l a & ; q j c i f

v l r z b z t w l w u a & ; t z l t p n f t r s m ; p k t w l u f p f t t i j z n i q n f a x m u l y a y ; o n h p h u e f r s m ; a & ; q l  
c s r s v j c i f o n i u @ o p l w p c j z p o n / t u , l i v l t y i r l q e t p p l o y j c i f w l i f v i x l r s m ; r s p f t t i f  
y l f q l l & m v l t y r l u l w i j y v m c l w i f x l u p i t w l u f v i x E S h y a y g i f v l y a q m i & e f t u l u n b i l j z p E l l f  
o n h t j c m ; v u & a ' o c h t z l t p n f r s m ; & r & l u l O p h & s i a z a z m f x k w & r n j z p o n / t u , l i r & e h  
v o l f e n y n m y l f q l l & m A [ b l w r s m ; E S h t a w l t l u l j n d a o m O e l x r f r s m ; o l r [ k w i a ' o c h t l u h  
a y ; y k w l r s m ; c e l l x m ; a y ; j c i f ? a ' o c h r s m ; w u a & m u E l l a o m o i f w e f r s m ; u l p p O z e l w l a y ; j c i f w l u l  
v l y a q m i E l l y g o n / a ' o c h t o i f a w m l r s m ; r s y l a y g i f y g o i E l l a o m t c e f u @ u l v n f x n l o f t  
p O f p m ; & e f v l t y o n / v l x l r s t a u m i f q l a & c s , f l j y E l l & e f t w l u f t o i f a w m l r s m ; r s v u l a w e n f  
y n m o l y j y j c i f r s m ; j z i h x k a & m u a & m u & s f j y E l l o n / O y r m - t o i f a w m l t a q m u f t t w l o f  
q l m v l y p p l r s m ; w y l q i f y o x m ; j c i f o l r [ k w i a i f q l m j y m ; r s m ; \ j y l y i x e t o r t j c i f q l l & m  
O e l a q m i r r s m ; u l t o i f a w m l r s j y k w l a y ; j c i f w l j z p o n /

v l x k t w l u f p f t t i p h u e f a z m a q m i f a y ; r n i q l y g u O p h v l x l r s r n b o n h t & m t w l u f p f t t i f  
v l t y o n l u l t a o t c m a r ; j r e f & e f t a & ; b u d y g o n / x l b a r ; j r e f j c i f o n i t a j c t a e E S h o i l a v s m l  
u l u n h t t & q l e n f y n m u l l & s i a z a z m f x k w & m w l i t a x m u f t u l j z p a p v i r n / O y r m - v l x l r s  
r h w l \ a u s m i f a e u a v ; o l i , l r s m ; n t c e l p m u s u E l l & e S h t v l y f t u l l & s i a z E l l & e f t w l u f  
r i b l i z e f r s m ; u l " m w l t m ; o l f & e f v l y p p r d v l t y o j z i h ' l z ' , l a v m i p m o l r p u f v l t y a l u m i f  
w i j y v m E l l o n / o l a o m l a e a & m i j c n p f t t i b o l i v l y p p r d x k w l , x e l n j c i f o n i ' l z , l q b l  
r p u l w p c l u l O , f , j c i f x u l a & s n f t w l u f y l t t u l j z p l x e f a p E l l l y ? w y l q i f t o h y & e f t u l e f  
t u s y l i o u b m a p y g o n /

v l x k t w l u f u y i f a , m u l m ; ? n e f r E S h u a v ; r s m ; \ v l y p p p f t t i j z n i q n f a y ; & e f v l t y r E S h o l p m l r l  
r s m ; u l y m ; o j z i h v l w l f \ t j r i u l l & , l x m ; & & e f t v e f t a & ; b u d y g o n / v l x l w p & y l v t w l u f  
t u l j z p l x e f r l t r s m ; q l j z p E l l r n h t c s u l r s m ; t a y : t a j c c l y d O p m ; a y ; o i l o n h t c s u l r s m ; u l  
t " l u x m ; a & c s , & e f v l x k t m ; t m ; a y ; w l u l w l e t y g / r v l t y l b l p f t t i r s m ; a y ; y l c i f r j z p a y :  
a p & e f p f t t i f v l t y r l w p c p l \ t j c m ; t a j m i f t v l v l y a q m i E l l o n h e n f v r f r s m ; O y r m - t o h  
j y l o n h t c e b e m & l u l a j m i f v j c i f o l r [ k w i t o h y k w l a j m i f v j c i f p o n i w l j y k w l y E l l j c i f & r  
r & l u l a r ; j r e f y g / x l y i f u s e f r m a & ? y l r e D i b a i & & & ; ? y n m a & ; q l l & m w l w u l r ? u s m ; ^ r u e @  
q l l & m u p & y l r s m ; ? a ' o c h l o b m O y w D e f u s i f v l r a & ; E S h l z l l m " a v h p o n i u @ r s m ; t a y : p f t t i f  
\ t u l j z p a p r r s m ; u l o l o y & e f x l b w l t m ; t m ; a y ; w l u l w l e t y g / t c l l a o m t a j c t a e r s u p f t  
t i l o n i v l x l \ t b u d r m ; q l v l t y c s u l [ k w i r [ k w i q e t p p l y g / O y r m - a & v l r l j c i f ? r l a c j i f  
a & s n j c i f p o n i t a & ; a y : o b m O a b ; t E & m , l r s m ; u s a & m u l v m y g u x l t t & m r s m ; u l O p m ; a y ;  
a q m i l u & r n j z p o n /

v l x k t z l o i r s m ; r s t " l u O p m ; a y ; a q m i l u & r n h p f t t i f v l t y r l u l q l j z w l y d o f n ; v o l p t j c m ; a l z c s , f  
p & m e n f v r f r s m ; & y g u x l b w l E l l f , O a & c s , E l l a p & e f e n f v r f r s m ; t m ; v l u l l c j y y g / x l a ' o w l f  
& , l t o h y E l l o n h j y e j y n l r p f t t i f t & i f t j r p r s m ; u l b m p o f p m ; i x l t t & i f t j r p r s m ; x k w l , l  
t o h y & m w l v n f o b m O y w D e f u s i f t a y : q l u s t o u f a & m u l r r & a o m e n f v r f r s m ; u l b m

t o h j y g / O y r m - a & ; t m ; v l y p p p f t m ; u l l x l w f , & e f j r p a & p b a l l u m i f r s m ; a j y m i f a p j c i f ? y l w f  
q l w m ; q j c i f w l b n f w & p i n e f r s m ; E S h i g ; o w D g r s m ; u l l t E & m , j z p a p E l l b o n f / i g ; r s t y h ; j c i f u l l  
t a E n i f i t , s u r j z p a p & e f i g ; r s m ; t w l u f q n a j r m i f r s m ; o g l w e f a z m u l v y f a y ; j c i f u l l b a o m  
v l y a q m i E l l b o n h e n f v r f r s m ; u l l x n i b o f p O f p m ; x m ; & e f v l l t y l o n / p f t t i f x w l v l y E l l b o n h  
t o l l t a q m i f y p i n f r s m ; O , f , j c i f E S j y k v l y j c i f w l f a ' o c h f r s m ; r s o i l w e f w u a & m u l u m t v g l w u l  
x e f o r t j y l y i E l l b o n h a i l u e b a l u ; u s o u b o m i v l x l r p m ; O w b e a & ; u l l a x m u l y b a y ; E l l b o n h e n f  
v r f r s m ; u l l p O f p m ; y g / x l y i f a ' o c h w l f & i f o m ; r s m ; \ 1/2 & m e n t y n m r s m ; u l l p f t t i f w l j r s j b x w l  
v l y E l l & e f t w l u f w p e n f w p z l q b a v s m a t m i j y l y i f t o h j y E l l f r j y E l l w l u l v n f x n i b o f p O f p m ; &  
r n j z p o n f / t j c m ; t e d t e m ; a u s & f r s m ; w l f j y k v l y l y o p l o h ; a o m p r l u e f r s m ; u l l l u n t b o l l o y f y g /  
x p r l u e f r s m ; u t o h j y k o n h a && s h w v n l w l l j r b o m o b m O y w D e f u s i f E l l b o n h e n f y n m r s m ; E S h y w b o u a o m o i c e f p m  
r s m ; u l l a v l m e r e m , l y g /

p r l u e f o n f o i l a v s m i r & f r & l u l l q h j z w & m w l f p f t t i f w l c l j z n l q n f j c i f E S h y w b o u b o n h a ' o c h  
t m P m y l l r s m ; o l l [ l w f E l l f i l a w m f t m P m y l l r s m ; \ t p l t n l r s m ; u l l p b r f a r ; j r e f y g / x p r l u e f r s m ; u l l  
a ' o w l f u s i b o l l r & f r & E S h r n b o n f i t c e l u r n l u b l l & & t m i f v l y E l l f a c s & b o n u l l & s a z a v l m y g /  
t c l l a o m e n f y n m r s m ; t w l u f a i b a l u ; E S h i t j c m ; t a x m u l t y l r s m ; & & E l l f y g o n / o l l o m i x e n f  
y n m r s m ; u l l v l x b l l v l a j y m i f a y ; t y l o n f i t c g u v l x l r v u b l l b o n f t v u m ; & i v u b j c i f r s t x u f  
r r l w l a ' o E S h u l u n l y w b o u a o m a l l u m i h v u b l l & j c i f r s t o m j z p o i b o n f /

r n b o n p f t t i f y l l f q l l & m p r l u e f o n f v l x l w p c k t w l u f o i l a v s m u l u l n h t & l y j z p a l l u m i f v l r  
z l z l w l w u a & ; t z l t p n f r s m ; r s p O f p m ; o l l o y & m w l f t a x m u l t u j z p a p E l l b o n h a r ; c e f r s m ; u l l  
a t m u l w l f a z m j y x m ; y g o n f /

v l x l t z l t p n f \ z l z l w l w u i r q l l & m v l l t y c s u l r s m ; u l l a z m j y y g / O b p m ; a y ; a z m j y x m ; o n h  
v l l t y c s u l r s m ; r s r n b o n f i t y l l f o n f v l y p p p f t t i f j z n l q n f a y ; & e f v l l t y b e n f /

O b p m ; a y ; p f t t i f v l l t y r l u l l j z n l q n f a y ; E l l & e f r n b o n e n f y n m r s m ; u t o i l a v s m i q h j z p l  
o e n f / a ' o c h & m e n t y n m r s m ; u l l w l w u a t m i f j y k v l y j c i f j z i h & & E l l f y g o v m ; / e n f y n m  
w p c k c s i f p l w y f q i f c p u l v n l y w c j y l y i f x e f o r t f r s m ; u l l e l u s o n h p & w l r n r l o f r n e n f /  
t o h j y l a o m e n f y n m u l l a ' o c h f r s m ; u j y k v l y l y w y q i l j y l y i f x e f o r t E l l f y g o v m ; /  
x l e n f y n m u l l v l x E S h i f t e d t e m ; & t j c m ; v l x l t z l t p n f r s m ; t w l u f t a x m u l t y j z p a p & e f  
p r l u e f u l l t o u a r g o r f a u s m i f t p l t p O f t j z p l j y k v l y E l l f y g o v m ; /

p r l u e f o n f o b m O y w D e f u s i f t a y : x c l u l r h & l o l a && s h w v n l w l l f y g o v m ; / ( t c e f - 5 w l f  
q u l v u z w l l a v l m y g )

p r l u e f o n f a && s h w v n l w l l j r b o m o b m O y w D e f u s i f v l x l v l l t y c s u l r s m ; u l l t a o t c m j z n l q n f a y ; a e & e f  
t o i f a w m r s m ; r s r n l u b l l y l a y g i f y g O i E l l b e n f /

p r l u e f E S h y w b o u l r n l o n h a b ; t E & m , f r s m ; j z p a y ; v m E l l b e n f /

v u a w l t a j c t a e u l  
a v l m o l l o y j c i f

& O r f g E l l f i l w l f o b m O y w D e f u s i f a && s h w v n l w l l j r b o m o b m O y w D e f u s i f u l l j y e l v n l w n a x m i f c i f  
MOUCECORE E S f i t v l y l v l y u l l b a o m o l 90% c e l b n f i f w l l p m ; O w b e a & ; t w l u f p l u l y l a & ; E S h a r g j r l  
a & ; u l b m r e l l t m ; x m ; a e & o n f /  
MOUCECORE o n i v l l t y r l u l l q e f p p l o y j c i f j y l c b n f / t & n f t a o g r n b o n h p l u l y l a & ; t a v l t x r s m ; ?  
a j r w l u p m ; r b a l l u m i h a j r l b z m c e f a j c m u j c i f ? a j r l y j c i f E S h a & v f f r j c i f w l b n f t p m ; t p m r v l a v m u j c i f E S h  
O i b a e r l y g ; a p j c i f w l u l l j z p a y : a p a o m t " l u t a l l u m i f t & i f r s m ; j z p o n f / o p a w m r s m ; j y l e f w l j c i f o n f  
a ' o w l f & m o d w a z m u j e j c i f E S h o b m O y w D e f u s i f y s u p b r l w l l j z p a y : a p a o m t " l u t a l l u m i f t & i f r s m ;  
j z p o n f / p i p p i x i f o n f & O r f g E l l f i l v D b a & \ 90% a u s m f t w l u f t " l u s o n h t a j c c l a v m i p m t & i f  
t j r p l w p c l z p o n f /

MOUCECORE onf toifawmES h vx\ aqmlbopnf%ñorm; (toifawmfwpyg;vñfwpa, mupjzi h  
a%&Ewfxm;aomorm;) tm; obmOywDefusiqñ &m t ajccl trrt usi ðami frm; ES lfwubonh  
oi fwefrm;yñay;on/ xbi fwefwñ avsum;xpl pluytjci f? pnf%ñ twm;tqðrm; jklyjci f?  
rñ&paqmi fji f? obxyobñyf pluytjci fES h opyi fñci f wñaxmi jci frm;ull yñsoi lUm;ay;on/  
wpOñES kwppOñ %ñ fyi fulñwñraom plw' mwlutt ajccl aqmlbopnf%ñxm;aom vx\ frm;ull tlypli , frm;zlyð?  
ajrwjci fES h avsum;xpl pluytjci frm;ull twlwuplaygi f vlyaqmi ðapon/ , dkt cg ðvlyñfrm;wñ f  
yðoi fvy&ñ;aeaom t zñoi fplaygi f 2500 cel&ñmlyzpon/ t uñ&v' ft aezi f-

ajrqmñwñupm;arsnygobñ;jci frm; avsmñfvmon/ 0, smOwñ frs xñobñ fxm;aom ajrqmñwñmrm;ull  
rñ&wñupm;rñ&ñwmobzi h oñEñt xñuEñfvnt wñwñamirñfvmon/

plulufñ rñ&rm; paqmi folavññ fxm;Eñ jci f tm;jzi haumzES h i ðaymubñraom tyi frm;ull aumi fpañ  
ñuñxñ;&ñ ðeñ ðapon/

t kwzñwñci f twñu f opyi frm; dñwñ;jci full yñweñ ðap&eft wñu f vx\ rñt jcm;pftt i f t & i f tjrpñrm;ull  
&ñazñt oñyñael luyzpon/

vñk olf [ kw pññwñeñ ull quv uñvlyaqmi f vñuñ f t uñ&ñvñ f Eñ bonh yxrOñqñ ajc vñ f rñ-  
ulefup&ñwñrm;? oi ðavsmñraom t luo Pñrm;? uñwñ ðoñ f p&ñwñrm;? wñae&moll o, f , ð&ñwñrm;?  
wyñi rñup&ñyñrm;ES h vñyñ eñaqmi %ñurwñull jzpeññ ajcuñ qeñppavñvmoll oyjci f jzi ðlawoe  
jñkly&ññzpon/ xñyi f t jcm;Oeñaqmi rñ? xñeñ oñ f jci fES h jyi f qñ jci frm; ( t yñypññt apñuñuñrm;  
tygt Oi ) t jyi f t jcm;vñyñ eñvñyñwñp&ñwñrm;jzponñ avñmi pmp&ñwñES h t vñyñorm;c ponñ  
wñluyg xñobñ foloy&ññzpon/

quvubñoyñoi bonh up&ñyñrm;rñ pftt i f twñu f apñEñ f oñwñrñwñ? Oi ði f rññyñeñvññ xñ  
uñ&ñmEñ rñwñzpnñ Oeñaqmi rñES h t pm;xñyñyñi rñ f rññrm;t wñu f quv uññ uñeñsaerññ p&ñwñ  
rm;ull jñeñvññ&ñpEññ bonh eññpñpñrm;ull vññ xñobñ f pOñpm;xm;&rññ/ pOñpm;qñzñwñmü  
t celñwñmñmPm&ñraom wñpñoyñ%ñrm;t wñuñom r [ kw ðoñ vx\ wñp&yñvññ t uñ&ñpñm;&ñpEññ f  
onñ qñzñwñcñuñrm;ull rñobñ f rñwññent/

toifawmñrm; olf [ kw vñzñzñ wñwñuñ&t zñt pññrm;rñ vñyñaqmi jci f x uñ yñ%ñwñu  
pñyñ;a&u@rm;rñ pftt i yññ f qññ &mpññuñeñrm; aqmi %ñuñvmap&eñ xñobñwñtm; ñEññ wñuñwñeñ  
Eññ bonh eññvññrm; &ñyñgovm;/ t ult ñmññt yñeaom obñcm;vññt zñt pññrm;t wñu f Oñwññ  
aqmi %ñuñmñwññ toifawmñu yñ%ñwñu pñyñ;a&u@ull t ult ññay;Eññ f ray;Eññ full pññtyñ/  
yñ%ñwñu pñyñ;a&u@ \ vñyñaqmi rñobñ wñwñuñrñ&ñ r&ES h rññubñ vñyñaqmi ðeññuññ xñobñ  
aqmi %ñuñjci f jzi h uñyñm;jcm;em;apEññ bon/

vñzñzññ&t zñt pññrm;rñ vx\ pññt i f mññt yññuññ jññt qññay;jci f t jyi f pññt i f yññyñ f  
ajyñi f vññt wñu f ai ðñu;yññrñES h eññfñmñvññajyñi rññt wñu f cññfomaomwñññjññrm;rñ wñmOeññ  
vñmap&eñ wñññjññt pññrm;ull axmñuñññ&ñ&ñ; aqmi %ñuñEññ bon/ ( yññobñ&ñwñññ f t cef 6 üquñ  
vñzñwñyñg)

jñeñvññobñoyñci f  
uñEñyñwññvñyñull ðaqmi %ñuññeaom vx\ñt zñt pññrm;onñ rñobññ pññt i f t & i f tjrpñrm;ull t oñyñk  
avññbenñf/  
xñpññt i f t & i f tjrpñrm;onñ a&&ñwnwtdl jññ&ñyñgovm;/  
vññt yññqñeñppñci fu@wññ f vx\ u oñwññ pññt i f yñññ f qññ &mvññt yññuññ xñobñ f azññyñcñyñgovm;/  
azññyñcñmññ f xñu@ull uñEñyñwññavññvmoll oyñ&eñ vññt yññgovm;/

# t zlt pnf \ obmOywDef usi fu a&&shwnfwl rbaom

t zlt pnf rsm; taeji h uElywlvlyaqmi faeom t&mtm;vloni (aqmi fcu faeom p rlu def ES h yw bouf aomv nfaumi f) uElywlv t zlt pnf twi f vlyaqmi r t avlit x rsm; ES h yw bouf i aomv nfaumi f) obmOywDef usi ft ay: ajc&mwpcul p& i fap ygon/ p t cef wif t zlt pnf rsm; uil wif olw\ obmOywDef usi ft ay: p& i fapaomajc&mut rniub wif wm&rnl avntc&rniul azmjyxm; ygon/ tu, li uElywlv t zlt pnf onf obmOywDef usi f a&&shwnfwl rbaom; p rlu def rsm; uil vlyaqmi f wif yx rO p n t zlt pnf wif vnf xlywDef usi lqil &m a&&shwnfwl rbaom; &ef t a& Bu ygon/ Oef x r f wp Ocsi f p n vlyaqmi csur sm; onf y h f e t m; jzi h obmOywDef usi ft ay: tawm t we Bu r m; aom x d l u r l u l jz p a y: apw w a o m a l l u m i h t z l t p n f w p c k w l o n f o b m O y w D e f u s i f a & a s h w n f w l r b a o m a l l u m i f a o c m r l a p & e f t z l t p n f \ r O g ' r s m; E S h v l y a q m i y l t q i l q i r s m; u i l a e & m w u s p b O x m; l y d ? t p O l o w j y l r & e f v l t y l y g o n /

t zlt pnf \ obmOywDef usi ft ay: x d l u r l r s m; u i l B u l w i f w l f w m j c i f ? a v n t c j c i f w l u l v l y a q m i r n h o b m O y w D e f u s i l q i l & m r O g ' r s m; x m; & j c i f u l t v & s r s m; u v l t y c s u f t a e j z i h w l f a w m i f q l v m l u l y d j z p o n /

## 4.1 aumi f rbaom x e f o r f a p m i h a & s h u f u l p e r l e m t j z p f x m; & j c i f

c&pf, mef t zlt pnf rsm; onf obmOywDef usi f a&&shwnfwl rbaom; qil &m aumi faom t avlit x rsm; uil p e r l e m t j z p f x m; & a l l u m i f a o c m a p & r n i j z p o n / u E l y w l v t o u a r g O r f a u m i f v l y i e f r s m; o n f b & m; o c i f j y i l q i l a y; x m; a o m o b m O t & i f t j r p r s m; t a y: t a j c y l x m; y g o n / , c k r s t q u f t w l u b m r [ k w l b ? a e m i f v m r n h r s t q u o p r s m; t w l u l y g b & m; o c i f z e l q i f c h o m p u r q u b u l j y l y i x e f o r f & e f u m u g f a p m i h a & s h u & e f w e z l x m; & e f u E l y w l v w m O e & y g o n / c & p f, m e f t z l t p n f r s m; o n f b & m; o c i f z e l q i f j c i f t a l l u m i f ? x e f o r f a p m i h a & s h u f u l j c i f t a l l u m i f E S h t j c m; o l r s m; u i l j y l p a p m i h a & s h u f c i f t a l l u m i f t & m r s m; E S h q u E l f a e a o m o r m u s r f p m \ o e b o i c s u r s m; u l l o h o y a v l v m j c i f j z i h t p j y l r n j z p o n / x l b l v l y a q m i j c i f o n f v u l l t z l t p n f \ t a v l i t x r s m; w i f a u m i f a o m a j y m i f v h r s m; v l y a q m i f m & e f v l t r s m; t m; E l a q m i v h r n j z p o n / t c e f - 2 w l f a w l a o m o r m u s r f p m a v l v m j c i f r s m; u l l x & n l / 2 c s u f t w l u l t o h y l e l l y g o n /

## 4.2 o h o y & r n h t c s u r s m;

1/2 v l y i e f r s m; o n f o b m O t & i f t j r p r s m; u i l t o h r j y l b ? o b m O y w D e f u s i f t a y: x d l u f a p j c i f r & l o t u s t & p n r v n l y w e l l y g / O e f x r f r s m; t w l u f a y; x m; a o m a o m u b l a & u l t i r b o m t w l u l v u l a q; & e f t w l u E S h c s u f y l w & e f t w l u l t o h y l e l l y g o n / u e l y d w m r s m; ? u e l y d w m E S h w l x m; a o m y l e y p u i r s m; E S h r d x e f & e f t w l u l " m w f t m; v l l f r s j z p a p ? r l p u i r s j z p a p ? j y e f y n r p l f t i f t & i f t j r p r f z p a p v l y p p r l b & e f v l t y l y g o n / a & ? p m & l u l t p m; t p m o l r [ k w i t p m; t p m x l y l y p i n f r s m; u b l t c s l a o m p e l y p & r n h t & m r s m; u l l a & s h i f w l r & e l l y g /

pnt luefrsm; ul x&amupbn pnt luyEtl &eft wlu f Oex rfrsm; onf pnt luefrwn&&mae&mrsm; ol  
ofn; a&mu&elvt ylygon/ ajcvs iof [ kwpu lbjzi pnt luefae&mt m; v holo bn; a&mu&elrjzpeEtl f  
oa& t zft pnt frsm; onf armawml, mOjzi h aomv nfaumi f? vlt fum; rsm; jzi h aomv nfaumi f  
ofn; a&mu&v nlywfrsm; jykly faom t c q zelvlt t' mwa i Orsm; ul xkwv wvapygon/

olhomlobmOywDefusi ft ay: uElywlykly faeom xclulaprt sm; ulem; vnbabmaygu&eES h  
xclulaprt sm; ul avOnicsEtl faomenf vfrsm; &haz&ef t a&Budygon/

obmOywDefusi ft ay: p& i apclom ajc&mrsm; ul Lunh&mwof t zft pnt t m; vlt oho y&rn h  
t csuirsm; pnt &lygon/

taqmuft ODrsm; wlt t ohy/laom pft t i frsm; - Oyrn? rDx&fjci f? uElywvrsm; t ohy/ jci f?  
t yay; jci f ol [ kwf avat ; puft ohy/ jci f ES h csufykwjci f wlt wlu f vlypp' mwt m;

yhaqmi lqubG fa&; - t vlyfupot wlu f ofn; vmjci f ES h Oex rfrsm; t vlyfol ofn; vmjci f  
Epcpvt ygoi lon/

uleypnt frsm; - t olt aqmi lypnt frsm;? pma&; u&d m rsm; ES h t pm; t p m rsm;

a& aomubhji f

t rlufrsm; ul jzppajci f ES h pelypji f

avat ; ay; jci f ES h t ylt at ;' Pfrst um t uG hay; jci f wlygoi faom taqmuft t h zft yph

pft t i ES harmawml, mOrsm; t ohy/ jci f ES h uleypnt frsm; xkwv/ jci f pEpcpvt onf t & i t jrpf  
rsm; ul t ohy/ x m; aomallumi h obmOywDefusi ul xclulaprt sm; xlyi f p vly& yEpcpvt wlt f  
lykui favmi p m rsm; t ohy/ jci f ygoi faomallumi h & moDwajymi f v h ul jzpay: apygon/  
x h lumih xclwlt t ohy/ rlu qefppoloy&mwof xclwlt wvwaom JumA&f ajc& m} ul  
Lunh&oloyjci f wlygoi lygon/ JumA&f ajc& m} qlonfrn- yhaqmi lqubG fa&; t wlu f avmi f  
pmt ohy/ jci f? vlt rsm; ES h uleypnt frsm; yhaqmi &mwof aomv nfaumi f? xkwv/ fa&; vlyf i ef wlt f  
aomv nfaumi f pft t i fult ohy/ laomallumi h xclay: vmaom umA&f yrmPuul wlt f wnjci f  
jzplon/

t zft pnt frsm; wlt t cllaom t & i t jrprsm; t ohy/ jci f ES h t rlufrsm; pelypji f wlonfa&h i vlt  
r&Etl faomvnt obmOywDefusi lqll & m ajc& m ES h umA&f ajc& mrsm; ul wwEtl bor t ent Etl lqll?  
t x&f Etl lqllzpat mi f vlyhaqmi Etl lygon/ hlyl lqll & m t & i t jrprsm; ul rvlt ybl t ohy/ jci f  
wlonf rlu mcP jzpay: avlygon/ xcljzpay: apEtl faom tallumi f t & i frsm; rfn-

Oex rfrsm; onf xlt & i t jrprsm; oho jci f t wlu ul wlt hay; aqmi &ef wmoer & b jzi h  
jzlet wrlul avOnicsv p l vlyr & b jzplwvlon/

t xtojzi h t zft pnt frsm; wlt frnblu t & i t jrprsm; ul rvlt ybl t ohy/ aeonul  
awljri Etl &ef cutcbjzi h Oex rfrsm; ul wmoer Etl f Etl &ef cutcygon/

Oex rfrsm; rSobmOywDefusi jyo emrsm; ul lowrjykrjci f ES haumi fbn x&f olt apmi ha&h ufr  
rlyjci fallumi jzpygon/

Oex rft t cll vlyhaqmi csuirsm; ul jym; jcm; em; r l&Etl faomvnt BuDrsm; aom obmOywDefusi f zft  
wlu wlrsm; ul vlyhaqmi faeom t zft pnt frsm; u Oex rft t m; vlt ay; qyrlulaw& av&bn/  
x h lumih Oex rfrsm; ul owjykr&plyd Etl aqmay; &ef vlt ylyd olwlt vlyhaqmi csuirsm; ul  
axmulyha; Etl faom? wlt f wmay; Etl faom zlonfrpeprsm; x m; & r n jzplon/ & m xclulom pnt  
t lyksyrsm; wlt vnt aumi faom ykbuhaorm; jzi h Obaqmi lvrty&ef t a&Budygon/

### 4.3 aumi fph xefortapmi la&shurN t u&ausZtrsm;

t zlt pnrsm; \ t&iftjrprsm; ul aumi fph xefortapmi la&shurN t u&ausZtrsm; pnr ul &&apygon/

t&iftjrprsm; ul a&&shwlvwll jrapt- pm%ul? yvwbpwp? owES la& ponlwl toklyjci f ul t wll f t wmwpcct xd uebwfxm; jci fjzi h obmOt&iftjrprsm; uecefvmr lull avsmenfv m apygon/

ulefup&wlvavsmenfvapjci f- t&iftjrprsm; ul t u&shurN toklyjci f ES h vlt yrsm toklyjci f (Oyrm- tcefxwll f vlvpDwpa, mur0 r&vll f vlyppr lull yvwfxm; jci f) wll jyklyvll f t zlt pnrsm; onl pnr luefvll f t pm; xll t oklyjci f laom ai Gt ajrmuft rsm; ul plaqmi f Ell ygon/

u&fma&; u@ wlvwlaumi f r&fv m jci f- taqmuft t rsm; ul av0i favx llaumi fat mi f jyklyv x m; aom? tytat; ' Prs umuG Ell fat mi f wnaqmuft x m; jci fjzi h yji faom &modwkwll f at; jraely? at; aom&modwkwll f aEfax lapaomallumi h avat; puES h tyay; pu vlt yr lull avsmenfv apygon/ av0i favx llaumi fat mi f aocmjykvlyfxm; aom %kcefrsm; wll f t vlyvlyv aom Oex r rsm; onl p&faqmi Ell lrl jri rsm; onl f jyi f yll u&fmoep&f l uon/

pnr luefvsm; wlvwlaumi f r&fv m jci f - obmOywDefusi jyó emrsm; ul x nbl f toklyvlyv aqmi laom t zlt pnrsm; onl obmOywDefusi lull x d lurl tenfv qjz paponh pnr luefvsm; ES h obmOywDefusi lrsjz pay; vm Ell laom x d lurl rsm; ul x nbl f toklyvlyv x m; aom pnr luefvsm; ul a&; q&v&lygon/ x ll lumi h pnr luefvsm; \ x d&muir ES h a&&shwlvwll jrapt wlvwlv su f &lygon/

umA&f xlvv lurl avlncjci f- p&f t i rsm; ul xefort; umuG jci f ES h x d&muir&laom ylaqmi lqubG la&; enfv r rsm; ul toklyjci f wll m; jzi h %klyv f avmi lpmrsm; toklyjci f lull avlncjci fonl umA&f' mwai Oxlwv lurl avsmenfv mapaomallumi h zelvll d' mwai Orsm; ul vnt avsmenfv maprnjzplygon/

\*Pbwi&f oitylv m jci f- t&iftjrprsm; ul yll laumi f r&fv m xefortapmi la&shurN jci fonl t v&S l rsm;? vlyazml l l zurl rsm; ES h vlx l rsm; t l u m; \*%kvp l ul w m Def, lapmi la&shurN aeol rsm; t jzpl jri l mapaomallumi h t zlt pnr \ \*Pbwi f ul oi f ylv m apygon/ t u&v' f wpcct aeji h r rtt zlt pnr t ay: b@a&; qll &myll l rsm; wlyll; v m jci f ul vnt l u l l w l c p m; vm Ell l r n jzpl onl

Ell fi la w m \ jyl m e f c s u r s m; ES h O b w n t s u r s m; ul j y n p l a p j c i f- t p l & t m P m y l l r s m; onl obm O y w D e f u s i f y ó e m r s m; ul w j z n f j z n f y l t a v; x m; v m l u l y j z p l o n / t j y n j y n i q l l & m o a b m w l n l c s u r s m; t &- o l w l n v l y & y l r s m; t w l u f ( t x t o j z i h & m o D w l a j y m i f v l v m r E S h u m A l e f x l w v l w l r i r s m; ES h q u E T, laeom u p i r s m; t w l u f ) p w i f w m D e f, laqmi & l u l v m l y j z p l o n / t p l & t m P m y l l r s m; onl Ell fi la w m \ O b w n t s u r s m; ul t a u m i f t x n l a z m & e f t w l u f p u l z h t v l y % l r s m;? j y n b y l l p d y l l; a &; u @ E S h j y n b v x w l l t m; z d t m; a y; w l u l w e f v l r i n / a &&shwll f t a u m i f t x n l a y; v m a o m x D b w n t s u r s m; u v l w l f t w l u f a u m i f u d j z p a p r n j z p a o m a l l u m i h z l z l w l w u a &; t z l t p n r s m; onl w p a x m i l w p l a e & m r s y t a y g i f y g O i & e l v l t y l o n /

### 4.4 %k t ajcp l ul obmOywDefusi f xefortapmi la&shurN wll f usi l o Ell fonl avlt xaumi f rsm;

%k rsm; t m; vll onl a t m u l w l f a z m j y x m; c s u r s m; ul O b w n l v l y l a q m i & r n j z p l o n / a i f w l l f h - p &f t i f t o k l y j c i f E S h p a y g i f z e l v l l d ' m w a i O x l w v l w l j c i f r s m; ul a v l n c s & r n l e n f v r f r s m; r h . u l e y p i n r s m; ES h O e l a q m i l r s m; ul a' o w l f w l f t & i f c l a z j c i f



- vlyppypinf t olt aqmi ft m; vLul t ohrjykonft cg ylvx m; jci f ( t & eoi h t ohy/Ell fat mi f “stand-by” rjyKlyfx m; ygES ll xbljyKlyf x m; jci fonvnt vlypppft t if tajrmuft rsm; t ohy&on)/ xlyi f vlypppft rsm;? avat ;puf yelumES h t ylay;puf wLulrvltt yaom t cg ylvx m; &rnjzpon/
- pft t i ful t ohykrenfaom rlob rsm; ull t ohyjci f
- jzpEll vli f t pnt t a0; jyKlyfaom t cg avat ;ay;puful t ohyjci f x ufywi f ayguZG b m; jci f olr [ kw t jyi lbuwl f jyKlyjci f

Oefx rfrsm; c&Dob; vmjci f ulat mulygent vfr rsm; jzi havOnicsEll fygon/

- ohi; &rn h c&D t Burft a&t wLuES h t uht t a0; wLul avsmen tap&eES h Oefx rfrsm; t wlvuG c&Dob; vmEll &ef Oefx rfrsm; pnt uetae&mrsm; oll ohi; aomc&DpOfrsm; ull nEll fay; jci f
- t eD tem; ae&mrsm; oll ohi; vm&mwG f t jcm; NGO rsm; ES fit wl um; wppi f wnt jzi h ohi; vmjci f olr [ kw wppkwnt ohi; jci f
- vrfavOnulyg olr [ kw t rsm; ohyb qmi lqubG fa&; mOfrsm; ull wwEll borO t ohykyg/
- qD t ohykrenfaom , mOfrsm; ull jzpEll vli f yll t ohykyg- Oyr m? bDav; bD, uf armawmi, mOfrsm; x uf armawmi qll lu, frsm; ull yll t ohykyg/
- av, mOc&DpOfrsm; avOnics jci f? t pnt t a0; rsm; c&Dob; wub&mu jci f t pm; zlefrsm;? t i lwmeuES h AD D jzi haqfaEgyfrsm; jyKlyjci f wLul wwEll borO vlyaqmi jci f/

t jcm; t i f t jrprsm; t ohyjci f ulat mulygent vfr rsm; jzi havOnicsEll fygon/

- t Bar; (v) rsm; ES h t jcm; pm%Lupmwr rsm; ull rvltt ylob uElylwmsyElyxkwaOjci f rjyKly&ef
- pmrsuEsn EpszupvLul t ohyjci f
- pm t wlrsm; ES h b t ohrsm; ull jyelvnt ohyjci f
- tlvux a&meppep jzi h pm t quit oG jyKlyjci f ES h zll frsm; jzeB&ef t m; ay; jci f
- pnt uetae wlt ohyfaom, mOfrsm; aq; aLumrl t Burft a&t wLu ul avOnics jci f

t rluES h nph rfrsm; ulat mulygent vfr rsm; jzi havOnicsEll fygon/

- aqjrnEll faom t rlu rsm; ES h entynm jzi jyelxG ft ohykEll faom t rlu rsm; ull oboel t rlu yhrsm; wG f qjcm; pElyp jci f
- yvwpwpt wft ohykruul ylvly jci f
- jzpEll vli f obmOjzppOft & aqjrn hysupD Ell faom "mwlypinfrsm; ull t ohyjci f tajctae awmlawmfrsm; rsm; wG f pElypypinf rsm; ull entynm jzi jyelxG f t ohykEll faom t cG fit vrf &vhrnr [ kwacs/ ohaomi pulirsm;? uwlx jym; rsm; ES h zelykvi frsm; ull pbnf a&mi f c jci f jzi h toularglu&aom qif&bm; rsm; t wlu f xlt &mrsm; onf wezll &fygon/ pElypypinf rsm; yll pbnf Ell faom ae&mrsm; p pOlx m; yg/ r b z h csmi frs pElypypinf rsm; ES h x r i f usef [ i f use rsm; ulvnt tv [ ó rjzpap&ef ajraqjyKlyjci faom vnt faumi f? w&pneft pmrsm; t jzpaom vnt faumi f pbnf Ell fygon/ t rlu rsm; ull entynm jzi jyelxG ft ohykEll faom pnt uetae wpcul wnt axmi &ef pOtpm; ohyoyx m; yg/

t aumi ft xni azm&eft wlu f t c&D t i f t jrprsm; ES h yllrvltt yEll faom t jcm; pwlut vlyaqmi Ell jci f wll rsn-

pft t i fa&vma&; entAd [ m rsm;- aifwll jyeljn jrpft t i f axmulyllay; Ell lonh ypinfrsm; (Oy rm- tao; pm; a&t m; vlypppufrsm;? aea&mi b k b l v m jym; rsm; olr [ kw avwmAl frsm; ponwll wG f i f E j r y E j c i f? taqmuft Odrsm; wG f yll aumi f faom t ylt at; ' P f umuG lonh t &m

rm; wyqijci f ol [ kwf obmOt wll f at jrapjci f? obmOavOifavxul aumi tap&ef  
jywi fayguirsm; wll f jci lqecgrsm; wyqijci f wll ygOif ygon f

a&t&ift jrpf p rly fuhull wll r s jci f- Oyrm? rlla& plaqmi f Ell faom a&wll lull rsm; wyqijci f?  
a&qft rromoll a&Zvm; rsm; wll fa&z, & n; ypintrsm; (Oyrm- t kwf a&jznlxm; aom yvwlpwpl  
ywfif) jzi h a&yrmPull avlncjci f ES h wppuivppufusaeaom a&y lllacjci f rsm; ull jyllyi jci f  
ponll wll ygOif ygon f

usi DwES lull h p 0, f, bll jci f- o, f, yll qmi jci f ES h quET faeom "mwai Oxlwlvwrlull  
avlnc&eft wll wll br0 jynl rsvi bol faom ypintrsm; xul jynl wll tjzpl ypintrsm; ull a&f  
cs, ft o lly jci f? r r n ywDefusi qll & m ajc&mrsm; xifusehull avlncsvlaom ul r l P rsm; \ xkwf  
ulef rsm; ulbm & n azft m; ay; jci f? a&&shwlnwbl l r Ref p r l x m; aom opawmrsm; r s op rsm; ull  
t o lly jci f ES h uef 1/2 lllv m rsm; vlyi efaqmi 1/2 lll aom t c g t zlt pnt \ ywDefusi qll & m  
rDg' rsm; ull x n l b l p o f p m; apjci f ponll wll ygOif ygon f

vly ygOif vly & n; r f obmOywDefusi 1/2 axmi r saef Sa' owl f oe&S r r r s lwi fa&; t wll axmuf  
yly; jci f ES h ygOif vly faqmi jci f rsm; (t r lull rsm; ull peplwus p e lly p jci f ES h oplyi rsm; p l lly s t jci f)?  
obmOywDefusi jyo emrsm; ES h ywlobaom aqfa E f y rsm; wll f ygOif jci f ES h t lll O P rsm; a o i s  
jci f? ywDefusi qll & m taumi f qll ent v r rsm; r & n aom t c g ol [ kwf r v l l v m u l aom t c g  
ajymi f v r l & n & n; t wll axmuf l r & n & n; aqmi 1/2 lll r wll f ygOif jci f ponll wll ygOif ygon f

p 1/2 t ajcyk ywDefusi x e f o r t apmi l a & n u r l at mi jri Ell & e f t m; xkwf u l y r f vly faqmi r rsm;  
ull obmOywDefusi qll & m rDg' rsm; wll f x n l b l fa&; om; x m; & r n jzplon f (t cef- 4.5 ull  
zw 1/2 av l v m y g)

4.5 t zlt pnt ES lly qll faom obmOywDefusi qll & m rDg' a&; qjci f

obmOywDefusi qll & m rDg' qll n r n t zlt pnt w p c l aumi f r e aom obmOywDefusi f  
qll & m x e f o r t apmi l a & n u r l t wll ay; qy r ES h x l b l jzplajrm u l a &; t wll f t zlt pnt u vly faqmi f  
r n h t " l v l y & n; r rsm; ull azmjy x m; on h x l u l q l s u l w p c l jzpl ygon f t zlt pnt w p c l p n vly f  
aqmi f s u rsm; on f obmOywDefusi f t ay: Bu l on jzplap? i, b n jzplap x c l u r l & n l u m i f u l l  
a i f rDg' u t o d t r s v f j y l x m; y g o n f

a i f rDg' t m; jz i h t zlt pnt \ obmOywDefusi qll & m O b w n t s u rsm; ull O e x r f rsm;? t v & S f  
rsm;? O e f a q m i l r & n a o m v rsm;? t j c m; y g O i b o u q l l b o rsm; ES h t j c m; t zlt pnt rsm; t m; azmjy Ell f  
ygon f

t zlt pnt \ acj faqmi r l w l f obmOywDefusi qll & m rDg' w p c l u l t p o f t j r l t o d t r s v f y k  
& r n jzplon f obmOywDefusi f jyo emrsm; ES h t zlt pnt t w l f vly faqmi f s u rsm; ull  
aumi f p n e m; v n a o m O e x r f rsm; u x l rDg' ull a&; q l b i b n jzplon f O e x r f t m; v l l o n f  
o a b m w l c r s v l o n h rDg' rsm; ull v u f a w l v l u e m u s i b l l r n b o rsm; jzpl a o m l u m i h rDg' rsm; ull  
ull l w l l u l l u s p r l a &; q l a q m i l u b o rsm; jzpl e f v l l t y y g o n f obmOywDefusi qll & m  
rDg' w p c l u l l a &; q l m w l f j y i f y t l u l a y; y l l w l v p O b ES h O e x r f rsm; t w l w u g vly faqmi l apjci f jz i h  
O e x r f rsm; \ q e f o p a o m t, l t q rsm;? t a w l t l u l E S f t " l j y o e m rsm; u l l a z a z m l x k w E l l a o m  
p l f a q m i l n l w l l u l l & n j c i f t u l l x l rsm; jzpl ay: ap Ell ygon f

obmO  
ywDefusi iul &m  
rDg' wpcck  
jzpay: vm&ef  
t wul  
t ohyEli f  
onhvuawb  
u aom  
t buOPf  
aumi frm;

rDg' uil t zlt pnf ES h uulnrl&h t mi f jyklyxm; yg/  
rDg' xlwif yg&onhObwnbsuirsm; onf t zlt pnf \ vly&h; rsm; ES h pyqll fr&&rnjzponf/  
Obwnbsuirsm; onf vuawbu&rn? &&h t mi ptfagmi Eli haom t &mrsm; jzp&rn/  
Oex rfrm; t m; x rDg' uil zwv&ef vluEmusi bkl&ef t m; ay; wluwef&rnjzponf/  
rDg' uil v& i f w&S fjzpa t mi f a&; om; xm; yg/ (Oyrm- pmrsuEh wpfisuEh olr [ kwf EpsruEh  
pmcefa&; om; yg)  
Aefpum; t ohyjci f uil a&h i Munlyg/  
rDg' uil Oex rfrm; jri law Eli haom ae&mwif xm; &lyg/  
t u, li t cllaom Oex rfrm; onf t zlt pnf wif t "u t ohyhaom bompum; uil rwwf  
ulrtygu? (xblwll wwuif raom) a' oclbompum; jzi h x rDg' uil bmonjyelay; yg/  
rDg' uil taumif t xnazm Eli &ef Oex rfrm; t m; t m; ay; wluweflyg/  
t u, li acgi faqmi frm; u rDg' uil twnjykvuif swa&; x hlyb t m; ay; ygu Oex rfrm; uvnf  
ylf t av; xm; vluEmusi bklvifrnjzponf/  
acgi faqmi frm; onf t cllaom Obwnbsuirsm; uil t jreql t aumif t xnazmjci t jzi h Oex r  
frm; t wul ylbuaaumi frm; jzp&rn/  
t olynmay; t crf t em; rsm; ES h oi lwefrm; jyklyjci t jzi h Oex rfrm; rDg' uil em; vnf  
oabmayguif map&ef ulhlyg/

a, bk s pnf rDf wpcck t aejzi h prDg' xlwif pOqurjywll wuwa&; t wul t olynmay; jci f?  
ygO i vly&h; apici f ES h Oex rfrm; uil obmOywDefusi iul &m oi lwefrm; ylb&ef uwjylyay; qyrfrm;  
yg&&rn/ xlyi frDg' xlwif jreql ephajz&S f vlyfaqmi entfrm; (Oyrm- yElyx kwaO&mwif pmrsuEh  
Epszupv uil t ohyjci f) ES h t budrm; qll ubjcm; wll wuif lull jzpay: apaom a&&hnt uil jzpx&ef  
aprn h ajz&S f vlyfaqmi entfrm; (Oyrm- av, mOlc&dpOfrm; uil av thc jci f? oplyi frm; plulyd jci f  
ponf) uil aygi tpyf ygoi faoi tonf

obmOywDefusi iul &m erlem rDg' wpcck

ulh jci f ES h arthvi jci f [ k t r n ay; p w i u t y l a z m i x m; a o m z b z l w l w u a &; t z l t p n f w p c k \ y w D e f  
u s i i u l & m e r l e m r D g ' w p c k u l l a t m u i w i f a z m j y x m; y g o n f

ulh jci f ES h  
arthvi jci f  
t zlt pnf \  
obmO  
ywDefusi f  
qll &m  
rDg'

t ajccht allumi f t & i f - zeqifxm; aom t & mcybort uil b&m; oci lyll i qll allumi f ES h , Munbolt m; vll  
onf b&m; oci N rsm; jym; t h o z G faumifaom zeqifxm; onh t &mrsm; t ay: aus Zt wi &rn jzpf  
allumi f ES h t em\*wi rll quobprsm; wnlwheap&ef obmOywDefusi iul Munhlapmi ba&h u&rn f jzpf  
allumi f wll ulh jci f ES h arthvi jci f t zlt pnf u , Munlvubckm; ygon/  
Oex rfrm; t m; oi lweyly jci f ES h oi Mum; ay; jci f - ulh jci f ES h arthvi jci f t zlt pnf onf obmO  
ywDefusi jyó em rsm; uil Oex rft t m; vll em; vnl abmaygu & e ES h a&&hwnwbl jra&; uil  
uil lwf; f ajz&S f Eli fa p&ef t m; ay; ulh rni [ Decl ygon/  
vixkt Mum; vlyfaqmi fr- ulh jci f ES h arthvi jci f t zlt pnf onf p h l u e f t m; v l w i f o b m O y w D e f u s i f  
a&&hwnwbl jra&; t ult n ay; aom vlt rsm; ES h y t aygi faqmi & l u y g r n f / ulh jci f ES h arthvi jci f  
t zlt pnf ES h u l w i f v l y f a q m i b e a o m t o i f a w m i r s m; u i l o b m O y w D e f u s i f \* 1 / 2 j y j c i f E S h x e f o r t f a p m i h  
a&h u j c i f w l t w l u f t x t o w j y j c i f r s m; u i l t e n f q l w p E p i 2 b u i r b e l y k v y & e f t m; a y; y g r n f  
c&Doh; jci f - ulh jci f ES h arthvi jci f t zlt pnf onf c&Doh; &mwif n p n r r l u l t e n f q l j z p a p a o m  
e n f v r f r s m; - O y r m ? v r f a v t h u j c i f ? p u l b o p j c i f ? t r s m; o h o , f , y l h a q m i b a &; , m O r s m; u i l t o h y j c i f E S h  
u m; ? a v a l l u m i i j z i h c & D o h ; v m j c i f w l u l t a v s m e n f q l j z p a t m i f j y k u s i b e f O e x r f r s m; t m; t m; a y; w l u f  
w e f y g r n f

½t w0 f usi l0aom tavlt xrm;- ulhJci fES h ar0mvi Jci f t zlt pnt onf ½t w0 f & p f t i f  
 tohlyJci f txtojzi h ty l' mway; jci f? r0x0fjci f? av0i favx0aumi fat mif jykvlyJci fES h ½koll  
 ypinfrsm; ul t av; xm; x0f0r0f0h; rnjzpon/ aom ub0a& rsm; ul t ut & p0? \*½jykolp0ygrn/ xlyi f  
 jyfyntrp0f t i frsm; tohlyJci f u l t m; ay; ygrn/

t rlufrsm; ul p0hlyJci f- ulhJci fES h ar0mvi Jci f t zlt pnt onf wwEil bor0 t rlufrsm; ul avsmen f  
 apjci f? jyelvnit ohyJci fES h entynmji jyex0 ft ohyJci f wLul aqmi ½u&ef qhJzwlyjzpon/

x0b0j&mw0i pulit pter sm;? obtrsm;? yvw0pwpES h p0 frsm; ul entynmji h jyex0 ft ohyJci f  
 wlyg0i ygon/ t zlt pnt0vnf t rlufrsm; jzpay; rlu avsmen fat mif aqmi ½u0ygrn/ x0p0r0  
 csufrsm; ul t a t mi jri Eil 0ap&eft wul obm0entjzi h t v0 lwuraqjrm Eil 0aom yvw0pwpES h yvw0  
 pwp0zmjzlw0zi h jykvlyx m; aom t olt aqmi ypinfrsm; ul 0, f, Jci fES h tohlyJci f wLul a&&hni lunf  
 &rnjzpon/

pulES h pma&; u&d mypinfrsm; ul p0hlyJci f- ulhJci fES h ar0mvi Jci f t zlt pnt onf wwEil bor0  
 ypinfa [ mi frsm; ul entynmji jyelvnw0k0 txkwlyx m; aom ½koll ypinfES h pma&; u&d mwLul &haz0  
 tohlyJci f? obmOywDefusi lqll & m tcsuft vufrsm; tay; xn0b0f0k0oyjykvlyx m; aom u0fjylwm  
 yElypuf rsm; ES h yElyr i frsm; ulvnf tohlyk0h; rnjzpon/ pm&uft ohyJci f wLul w0fwmp0aq; ly0?  
 tohlyJci f aom ta&t wufrsm; av0mcs&ef qufvubaqmi ½u0rn/ puluul entynmji jyex0 f  
 jykvlyx m; aom ypinfrsm; tohlyJci f u l v0 t m; ay; 0h; rn/ wwEil bor0 pm½u0rsm; ul tohlyJci f owi f  
 yJci f x ui t0vux a&meppepzi h owi f yJci f u l usi b0k0h; rnjzpon/

0, f, Jci fES h u0e00; Jci f- ulhJci fES h ar0mvi Jci f t zlt pnt \ 0, f, h&; aqmi &u0csufrsm; w0f obm0  
 ywDefusi lqll & m tcsuft vufrsm; ul t jrlwrf xn0b0f0p0fpm; xm; oi lygon/ p&w0pu0e0usru  
 ta&; bu0aom0vnf obmOywDefusi lqll & m aumi faom tavlt xES h a&&hwnwvll jrhwLul  
 tav; xm; aqmi &u0aom a' ow0 f a&mi fcsufrsm; ul 00pm; ay; &rnjzpon/

r0g' ul p0hlyJci fES h apmi lunp0aq; jci f- t zlt pnt onf E0p0mly&h; r0qll & m t p0t p0f  
 a&; q0eES h t p0; i c0eft wul 0e0r0fw0p00 t m; t c0elyl f obmOywDefusi lqll & m t & m&lvp00 t jzpl  
 wm0e0ay; t ym0r0n jzpon/

obmOywDefusi lqll & m pm&i fppjci f- ulhJci fES h ar0mvi Jci f t zlt pnt onf wpE0lvp0ur f obm0  
 ywDefusi lqll & m pm&i fppjci f u l t jynit 0jykvlyly0? &&vmaom tajzrsm; ul t jcm; 0rsm; v0 fup0h  
 jri 0awEil 0ap&ef aqmi ½u0x m; rnjzpon/

4. 6 Oe0rfrsm; ul wLul fus p0h0aqmi ½u0rhu l t m; ay; wLulw0fjci f

tu, li t zlt pnt onf bu0rm; aom t zlt pnt wpcjzplygu 0e0rfrsm; r0g' ul wLul0emusi h  
 0h&; t wul t m; ay; wLulw0f&ef Xmet0p00r s ul pm; v s frsm; ul p0nfac; aqmi Eil ygon/

x0b0w0n0f y0f0aw0qly0 w0wuirES h tav; xm; &rn h tcsuft vult oprsm; tay; aq0aE0  
 &rnjzpon/ x0b0w0n0f 0Pp0r ya [ vly0 ly0 t jcm; ly0 ly0 rsm; ES h tcsuft vufrsm; ul a0i s  
 y0n0wLul y0f0usi tyay; jci fji h 0e0rfrsm; r0g' ul ow&rs w0p0ef p00ay; Eil bon/ ob  
 0e0ly0aqmi csuf t a lumi f t & m rsm; ul 0e0rfrsm; ow&ap&ef qll f0w0rsm;? y0pwmrsm; ES h  
 umw0f rsm; ul csw0q0x m; Eil ygon/

0i f t zlonf wp0ur0wnjzi b00a&mu0aom y0rsm; 0yrm- ½hajru0u0y0rsm; 0h [ kw0 t rsm; y0 f  
 ajru0u0y0rsm; w0f0p00y0i frsm; p0ly0&ef aev, ly0fw0p00ul t ohyJci f 0h [ kw0 t & i f t jrp  
 rsm; x0f0r0f0apmi h&h0u0a&; t wul taumi f qll t bu00P0ay; Eil 0aom 0h [ kw0 t o i f t zlt m;  
 q0ay; jci f ponwLul usi jykvlyEil ygon/

taumi f xn0azmx m; aom r0g' ul obmOywDefusi lqll & m p0aq; r0w0p0kt ae0zi h t wnfyl  
 ow0r0w0x m; aom &n0r0fcsufrsm; ES h Eil f, 0ly0? \*½kw0p0ul apmi lun0av0m&rn? y0f0jyelvn  
 0h0y&rnjzpon/

### 4. 7 obmOywDefusi lqll &m ppaaq;rlwpcck

obmOywDefusi lqll &m rDg' xlwif t zft pnf rsm; taejzi h obmOywDefusi lqll &m ppaaq;  
rlwpcck ylf jkly&ef vlt ybnul xnbog f x m; &rnjzplon/ obmOywDefusi lqll &m ppaaq;  
rlnf ywDefusi ft ay: xclulapn rsm; avsnlenfapon h t zft pnf\  
ul wlf w mazm jyg on/ xlyi f ppr f aom? jyn p aom? t "yij, &aom owi f t csuft vuirsm; ul  
ppntjci f wlyg oi f ygon/ yxrt but f obmOywDefusi lqll &m ppaaq; rlu l r nlon l w l w u l r t m;  
a&&quif w l f w m & r n f l aom t ajccl w p c k a & ; q & m w l f t o h j y e l l y g o n /

obmOywDefusi lqll &m ppaaq; rlu l Oe x r f r s m ; o l r [ l w i o b j c m ; p p a a q ; o l w p o u v l y a q m i f  
E l l y g o n / t j c m ; e n f v r f w p c k r n t z f t p n f E p c l o n i w p z e s f w p z e l t j y e f t v e f p p a a q ; j c i f  
j y k l y & e f o a b m w e l l y b ? & a o m t a j z u l t w w u l j y e v n b o y e l l y g o n / x b l y k l y j c i f o n i  
o i f , l r t q i l u l j r s l w i l a p y g o n / x b l y k l y j c i f u l l v l y a z m l u l l z u f t c s i f c s i f j y e v n b o y j c i f }  
(Peer review) [ l v n f a c : q l y g o n /

t r s m ; p a o m t z f t p n f r s m ; t w l u f t j c m ; r s w l w r f r s m ; \ a e m u l q l w l w u r h t a j c t a e u l l a z m j y  
& a o m t c e f z p o n h b @ m a & ; E p c l o n i f o n i o b m O y w D e f u s i l q l l & m p p a a q ; r j y k l y & e f t  
a u m i f q l t c e f j z p l y g o n / w l l f w m r l t r s m ; p l u l E p f t v l u f p p a a q ; j c i f o n i t a u m i f q l j z p l o n /  
o l r s o m 1/2 h y w & u l u m v r s m ; E s h & m o d t v l u f y l f e s m o d w l a j y m i f v l y l ( t y a y ; p e p l a v a t ; p u E s h  
t j c m ; t o h j y l a o m p f t i y r m P u l l x c l u l a p e l l o n h t & m ) w l b n l w l f w m r l r s m ; t a y : u h [ r l  
r s m ; p h r j z p a p e l l f a c s / w l l f w m r l t r s m ; p l o n i O y r m - v l y p p r l w m z w l y l o h p c l a o m , l e p r s m ; u l r s w l  
w r l w i j c i f ? O e x r f r s m ; \ c & d p O r s m ; w l f o h ; c l a o m r l l f a y g i f E s h p m 1/2 u l p m t d w l t o h j y l a o m  
y r m P o n i w l u l w l u l 1/2 l u l p m & i f a u m u e l l y g o n i ( p p a a q ; r l u l v l g l u a p & e f x l t & m w l u l v p O i  
r s w l w r f w i & r n j z p l o n i ) / w p c g w p & H O e x r f r s m ; t a y : p p l w r f a u m u l , j c i f ( O y r m - O e x r f r s m ;  
t v l y o l l r n l u b o l v m a & m u b o n i u l p p l w r f & , j c i f ) u l p p a a q ; r l \ t p l w f t y l f w p c k t j z p l  
y g o i f x n b o g f & e f v l t y l y g o n / w l l f w m & r n l i t c s u r s m ; r & E l l a o m t c g t a j c t a e q i l w a o m  
t c s u f t v u l b o n h t j c m ; t z f t p n f r s m ; \ t w l f t w m r s m ; u l t a j c c l y o c e l f e j y k l y e l l y g o n /  
x l t c g r s w l w r f r s m ; x m ; & j c i f t a v l t x t o p r s m ; u l v m r n E p f t w l u f a & ; q e l l r n i j z p l o n /  
p p a a q ; r l w p c e s h w p c k t l u m ; w l f t w l f t w m e n f v r f r s m ; u l y l f e f r a j y m i f v l o l t o h j y & e f t a &;  
B u l y g o n / o l r s o m w l w u r l u l r e l u e p h a p m i l u n l a v l m e l l r n j z p l o n /

p p a a q ; j c i f u l l p w i j y k l y a o m t c g p p a a q ; r l a q m i 1/2 l u l y l r s m ; E s h v l t y a o m t & m r s m ; u l l & s f j y & e f  
O e x r f t m ; v l E s h t w l t p n f t a o ; w p c k j y k l y & r n i j z p l o n i / p p a a q ; j c i f j y k l y & o n h t a l l u m i f  
& i f r s m ; u l l t a v ; x m ; & s f j y y g / o l r s o m O e x r f r s m ; v n f O r f a j r m u p h y g o i f y l y & s ; v m l u r n ?  
p p a a q ; j c i f o n f w p o b w p a , m u l o l r [ l w i t o i f t z l w p c c l u l t & s u & a p & e l o l r [ l w i t j y p a y ; & e f  
r [ l w a l l u m i f u l l v n f e m ; v n b o a b m a y g u l v m l u r n j z p l o n /

a t m u l w l f a z m j y x m ; a o m Z , m ; w l f r l v m z w j c i f E s h p e l y p y p i n f r s m ; \ y r m P E s h y w l o u l y l o  
r n l o n h t & m u l x n b o g f & r n l t a l l u m i f a z m j y x m ; y g o n / ( p m r s u E s h - 9 4 w l f r l v l u t , E l l a o m  
t v l y p l w p c k y g & y g o n i ) / p p l a y g i f & v ' l u l l a & w l u & m w l f ( t x t o j z i h O e x r f t a j r m u f t r s m ;  
y g o i f y g u ) o w i f t c s u l t v u i r s m ; u l l \* 1/2 w p l u l p p n t j c i f E s h p p a a q ; j c i f w l l j y k l y & r n j z p l o n /  
y x r t b u t f p p a a q ; & m w l f t c e l l u m j r i e l l y g o n / o l a o m i ( t x t o j z i h o w i f t c s u f t v u i r s m ; r s w l  
w r l w i j c i f o n i 1/2 \ y l f e f t a v l t x w p & y l j z p l v m a o m t c g ) a e m u l q u l w l p p a a q ; r l r s m ; t w l u f  
x l b w i f t c s u f t v u i r s m ; u l l p p n t j c i f o n i y l l j r e l q e l v m r n j z p l o n ?

w l l f w m r l w p c p l w l f v m r n E p f t w l u f & n r f e f c s u l w p c p l x m ; & r n j z p l o n / p p a a q ; r l r s m ; l y l o  
a j r m u a o m t c g w l l w u i r s m ; & s r & s o & e l l & e s h & n r f e f c s u r s m ; j y n D r & s r & s o & e l l & e l v e c h  
a o m E p l u w l l f w m r l r s m ; E s h E l l f , D l u n l y g / & n r f e f c s u l r j y n l r a o m & v ' r s m ; u l l a j z & s f & e f t w l u f  
B u l y r f t m ; x l w i r s m ; j y k l y & e f v l t y l y g o n /

o b m 0 y w D e f u s i f q l l & m p p a q ; c s u f e r l e m

Z, m;- 1  
t y l l f - ( u )  
o b m 0  
y w D e f u s i f  
q l l & m  
a j c & m

t & i f t j r p r m ;	w p E p f t w i f t o l j y l a o m y r m P	w p E p f t w i f a & s h w n l w t i l j r p h o t p k m ; a o m y r m P	w p E p f t w i f a v t h e s & r n h & n f e f c s u f
( r e f p n l y i f y l u r s w p l q i ) a & y l u f a c j i f r s a &	v l v m		5%
a & o e l b t	v l v m		10%
p u l i	t 1/2 l u f 500 y g t x l y f		10%
t j c m ; p m a & ; u & d m r s m ;			10%
t p m ; t p m	w e f		10%
t j c m ;			

e n f y n m j z i f j y e l x i f t o l j y l e l i f a t m i f j y l v l y j c i f	w p E p f t w i f w e b e l y r m P	e n f y n m j z i f j y e l x i f t o l j y l x m ; a o m y r m P o l l [ w i %	e n f y n m j z i f j y e l x i f t o l j y l v l y j e f t w l u f E p p 0 & n f e f c s u f
p u l i			25% w l j r i f v m
u w f x j y m ;			15% w l j r i f v m
y v w p w p l			8% w l j r i f v m
z e f			5% w l j r i f v m
e n f y n m j z i f j y e l x i f t o l j r j y l e l i f a o m t & m r s m ;			5% a v t h e n f v m e n f y n m j z i f j y e l x i f t o l j r j y l e l i f a o m p e l y p f t r l u r s m ;

Z, m;- 1 t y l l f -  
( c ) u m A e f a j c & m

p p a q ; r l ' k w d t y l l f w i f t z t p n f \ p e f t i f t o l j y l r E S h c & d o h ; v m r w l u m i h j z p l a y ; v m a o m  
u m A e f l i f a t m u l q l E S h n r b a o m y r m P t w i f t w m u l l u n t o l h o y l x m ; y g o n l / ( p m r s u E h - 95  
w l f r l w l u t , E l l f a o m t v l v l y p l w p c k y g & y g o n l )

a t m u l y g  
w l u q c s u r s m ; o n i  
2009 c E p l r w l v w i  
r e l u e p h j y l v l y x m ; l y l  
2008 c E p l " G u i d e l i n e s t o  
D e f r a ' s G H G C o n v e r s i o n  
F a c t o r s " r s a u m u E w i  
x m j c i t j z p y g o n l /  
a t m u l y g Z , m ; u l l j z n h  
p l u b n f t c y w i f o i E l l i h  
t w l u f a e m u l q l w l u q  
c s u r s m ; u l l a u s Z l j y l y l  
p p a q ; a y ; y l /

a v m i p m q l	w p E p f t w i f a v m i p m q l t o l j y l r y r m P	u m A e f l i f a t m u l q l E S h n r b a o m y r m P u l l u m l i f & r l a j y m i f v l e f a t m u l y g * P e l j z i h a j r h u l y g	x l w l v l w o n h u m A e f l i f a t m u l q l E S h n r b a o m p p l a y g i f y r m P u l l u m l i f & r j z i h a w l l j c i f
r e f v l l r s v l y p p e f t i f a y ; y l c i f ( k W h )	k W h	0.537	
x l x n r l v m " m w l a i 0 ( i n c u b i c m e t r e s )	C u M	2.2	
y l v i f j z i h x l w l v l y a o m " m w l a i 0	v l v m	1.495	
v l v m j z i h r d p u l r s ' E , l q d o l l q f ( 1 * y v # 4.546 v l v m )	v l v m	2.63	
a e a & m i e j y m ; r s m ; ? a v o l l [ w i a & & [ w p o n h j y e j y n j r l p e f t i r s & s a z i t o l j y l c i f	( r & d )		( r & d )

, m O f r m ;	o b n ; a & m u c h a o m c & d t u h t a o ;	u m A e f i i h a t m u q l l f E s h n r l a o m y r m P u l l u l m i t * r f j y m i f v & e f a t m u l y g * P e f j z i h a j r f u l y g /	x l w v w o n h i u m A e f ' i i h a t m u q l l E s h n r l a o m p p l a y g i f y r m P u l l u l m i t * r f j z i h a w l & j c i f
a r m l a w m i q l l i u , f t a o ; (50 to 125cc engine)	u l m i t l w m	0. 073	
" m w l q b l h a r m l a w m i , m O f t a o ; (up to 1.4 litre engine)	u l m i t l w m	0. 1809	
a r m l a w m i q l l i u , f t v w f (125 to 500cc)	u l m i t l w m	0. 0939	
" m w l q b l h a r m l a w m i , m O f t v w f	u l m i t l w m	0. 2139	
a r m l a w m i q l l i u , f t B u d (500cc engine and above)	u l m i t l w m	0. 1286	
" m w l q b l h a r m l a w m i u m ; B u d (o l l a v ; b d ) , u i , m O f	u l m i t l w m	0. 2958	
' l z , l q b l h a r m l a w m i u m ; t a o ; (up to 2.0 litre engine)	u l m i t l w m	0. 1513	
' l z , l q b l h a r m l a w m i u m ; t B u d (over 2.0 litre engine)	u l m i t l w m	0. 2580	
t r m ; o l l y a q m i f u o l o g ; h a ;	o b n ; a & m u c h a o m c & d t u h t a o ;	u m A e f i i h a t m u q l l f E s h n r l a o m y r m P u l l u l m i t * r f j y m i f v & e f a t m u l y g * P e f j z i h a j r f u l y g	
r b & x m ; j z i h c & d o b n ; j c i f	u l m i t l w m	0. 06	
u m ; j z i h c & d o b n ; j c i f	u l m i t l w m	0. 1073	
t a o ; a j y ; b w p i u m ; (o l l Z h c l b w p i u m ;	u l m i t l w m	0. 029	
a v , m O l y j z i h c & d o b n ; v m j c i f (o b n ; a & m u a o m c & d t u h t a o ; o n i w l u t s u e l c u c b n i t w l u f p l e i f a o m t c e b e m & d r m ; j z i h t p m ; x l w l u b s u r n j z p l o n )	a v , m O p l e i f o n h i t c e b e m & d	a t m u l y g * P e f j z i h a j r f u l y g	x l w v w o n h i u m A e f ' i i h a t m u q l l E s h n r l a o m p p l a y g i f y r m P u l l u l m i t * r f j z i h a w l & j c i f
p l e i f c h a o m a v , m O t c & d p O f p p l a y g i f u l l p l e i f c h a o m t c e b e m & d r m ; j z i h w l u t s u e l l y g o n f	e m & d	250	
x l w v w o n h i u a o m u m A e f i i h a t m u q l l E s h n r l a o m y r m P u l l u l m i t * r f j z i h t z l t p n f w p c k l i t w l u f p p l a y g i f w l u t s u f l			

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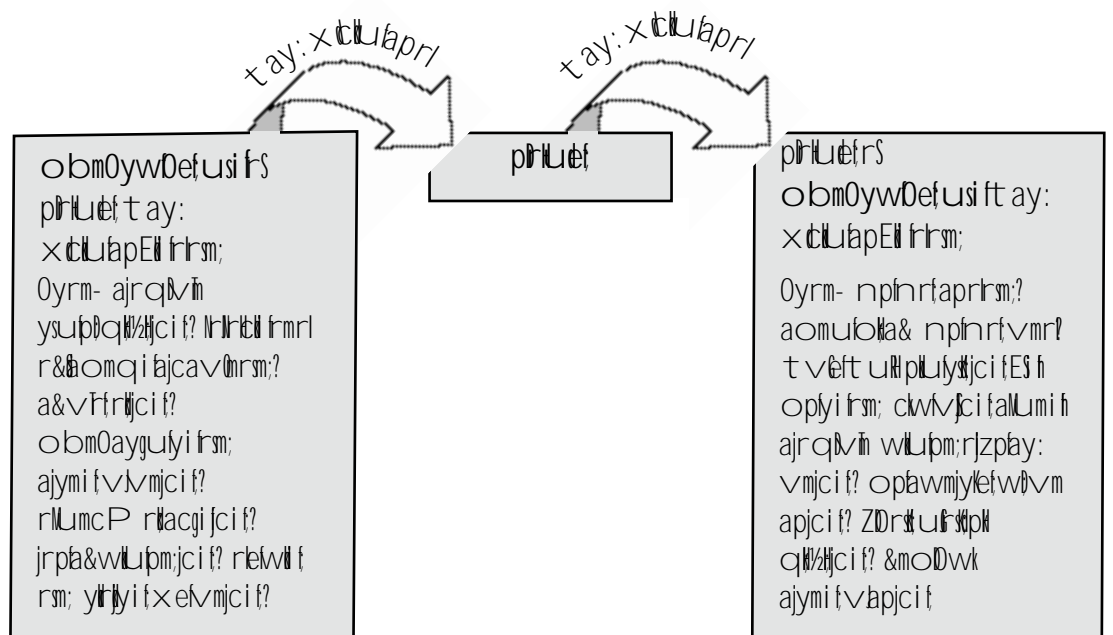
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pñluef t wñl t pñt pñrsm; t q i q i h a&; q p O wñ f o b m O y w D e f u s i f t a y : x c l u a p Eñ f r s m ; uñ O pññ p O f p m ; oñ o y x m ; & e f t a &; b u t y g o n / u E y wñ v l y i e f r s m ; wñ f o b m O y w D e f u s i f q l l & m a &&ñwñwñl j r a p r l u l x n b o f oñ o y x m ; j c i f r & b j i h j z p a y : v m Eñ b o n h t u s t q u i w c d u l a t m u z , m ; u l u wñ f a z m f y x m ; y g o n /

<p>pñluefsm; wñ f o b m O y w D e f u s i f q l l &amp; m a &amp;&amp;ñwñwñl j r a p r l u l x n b o f oñ o y x m ; j c i f r j y l o j z i h &amp;&amp; v m Eñ b o n h t u s t q u i r s m ;</p>	<p>yñ D y r m s m ;</p>
<p>pñluefsm; onf o b m O y w D e f u s i f q l l &amp; m t &amp; i f t j r p r s m ; uñ x c l u f z s u l q p Eñ f a o m a l l u m i h a ' o c h v r s m ; uñ x c l u e p e m a p Eñ f y g o n /</p>	<p>v u o r m ; t w w l y n m o i f w e f p ñ l u e f w p c k o n f a j r q l m ñ t &amp; n f t a o f u l x c l u a p Eñ f a o m ? a ' o c h a u m u y b ð E f r s m ; q ñ ñ r l u l j z p a y : a p Eñ f a o m a ' o wñ f o p a w m r s m ; j y l e f w ñ a p r l u l t m ; a y ; &amp; m a &amp; m u Eñ f y g o n /</p> <p>rñ v m o e p i j c i f p ñ l u e f w p c b o n f e m r u s e f r r s m ; uñ w l y ð ; a p Eñ f a o m a o m u a &amp; n p ñ r f v m r l u l j z p a y : a p Eñ f y g o n /</p>
<p>pñluefsm; onf a ' o c h r s m ; t a y : o b m O a b ; t E &amp; m , f r s m ; yñ u s a &amp; m u a p Eñ f y g o n /</p>	<p>pñ l u y ñ a &amp;; t w ñ l o b m O a y g u y i f r s m ; a y g u f a &amp; m u &amp; m u s , j y e b o m a j r a e &amp; m r s m ; uñ &amp; s f v i f j c i f o n f a j r q l m ñ w l u p m ; r ? a &amp; o b &amp; m v n f y w r l u l t a Eñ i f i t , ñ f j z p a p j c i f ? rñ a c j i c i f p o n f w l u l w l y ð ; a p Eñ f y g o n /</p> <p>i g ; z r f v l y i e f r s m ; t w ñ l ' ð a w m y i f r s m ; &amp; s f v i f j c i f o n f v x k t m ; a &amp; v f r ñ r E s h y i v , l u r f a j c r e f wñ f r s m ; uñ l u l a wñ c p m ; a p Eñ f y g o n /</p>
<p>t u , f i a ' o c h r s m ; uñ ' l u ð y ; a e a o m o b m O y w D e f u s i f q l l &amp; m j y ó e m r s m ; uñ a j z &amp; s t a y ; j c i f r j y l y g u p ñ l u e f \ v l y &amp; ñ ; r r s m ; o n f r o i l a v s m a o m ? x ð &amp; m u i r r &amp; ð o m v l y &amp; ñ ; r r s m ; o m j z p l v m Eñ f y g o n /</p>	<p>y n m a &amp;; q l l &amp; m p ñ l u e f w p c k wñ f u a v ; o l i , f r s m ; o n f rñ a c j i f o n l u m v r s m ; wñ f a o m u b o l a &amp; &amp; , &amp; e f yñ a O ; uñ a o m a e &amp; m r s m ; oñ v r f a v ð u f oñ ; j c i f a l l u m i h a u s m i f w u j c i f uñ &amp; y l q l f v l u f Eñ f y g o n /</p> <p>HIV pñ l u e f w p c b o n f a ' o wñ f a j r q l r s m ; y s u f o ð f v m j c i f E s h o x l u E e f r s m ; n ð s i f v m j c i f w ñ l u m i h x p ñ l u e f u u l n a y ; o n f v l e m r s m ; t m [ m &amp; c d l v j c i f a O ' e m r s m ; c p m ; a e &amp; o n l u l j r i l a w ð r n j z p l o n /</p>
<p>o b m O y w D e f u s i f q l l &amp; m j y ó e m r s m ; o n f p ñ l u e f r s m ; \ v l y &amp; ñ ; r r s m ; uñ x c l u b e a o m a l l u m i h p ñ l u e f r s m ; o n f l y j y n p Eñ f r n f r [ l w a c s o r [ l w f a &amp;&amp;ñwñwñl j r a p a o m a j y m i f v r l u l j z p a y : a p Eñ f r n f r [ l w a c /</p>	<p>p ñ l u e f \ t p wñ t yñ f w p c k t a e j z i h w n a q m u f x m ; a o m t a q m u f t O ð r s m ; uñ a &amp; v f r ñ r l o r [ l w f ð r s m ; a c m u s r r s m ; u z s u l q p Eñ f y g o n /</p> <p>a j r a t m u a &amp; n p ñ r f ; r l u l j z p a y : a p a o m " m w l a j r l o z m r s m ; E s h yñ o w l a q ; r s m ; a l l u m i h a &amp; wñ f t o p r s m ; n p ñ r f y s u p ð oñ ; Eñ f y g o n /</p>
<p>t u , f i v u ð p ñ l u e f ' ð l f wñ f o b m O y w D e f u s i f q l l &amp; m j y ó e m r s m ; uñ x n b o f oñ o y x m ; j c i f r j y l y g u p ñ l u e f t w ñ l u e l e u s p &amp; w r s m ; uñ w l y ð ; a p Eñ f y g o n / t b , l a l l u m i f q l a o m f v l y i e f q u l v u i v n y w Eñ f a p &amp; e f t w ñ l v l y &amp; ñ ; r l t o p r s m ; uñ v l y a q m i &amp; e f v l t y f v m Eñ f a o m a l l u m i h j z p l o n /</p>	<p>HIV p ñ l u e f w p c k wñ f r l o n f x e p ñ &amp; ñ o e f c a l u [ i f o ð [ i f ð u l c h r s m ; a &amp; v f r ñ j c i f c ð a o m a l l u m i h t m [ m &amp; q l l &amp; m a x m u f y r r s m ; uñ p ñ l u e f \ v l e m r s m ; v l t y a e a l l u m i f a w l j r i Eñ f y g o n /</p>

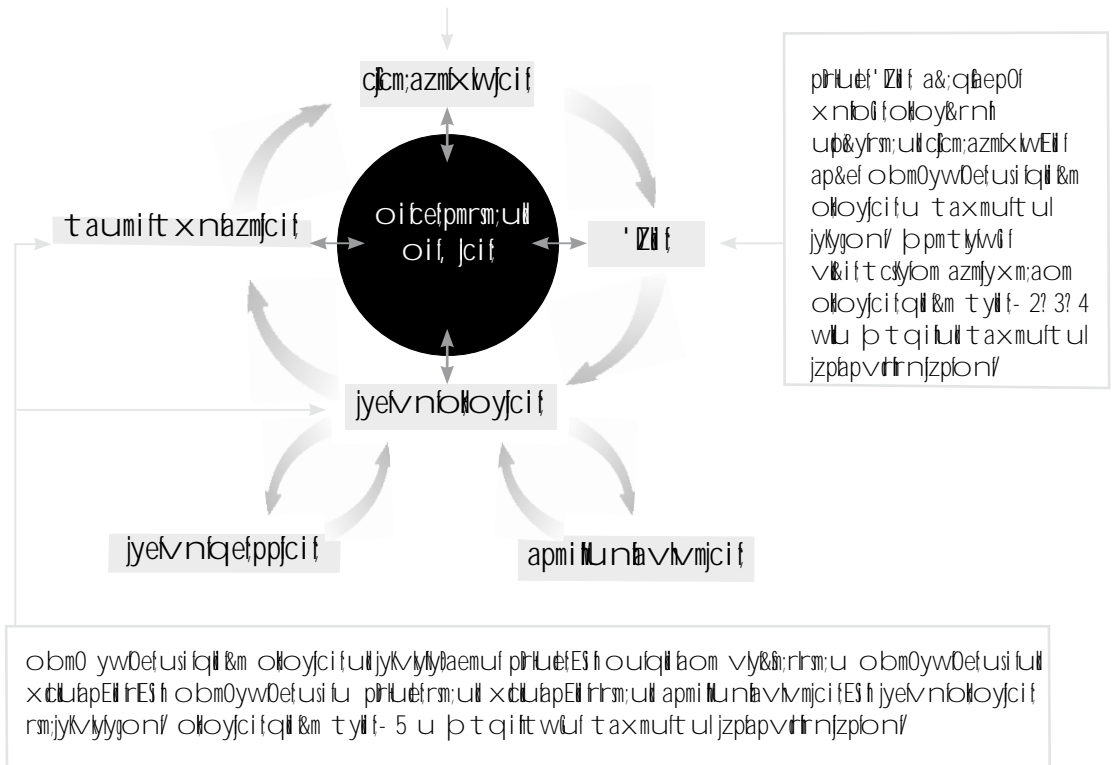


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Caroline Kassell Tearfund

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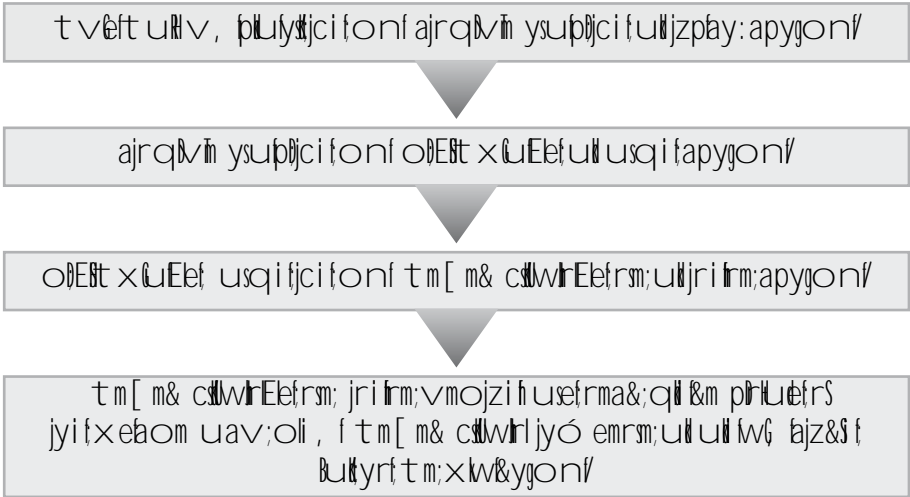
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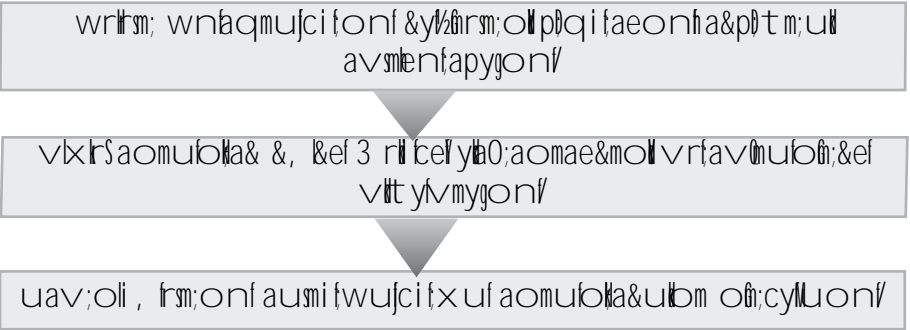
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vmatmif p& rfaqmi lay; jci f wll vlyaqmi lay; onl obmOywDefusi f t& if tjrprsm; ull  
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yrmPonl t& if tjrprsm; rswpckl wll f jyelvnjznlnqnt Ell faom yrmP twll f jzplumi f  
aocsmr& ap&ef SRM u p& rfaqmi lay; ygon/ Oyrm- a& uelwll wll f a&&hwnwll jrap  
aom entvrtjzi h ig; rln; jci f wll f zrl, mlubnl ig; yrmP ull jyelvnl jznlnqnt Ell laponh  
ig; owDgrsm; rlyln; Ell frull r ysuba paom entvrtsm; zelwll x m; & f wll ygoi lonl/

t& if tjrprsm; ull a&&hwnwll jrap&ef piluetyulbnl t m; xllwll rsm; onl r& quf wll quf  
lywll wll quf zllzll wll wll wll wll wll? trsm; t m; jzi h rsm; p& aom vlxrsm; twll f xllt m; xllwllbnl  
xllwll aepOlbou usi lom; & aeaom ½ll& m" avlrsm; jzplvmclluon/ urelywllbnl  
a&&hwnwll jrapaom a' ocillt & if tjrplqil & m piluetyulh t ay: usa& muapell lonl  
urelywll piluetsm; rS xclupell rsm; ull owlyly& rnl jzplonlt jyif jzpell lonl ae& mwll f ü  
xllt avllt x rsm; ull umuG faxmuyl& rnl jzplonl/

a'owll fobmO t&iftjrpfctlltay: phtudef \ vly&sh; rsm; rS xcllupEll laom enfvrfytl  
Oyrm tcllullatmulwll f azmfyxm; ygon/ a&&shwlnwll jrrh&Bnht vly&aqmi csurfsm; jzplap  
jci f olr [ kwf vly&sh; rsm; ull a&&shwlnwll jrap&ef olr [ kwf aumi f u&v' f rsm; ay: xlu f  
vmap&ef jyklyEll ygon/ a&&shwlnwll jrbnht vly&aqmi csurfsm; jzplvmap&ef olr [ kwf  
aumi f u&v' f rsm; ay: xlu f vmap&ef jykly&mwll f t ent f i , lom jyllyi vluEll &ef vltt yallumi f ull  
owlylyy/

vly&sh; rsm;	a&&shwlnwll cll jrrh&Bapaom vly&aqmi csurfsm;	a&&shwlnwll cll jrrhapaom vly&aqmi csurfsm;	aumi f u&v' f rsm; jzplay: apjci f
phtudef ae&mu ll &S fvi f jci f	opyi f rsm; ull clwlv jci f	clwlv f laom opyi f rsm; t wlu a' owll f Oefusi f rsm; u jyeft pm; xll phtudefy/	clwlv f laom opyi f t a&t wlu x ui f rsm; aom yrm Pult phtudefy/
rsm; pD, smOf rsm; zllzll wll wulmat mif jykly jci f	[ i f o B [ i f 1/2 u f rsm; &S foef Bulx&h; rlu ll t axmult ul jzplap&ef "mwajr l bZmrsm; ull t olly jci f / xll llt olly jci f onf ajrqv m ES h ajrat mu a& \ t &nft aof ull a&&shu xcllupaygon/	[ i f o B [ i f 1/2 u f rsm; &S foef Bulx&h; rlu ll t axmult ul jzplap&ef op l u la q f u b l laom t &mrsm; jzi h jykly x m; aom obmOajr l bZmrsm; ull t olly jci f /	ajrqv m t &nft aof ull jrs f vi f &ef yyi f rsm; (legumes) ull phtudefy/ t vshus phtudefy/ [ i f o B [ i f 1/2 u f rsm; ES h ajrqv m ull umuG &ef opyi f rsm; olr [ kwf cll awmrsm; ull phtudefy/ xll vly&aqmi jci f onf t jcm; obmOywDefusi f t &ift jrprsm; ull nft t ull jylap rni jzplon/
op rsm; ull O, f, jci f	yO rsm; ull phtudefy u h r&laom opawmrsm; rS &, jci f	yO rsm; ull a&&shwlnwll cll jrapaom t &ift jrprsm; rS &, ly/ olr [ kwf phtudef Oefusi lu t pm; xll opyi f phtudef jci f rsm; jykly ly/	a&&shwlnwll cll jrapaom t mif pht u ly u x m; aom opawmrsm; rS &, laom yO rsm; ull t o h jyl jci f t jyi faem u x y f rsm; pht aom opyi f rsm; ull phtudefy/
Oelx r f rsm; ES h vly f i e f o h ypin f rsm; ull phtudefae&mol l o, f, jci f	o, f, vly&aqmi f rsm; jykly laoma llumi f zev l t t r f "mwai f rsm; ull xll wlv wlv jci f	t f raqmu y p i n f rsm; ull wwEll forO a' ox l u jzplapy/ Oelx r f rsm; ull phtudef t rsm; o h vly&aqmi f qu loG b&; mO rsm; t olly &ef olr [ kwf , mO f w p b l w n f w l l f t w l w u G p l e i f j c i f r s m ; j y k l y & e f t m ; a y ; w l u w e f y y / jzplEll v l l f p h t u d e f a e & m o l l o h ; a & m u j c i f r s m ; u l l uebw x m ; y y /	aumuly b O E f rsm; ull a' ou t pm; t pm ES h w & p i n e f t p m t j z p f t olly lae aom ae&mwll f javv f jyl e f w r h r h phtudef a&; qll &Bm a&&shwlnwll cll jrapaom phtudef w p c i u l l jzplay: vmap&ef phtudef ull w l c d l y y / j y n b o l y l l f b w p l u m ; t o p l u l l a j y ; q l l & m w l l f t olly Ell &ef aumuly b O E f S p l e y p & o n h t y l l f r s m ; u l l Z D ' Z , l q l t j z p l j y k l y l y y /

vly&aqmi &ef



poloy jci f tyll f \ &n l G csurf h obmOywDefusi f t ay: us&mu l apEll bonht phtudef qll &Bm  
vly&sh; rsm; rS xcllupriull olloy&ef jzplon/ w p z u l w l l f a z m f y x m ; a o m o l o y j c i f t y l l f - 3 u l l u t , l y / o l r [ k w f p m r s u E s h 9 6 w l l f  
y g & l a o m t v l y p h t u d e f u l l y / x l l e m u f v u a w l u s a o m r a b m i E S h v u a w l v l y & a q m i f r n h



<p>t vlywll wuf opom; jzi h jykvlyxm; aom ypinfrsm; ull 0, f, jci f</p>	<p>opom; rsm; t ohyjci fonf (t u, fi opawmrsm; ull a&amp;&amp;hwnwll jrapaom entvrtfzi h phtudefrsm; jci f r&amp;&amp;vll) a' ochlopawm usqifrlull jzpay: apEli ygonf</p>
<p>vli, f 10 00 t m; vuborm; qll &amp;m twwynmull oi fay; jci f</p>	<p>ullrtusi haom vuborm; rsm; wn&amp;hjei fonfa' ochrsm; t m; opom; jzi jykvlyxm; aom ypinfrsm; ull 10, f, lapEli ygonf/ opom; rsm; vllt yrbonfa' ochlpawm t&amp;ift jrprsm; t ay: xclulapEli ygonf [ kwlopawmrsm; \ weztluljri frsm; vm apEli fonf qllvbnfrh opawmrsm; onf yll t u jyl/haom t&amp;mrsm; jzplvmrnjzplonf</p>

t yll f- 4 jykvlyEli bonhoi la vmaom jykrvlyaqmi csufrsm; ull &hazazmxkwlyg/



vlyaqmi &ef

atmulwll fazmjyxm; aom aemucbrll fallumi f ull zwlyg/ xhemul pmrsuEli 67 wllfyg&om  
ohoyjci f t yll f- 4 ull jzntpulyg/

aemucbrll fallumi f

ohoyjci f t yll f- 2 Es h3 onfobmOywDefusi frsuElywll phtudef t ay: xclulapEli haom t "u  
entvrtfrsm; Es h uElywll phtudefrsm obmOywDefusi ft ay: xclulapylwll ulclcm; azmxkwEli lap&ef  
t ult nlay; ygonf ohoyjci f t yll f- 4 wll obmOywDefusi fyli a&&hwnwll jrapaom  
&eft wuf phtudef t ay: jlyli Eli haom entvrtfrsm; ull ohoybon; rnjzplonf

t rsm; t m; jzi hobmOywDefusi ft ay: xclulapnfrsm; ulclcm; azmxkw vmEli fonES fit r0 uElywll  
jykvlyEli haom ajymi f vfrsm; onf ay: vllvmrnjzplonf vlyaqmi haom vlyli efrsm; ull  
jlyli ajymi f v&eft wuf oi la vmaomentvrtfrsm; ull &hazazmxkw&mwll vlxk olr [ kw  
entynmyll f qll &m ynm&s lwpDES fit wloawoejykvlyjci f olr [ kwlaqsaEjci frsm; wpcgwp&h  
vllt yEli ygonf Oyrm-

t ouarfOrtaumsi f phtudef wpcbrs ptyfr; a&; vlyli efrsm; wpcbonf ulecefofr; Eli fonh ab;  
t E&m, Es h&i lqll ha&aom objcm; obm0 t&ift jrplwpcct ay: r&tt m; x m; aeallumi f awll&  
onf t jcm; rnbnt h ptyfr; a&; vlyli efr t r&tt pm; onf yll oi la vmaom fallumi f vlx ES laqg  
aEfwll yi Eli hly? obm0 t&ift jrpl umuG ha&; vlyli efrsm; vlyaqmi Eli fr& r&ulvnt; pOfpm;  
Eli ygonf

pm; ey&ulm plaqmi fa&; phtudef wpcwll fa& vfrtrrl t E&m, frsumuG Eli &ef \*h pyg; oha vni f  
1/2 ull &hwnwll; aom a' guwll frsm; jzi hwnhaqmu&ef qll jz wEli ygonf

ynma&; ES h pma&; ? pmz wqll &m phtudef wpcwll f uElywll phtudef onf obmOywDefusi f  
qll &m t u&&v' haumi frsm; jzpay: ap&ef obmOywDefusi jyó emrsm; ull t xlylavh vmaom  
bmom&yfrsm; ull a 1/2 cs, f oillum; ay; Eli ygonf

phtudef t ay: xclulapaom t&mrsm; ull ull lwG haj&s f&mwll f uElywll bonf jykrvlyaqmi csuf  
toprsm; jykvly&ef vllt yEli ygonf xlykrvlyaqmi csufrsm; ull ab; t E&m, f ull lwG haj&s frl  
qll &m phtudef wpcct jzpl vubawll usonh rabmi fxll xntog fa&; om; Eli fonf Oyrm-

relwll frsm; ES h& vfrtrrsm; ull ulawll wpcpm; &Eli haom ae&mrsm; wll f taqmuft t frsm; \  
wnha&m ES h 1/2 fonf ywDefusi ES h qha vsmrl &fr& wll pOfpm; ohoyEli ygonf  
usefrma&; qll &m phtudef wpcwll f &modwkajymi f vrbalumi h ylyfr; vmEli haom a&m\*grsm; ES h  
usefrma&; jyó emrsm; ull usefrma&; qll &m Oefx rfrsm; t m; oi kwetylcs Eli ygonf

rhaqgi fa&&h; rll t E&m, ES h&i lqll ulawll &Eli haom ae&mrsm; wll f vlx plaO; &mxme wpcct wuf  
rha&plaqmi folavni jci f (ob) a' owl &modwll wll wuf vmap&ef opyfrsm; phtudef jci f  
wll jykvly&ef pOfpm; ohoyEli ygonf

ohoyjci f t yll f- 2 Es h3 wll f qcm; azmjyxm; aom jyó em t m; vll t h wrl; ull lwG f  
aj&s f Eli frnl r [ kwacs/ phtudef \ atmi jri frt ay: t "u xclulapEli bonh jyó emrsm; ull  
azmxkwaj&s f Eli &ef t a&; t bulqll jzpygonf t chES h ulelusp&vfrsm; ulvnt xntog fol  
oylxm; &ef vllt ygonf



vlyaqmi &ef

ofoyjci f tyll f- 2 ES h3 wll jznlpouxm;aom Z, m; uulwvpc olf [ kwf Z, m; uulwvpc; uul jyelvnbofoylyg/ jylrvlyaqmi fcsuf wpcpdt wlu? a t mufygar; cefrsm; ull ar; jrefygy/

- xlylrvlyaqmi fcsufull qulvuf vlyaqmi bolfygovm;/ qulvufvlyaqmi fygu pihuef wpcvluul xdluapEil fygovm;/ xbihuef uul t jcm; wpaemollajymi fa%lEil fygovm;/

- obmOywDefusi N xdlurism; uul a&hni MunEil lap&ef olf [ kwf avsmenlap&eft wlu? jylrvlyaqmi fcsufull jlyi ajymi fv&ef vlt yfygovm;/ t u, li vlt yclvli? rnlubll vlyaqmi &rnfent/

- obmOywDefusi ft ay: t u&v' faumi frsm; jzpay: vmap&eft wlu? vly&h; rluil jlyi i ajymi fv&ef vlt yfygovm;/ t u, li vlt yclvli? rnlubll vlyaqmi &rnfent/ t cllaom xdlurism; uul ajz& f&eft wlu? jylrvlyaqmi fcsuf optism; pwi fvlyaqmi Eil fr& r&uul ofoylyg/

a&quvlyaqmi rnh vlyi efrsm; uul vxES haqfaEgwll yi fyg/ jzpEil fvli uhrusi baom ynm &srsm; Oyrm- entynmqll &m t pl&t llulay; t &m&frsm; olf [ kwf z&h wll wua&; pihuefrsm; vlyaqmi baom t jcm; yk&vfrsm; ES haqfaEgwll yi fyg/

a' ocwvES h t z&h pnt wlu? ta&bu baom t csuft vufrsm; tay: t ajcclyb? vlyaqmi f &rnh t &muul a%cs, fyg/

vul&vlyaqmi rhlqll &m t pdt pOrsm; wll fvly&h; rism; uul x nbo fygy/ olf [ kwf v ulawll usaom rabmi f uul jyelvnji qil x nbo fjci f jylvlygy/ xlyi f rnbont &muul Nybpaqmi %lu&ef vlt yalumi? rnbont xlt &muul aqmi %lurnhit allumi fES h Nybpa t mi faqmi %lu&rnh aepl ponwll azmjyxm; onh vlyaqmi rhlqll &m pihuef wpc a&; qlyg/

ofoyjci f tyll f- 4

pihuef \ jylraqmi &ufcsufrsm;	jylraqmi &ufcsuft ay: obmOywDefusi frs xdluapEil frsm; (tyll f- 2)	obmOywDefusi f tay: jylraqmi &uf csufrs xdluapEil frsm; (tyll f- 3)	oi f avsm baom vlyaqmi csufrsm; (tyll f- 4)

at muwll f azmjyxm;aom ydyrmwll f yg&hnh vlyaqmi fcsuf trsm; puul v ulawll aqmi %lu? Eil fygon/ xlylrvlyaqmi csufrsm; xfrs t cllonf ufyjcm; em; aomybji h vlyaqmi Eil baom t &m rsm; jzplygonf Oyrm? t olt aqmi f ypnfrsm; uul a' ocwvDefusi baom &hazjci fjzponf/ t cll onf jylrvlyaqmi fcsuft optism; ygDi lapjci f Oyrm- rlla&paqmi folavni jci f wll jzplygonf/

tyll f- 4 uul v ulawll t ofoyjci f erlem

pihuef \ jylraqmi &ufcsufrsm;	jylraqmi &ufcsuft ay: obmOywDefusi frs xdluapEil frsm; (tyll f- 2)	obmOywDefusi f tay: jylraqmi &uf csufrs xdluapEil frsm; (tyll f- 3)	oi f avsm baom vlyaqmi csufrsm; (tyll f- 4)
vixplaO; &m Xmeuul pihuef jci f	vixplaO; &m Xmeonf #i f taqmuft Olay: olt t c&ra& vluEil bonh t h i faqjrnhaonh opyif rsm; t e&t em; wll f wn&heygonf/		t uul f t cwfrsm; uul clwzwygy/ olf [ kwf xlyplyi frsm; uul clwvlyb? opyif t optism; pihuef fygy/



tyllf- 4 rS  
tquf

pnluf\ jylraqmi & lufsuft ay: obmOywDefusi fS xdluaprlsm; (tyllf- 2)	jylraqmi & lufsuft ay: obmOywDefusi fS xdluaprlsm; (tyllf- 2)	obmOywDefusi f tay: jylraqmi & lufsuft xdluaprlsm; (tyllf- 3)	oifavsm'aom vlyaqmi tsufts; (tyllf- 4)
<p>½cefES h t m; upm; cefrtwluf tolhtaqmif ypinfrsm; ull O, f, jci f</p>	<p>r&amp;f</p>	<p>apsaygaom upm;p&amp;m ypinfrsm; onf yvwppwpl jzi hijvlyfxm; aom t &amp; m rsm; jzplyf? of t uefypinfrsm; vnf jzplon/ xdlumi h xlypinfrsm; ull xwv vlypOES ho, f, yll aqmi pOlwof zelvtorf "mwai Oxwvwrulul jzply: apygon/</p> <p>ysuplomb; aom uefylvwulomb ypinfrsm; onf entynmizi hijefi boll &amp;ef cutvtrn/ jzplon/</p> <p>½lrm; onf pm½lES h pof t if t ajrmult jrm; ull tolhyell ygon/</p>	<p>wm&amp;fnc'laom? obmO t &amp; i f t jrpl rsm; jzi hijvlyfxm; aom? a' oxluf uav; upm; p&amp;m ypinfrsm; ull Bultpm; &amp; fiazlyg/</p> <p>t &amp; i f t jrplrm; t m; xeforf apmi la&amp;fuf jci f qll &amp; m vlt yrlul Oefx rfrsm; t m; t pOf owjylapyg/</p>
<p>[ ifob [ if½lrm; pilystEil &amp; eft wluf vxIA [ kme tji lbu&amp;f ao; i, laom ae&amp;mwplul &amp; f v i jci f</p>	<p>tolhyell laom ajrae&amp;m wplc&amp;laomvnt ajrqbz cefajcmuabojzi h umvtwellum xef, uf pilystjci fr&amp;ay/ r½lombentry; Ell flyf? [ ifob [ if½lrm; pilyst&amp;ef t m; x m; i r&amp;yg/</p>	<p>clawmrsm; ES h jrulyfrsm; ull vnt &amp; f v i f &amp; ef vlt yell ygon/</p>	<p>.</p>
<p>[ ifob [ if½lrm; pilyst&amp;ef t m; x m; i r&amp;yg/</p>	<p>r½lombentry; Ell flyf? [ ifob [ if½lrm; pilyst&amp;ef t m; x m; i r&amp;yg/</p>	<p>[ ifob [ if½lrm; onf a&amp; t ajrmult jrm; vlt yf aomallumi h t ueft owf &amp; l yom; jzpaom a&amp; yrmPul yif xdluapvtrn/</p>	<p>[ ifob [ if½lryfrsm; ull a&amp; avmi f&amp; mwif pelypa&amp; rsm; ull tolhy&amp;ef olloylyg/</p>
<p>[ ifob [ if½lrm; ull t vshuspilystvi f ajrlbzmullythumi fr&amp;ef vmapell ygon/</p>	<p>[ ifob [ if½lrm; ull t vshuspilystvi f ajrlbzmullythumi fr&amp;ef vmapell ygon/</p>	<p>[ ifob [ if½lrm; ull t vshuspilystvi f ajrlbzmullythumi fr&amp;ef vmapell ygon/</p>	<p>a&amp; rsm; pñ tolhy&amp;ef rvlt yaom [ ifob [ if½lrm; ull a½fcs, pilystlyf? ajrqvln\ ajrlbzmul xeforfEll lap&amp;ef t jcm; aumulybDEfsm; jzi hajymi fvpllyst&amp;ef olloylyg/</p>

<p>t vly&amp;wt w&amp;uf op&amp;om; jzi f jy&amp;vly&amp;xm; aom yp&amp;nf&amp;sm; u&amp;ll 0, f, jci f</p>	<p>aumi f&amp;ep&amp;h p&amp;h&amp;u&amp;yl&amp;xm; on&amp;h t e&amp;lywDefusi f op&amp;awmrs a&amp;&amp;hwniw&amp; j&amp;rb&amp;nh ys&amp;ES h&amp;op&amp;t&amp;i&amp;f&amp;tj&amp;rp&amp;f u&amp;k&amp;w&amp;ay; on&amp;/</p>	<p>op&amp;om; rsm; t o&amp;ly&amp;jci f on&amp;i (t u, f op&amp;awmrs; u&amp;ll a&amp;&amp;hwniw&amp; c&amp;ll jrapaom entv&amp;rt&amp;ji f p&amp;h&amp;u&amp;yl&amp;xm; jci f r&amp;&amp;v&amp;(i f) a' oc&amp;h op&amp;awm us&amp;qi f&amp;rl&amp;u&amp;ll jz&amp;pay; ap&amp;E&amp;ll y&amp;gon&amp;/</p>	<p>op&amp;f&amp;sm; u&amp;ll a&amp;&amp;hwniw&amp; c&amp;ll jrapaom a' ow&amp;f&amp;f&amp;&amp; op&amp;awmrs; r&amp;s&amp;, ly&amp;/</p>
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# 6

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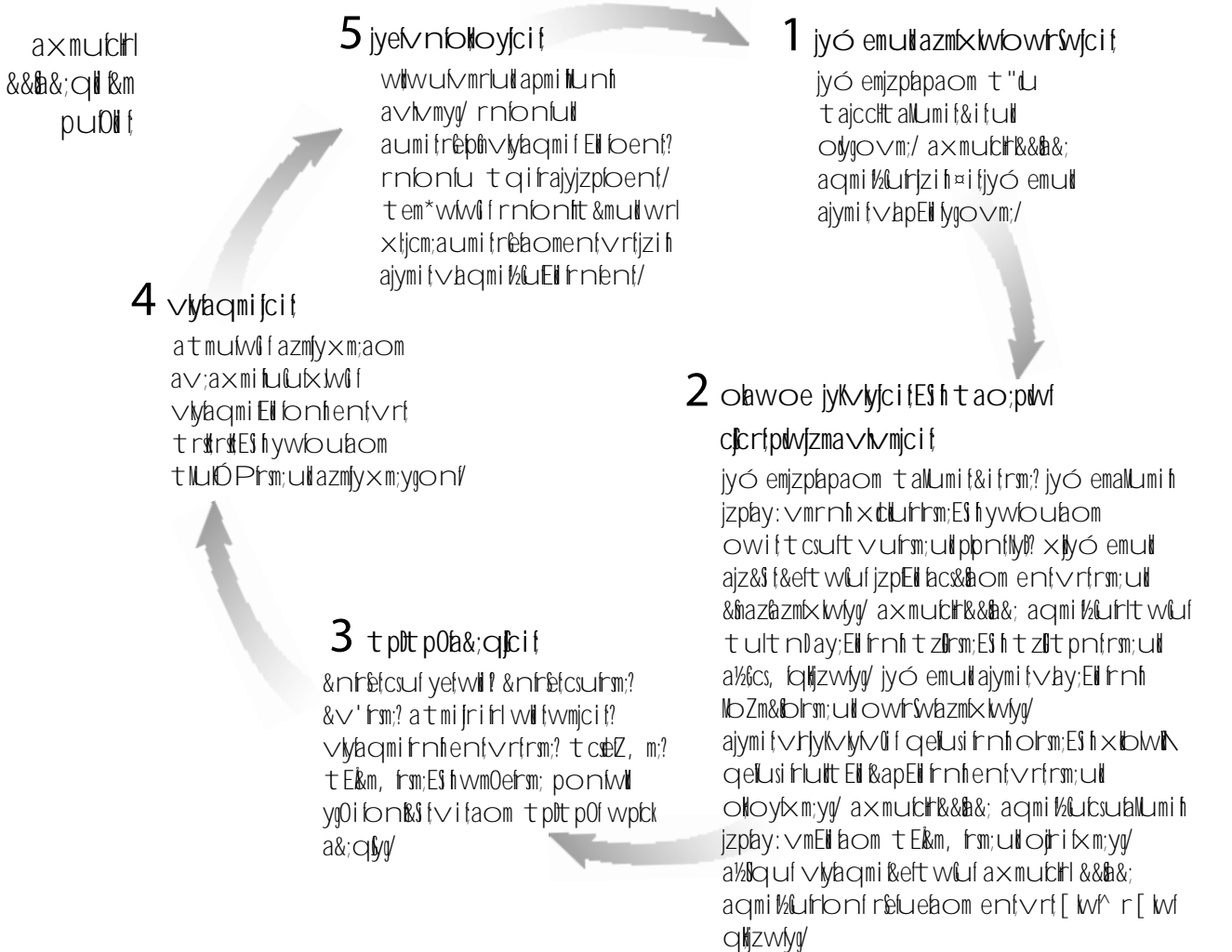
tu, fi vx&bnia' ow& f pu&w&v& &allumi jzpay: vmaom obmOywDefusi f npr& r r' Pf uil c&pm; ae&v& f x&lyo em uil axmucit&&&; aqmi &Curi jzi h uil w&f ajz&S f v& f y&f oi fa vsmf Eil f ygon/ a' ot qi faxmucit&&&; aqmi &Curi w&f npr& r r& allumi h jzpay: vmaom x&Curi rsm; uil azmf ylyd? npr& r rlu& yw&ay; &ef x&pu&w& &om O&pb& rsm; uil azmi fzjci f wll ygOiygon/ npr& r r r& &v& f & &v m&Eil faom use rma&; q& &mvlyi t u& &v' rsm; uil t aumi f bu r&S&S f jyn& x&lyo em uil uil w&f ajz&S f Eil lygon/ Eil fi hit qi faxmucit&&&; aqmi &Curi jci f w&f f pu&w& t vly& rsm; allumi h jzpay: vmaom npr& r r r ES h ouq& faom Oya' rsm; uil ajymi f v&ay; &ef awmi fq& jci f wll ygOiygon/

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### 6.2 axmubh&&&;aqmi h&u&ES h obmOt & i f t jrprsm;ull a&&hwnw&ll h&apaom p&h&u&y&u&r&sm; jykvlyjci f

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v&v&u& f op&w&sm;? a&c& p m; usub&j&r&sm;? ajr&q&v&h&r&sm; ES h t jcm; t & i f t jrprsm; tay: aumi f p&h  
p&h&u&y&u&r&onf r&f&j&zp f v&h&yaom t&m&j&zp&y&gon/ ajr? avmi p m t jzp f ol [ kwf y&O&r&sm; t jzp f  
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t m; x&w&v&r&sm; ull cu&c&ap&y&gon/

pup&ES h yw&ou&ly& obmOywDefusi f axmubh&&&; aqmi h&u&ly&v&ly& & e f q&h&j&zw&aom t c&g vlx&w&p& & y&v&ll  
ol [ kwf E&ll fi h&w&p&E&ll fi h&t&ay: x&u&u&h&e&on&h&jy&ó em&w&p&c&u&ll j&zp&ay: apon&h&t a&llumi f t & i f rsm; ull  
j&n&h&p&h& tao; p&w&f av&h&m&e&f t v&e&ft a& ; Bu&ly&gon&f (t&c&e&- 4 w&f z&w&v&av&h&my&g)/  
y&h&e&ft m; jzi h t & i f t jrprsm; p&h&u&y&u&r&ES h yw&ou&aom t p&h&w&m&O&e&u&ll Xmet o&f o&ES h  
t&ly&c&ya& ; q&ll & m t q&il&q&il&w&f c&h&O&x&m; y&gon/ x&u&u&h& axmubh&&&; aqmi h&u&c&u&u&ll  
t x&h& & mu&q&ll jykvly&E&ll on&ent&v&r&f ull em; v&n&b&ab&may&gu&x&m; & e f t v&e&ft a& ; Bu&ly&gon&f  
w&p&c&g&w&p&h& t & i f t jrprsm; tay: p&h&u&y&u&r&h&ll & m jy&ó em&rsm; onf a' oc&h&rsm; ES h E&ll fi h&ay&g i  
p&ly&g&O&f on&h Bu&h&rsm; aom ur&I&P&rsm; t llum; w&f y&#&y&u&e&ll j&zp&ay: ap&E&ll y&gon&f w&p&c&g&w&p&h& t p&h&  
rsm; onf ur&I&P&bu&u y&gon&f v&h&rsm; onf &h& ; y&g; obmOt & i f t jrprsm; O&ym a&ES h  
ajr&w&u&ll & , y&ll i&q&ll E&ll & e f Bu&ky&r&f v&mon&ES h t r&ll t & i f t jrprsm; tay: p&h&u&y&u&r&h&ll & m  
jy&ó em&rsm; onf v&n&f vlx&kt w&f y&#&y&u&e&sm; ull j&zp&ay: ap&E&ll y&gon&f

obmOt & i f t jrprsm; ES h qu&E&ll h&aom jy&ó em&rsm; w&f t rsm; t m; jzi h w&p&c&ES h w&p&c&kt llum;  
qu&E&ll h&rsm; & y&gon&f O&ym- op&w&sm; ull x&u&u&ly&ci&f on&f a&t & i f t jrprsm; ES h ajr&q&v  
v&h&t & n&f t a&g; pon&f w&u&ll y&e&v&n&x&u&u&ly&ap&y&gon&f vlx&sm; \ t & i f t jrpr&w&p&c&llumi h Bu&h&aw&ll  
c&h&m; & on&h x&u&u&r&on&f t jcm; vlx&sm; \ t & i f t jrprsm; tay: w&f v&n&f ou&h& & mu&x&u&ll  
r&h&ap&E&ll on&f

### obmOt & i f t jrprsm; p&h&u&y&u&r&ES h yw&ou&aom axmubh&&&; aqmi h&u&w&f y&g&O&f m&ly&h& ; jci f

obmOt & i f t jrprsm; ull p&h&u&y&u&r&ES h yw&ou&aom axmubh&&&; aqmi h&u&ly&ci&f on&f O&ym-  
ajr&r&su&E&h&jy&i&f ol [ kwf ajr&t&mu&h& & tay: p&h&u&y&u&r& ol [ kwf op&w&m&jy&e&f w&rl& pon&h  
jy&ó em&rsm; \ x&u&u&r&f P&u&ll c&h&m; ae&a&oma' oc&h&v&h&rsm; t w&u&f x&h& & mu&r&h&aom axmu&f  
c&h&r&&&&; aqmi h&u&c&u&u&w&p&c&j&zp&E&ll y&gon&f r&h&ac&g&i&r&ES h a&v&f&r&h&rsm; a&llumi h j&zp&ay: v&maom  
Bu&h&rsm; on&f jy&ó em&rsm;? w&jcm; j&zp&ly&h&: a&e&aom jy&ó em&rsm; O&ym- ao; i , h&aom v , h&ajr&ES h  
u&e&ob&g i&ly&ll i&q&ll & m p&ly&h&: a& ; v&ly&f i&e&rsm; t llum; a&ay: a&O&rl pon&h jy&ó em&rsm; ull ull h&w&g h&aj& & s f  
E&ll y&gon&f

jy&ó em&rsm; ull q&ll&h& ; p&h& Mu&h&aw&ll c&h&m; ae&a&om vlx&sm; \ p&f&fa&qmi & n&u&ll z&ll&w&w&u&ap&E&ll f  
r&n&h&ent&v&r&f rsm; ull ol&oy&ly&/ x&ly&i&f x&u&w&ll t m; x&ll t jci f t & m rsm; ull x&v&v&az&m&aj&y&ml&um; E&ll h&ap&e&f  
t ult n&ay; y&g/ t jcm; y&g&O&f p&ly&q&ll i&r&n&h&rsm; - O&ym? obmOywDefusi f q&ll & m ol [ kwf x&e&f&ol&f  
apmi h& & h&u&a& ; q&ll & m t z&ll t p&n&f rsm; r&s O&e&x&r&f rsm; ES h t w&w&u&g v&ly&a&qmi E&ll h&aom ent&v&r&f  
rsm; ull ol&oy&ly&/ r&w&h&aom t a&w&g t ac&: rsm; & h&e&E&ll h&aom v&n&f x&u&w&ll h&St & i f t jrprsm; ull  
p&h&u&y&u&ly&ci&f ES h Z&D&r&u&r&f p&u&ll x&e&f&ol&f apmi h& & h&u&ly&ci&f w&ES h qu&E&ll h&aom we&z&ll&on&h  
u&r&f&usi&f rsm; ull & E&ll y&gon&f jy&ó em&w&p&c& y&h&ll& y&ax&v&mon&ES h t r&ll y&g&O&f p&ly&q&ll i&or&sm; y&h&rsm;  
j&m; v&m&w&w&on&u&ll ow&jy&ly&/ x&u&u&ly&zp&ae&jci&f a&llumi h rsm; p&h&aom t j&i&f&y&h& ; z&g & m u&v&on&h  
O&h&pm; ay; jci f rsm; ull j&zp&ay: ap&E&ll y&gon&f x&u&u&h& t w&w&u&g v&ly&f i&e&f v&ly&a&qmi i&r&n&h&rsm; ull  
a&h&cs, h&aom t c&g a&oc&sm\* & p&h&ly&g/

axmubh&&&; aqmi h&u& & r&n&h jy&ó em&rsm; ES h jy&ó em& ull j&zp&ay: apaom t a&llumi f t & i f rsm; ull  
c&jcm; az&m&x&w&v&ly&v&u& f a t m u&ly&gar; c&e&f rsm; ull ol&oy&ly&/





El fi ht rsm; t jym; wif jynwof vhaqma&; t zbrsm; ES fit wl MDG vlyi efrsm; ull vlyaqmi haom  
c&p, mefrsm; ylaygi fxm; aom t zwpzll jzplygon/ oe&S f p wvcs&onh aomubha&ES h p&lyp  
ypinf&S fa&; t ajccDebaqmi frsm; ull a&&shwvntll rba&, lohp&u lull t p&u aocmp&h wll  
jr& h vlyaqmi fay; &ef x ll z ES h t wlvu& vlyaqmi vlygovm;/ (www.micahchallenge.org)  
x h emuf & n r f e f c s u f e f w l f r s m ; E s h y p r s w r s m ; u l l o w r s w a z m x l w f x m ; a o m t p l t p o l w p c l u l l  
a&; q l y d o i f a w m i r n h a x m u c i f r s m ; a q m i h u e n t r s m ; u l l o e l l & e f a q m i & l u y g /

v u h a w l  
t a j c t a e u l l  
a v i m o h o y j c i f

\*gemEl fi h urp r h u & h o m } } CO-COMPOSTING PLANT } } [ lac: qb n h a y g i f p y f  
ajraq& x l w v l y h v p h a t a l u m i f

z h z k q e l l f i h t r s m ; p w i f h e s h t e d w o l u f o b m O y w D e f u s i q l l & m p e l y p y p i n f o e & S f a & ; o n f  
t p l l r s m ; t w l u f j y o e m b u d w p c j z p l y g o n / \* g e m E l f i h u r p r h u w i f v D h a & ( 1 ) o e f c e l a e x l l u o n /  
t & i u = i f r h w i f x a & m u r h a o m p e l y p y p i n f o e & S f a & ; e n t p e p r s m ; u l l u s i h o h y g o n /  
1999 c E p w i f A [ l t p l l u c k y u l l j c i f r & b o l a ' o c h t m P m y l f r s m ; t m ; u l l l w i f v g l u h p i f a o m  
e n t p e p r s m ; u l l t o h y k c i f a y ; h y d o b m O y w D e f u s i q l l & m o e & S f r u l l x e f o r t & e E s h n p i n r t r u l l  
w m ; q d & e f t m ; a y ; w l u i w e f o n h o b m O y w D e f u s i f p e l y p y p i n f o e & S f r i q l l & m r d g ' w p c l u l l t  
w n f y l o w f r s w h y g o n /

aygi fpyajraq& x l w v l y j c i f ( Co-composting ) q b n r f n r j y l y i & a o ; a o m u e l u r f E p r s t o l l [ l w f  
E p r s t x u r s m ; o n h u e l u r f w l u l l t w w u a y g i f p y f a q g i r n j z p a p j c i f u l l q l v y g o n / u r p r h u w i f  
t r l u E s h r p i f t e n r s m ; r s & , h a o m p e l y p y p i n f t c h s m ; u l l t o h y u o n / a j r a q g i y l w p o f  
t q i l q i l w i f t y c e f r i r s m ; v m o n E s f i t r o a & m \* y l r i n ; r s m ; u l l y l l a o p y g o n / a e m u q l w o f  
a b ; O y ' l u i f a o m ? a j r a q m i n u l l j y l y i E l h a o m a j r l o z m j y n D o n h a j r a q g u l l & & y g o n /

2002 c E p w i f i p r f o y x l w v l y h v p h a u l u r p r h u r s 15 u l v i r l w m ( 10 r i l l ) a O ; a o m B u o b a i  
h u w i f w n a x m i h y g o n / x h e & m w i f r p i E s h t r l u r s m ; u l l p p n f E l h a o m a & w l l u b u r s m ; ?  
ajraq& x l w v l y E l h a o m a e & m ? a j r a q g i x l y l l & m a e & m E s h h e c e r s m ; w n & y g o n / p e l y p p i n f r s m ; r s  
ajraq& x l w v l y & e l & u b o w a y w f 10 y w r s 12 y w f t x d t c e l l u m j r i l y g o n / u r p h a ' o w l f a j r a q g  
r s m ; u l l t x t o j z i h v , b o m ; r s m ; u t v e l w l t y l y g o n / o h o m i x l w v l l O , f , m h a o m a p s E l e f o n f  
x l w v l y r i u e l u p & w v x u i a v m e n t y g o n / x l b z p & o n h t " d u t a l u m i f t i f r n x h ' o w l f  
a r g j r l a o m l l u u f b l p o n i w & p i n e r s m ; r s v n f t j c m ; a j r l o z m r s m ; a y g u , O p h & h o m a l l u m i j z p f  
o n / a & b a j y ; p r f o y a v i m a w l r s u l t & a y g i f p y a j r a q g x l w v l y h v p h a t a u m i f q l x l w v l y r l  
y r m P o n f w p E p i v l i f w e b s e l 10 r s 45 t x d & & E l l y g o n /

aygi fpyajraq& x l w v l y j c i f o n f v l r p i r s m ; u l l x a & m u r h a o m e n t v r t j z i h u l l w g h a j z & s t e n f  
w p c j z p l y g o n / o h o m i x l w v l y r l a &&shwvntll rba& f r a p & e f t w l u f a u m i f r e h a o m a p s u l u p l y h ;  
a&; e n t A l [ m w p c k v l t y l y g o n /

Ghana r s O l u f u n k e C o f i e a n d A g n e s M o n t a n g e r o , A n t h o n y M e n s a h \ t p l l f c p m w p c l u l l  
j y i l q i f a & ; o m ; a z m j y x m ; j c i f j z p l y g o n /

6. 4 axmucif&&&& aqmi h&u r ES ha&&shwvntll rbaomp&f t i f

p r f t i l o n f z h z k w l w u l r t w l u f t v l e f t a & ; y g a o m t & m w p c j z p l y g o n / o e l s f a o m ?  
a &&shwvntll rbaom p r f t i f t i f t j r p r s m ; r & b j c i f o n f r s m ; p h a o m o b m O y w D e f u s i E s h  
o u b q l h a o m ? r o u b q l h a o m j y o e m r s m ; u l l j z p a y ; a p E l l y g o n / q i f & E l f y g ; a o m v l x l r s m ; o n f  
a &&shwvntll rba&; e n t v r t j z i h z h z k w l w u l E l h a p & e f t w l u f b @ m a & ; q l l & m t & i f t j r p r s m ; E s h  
e n t y n m r s m ; u l l &&& e f v l t y l y g o n /

u k v o r \* 3 / 4 & m o D w a j y m i f v h q l l & m r a b m i b a b m w i n h s u r t t & q i f & h a o m E l l f i l r s m ; o n f p r f  
t i r s m ; u l l t o h y h y d o e l s f a o m e n t v r t j z i h z h z k w l w u l m a p & e f E s h p r f t i r s m ; u l l y l l



t u&f&ph t o h j y E h l a p & e f c s r f o m a o m E h f i h r s m ; u b @ m a & ; q h l & m E s h e n f y n m r s m ; y h f q h l f & m t a x m u f t y h r s m ; u h x b i f f & a o m E h f i h r s m ; t m ; j z n l q n f a y ; & r n j z p o n / , c k t c a e l w o f c s r f o m a o m E h f i h r s m ; o n i x h t & m r s m ; u h v l y a q m i b a e j c i f r & y g / x h l u m i h c s r f o m a o m E h f i h r s m ; u x h w m o e r s m ; , & e s h a x m u f t b @ m a i w l j r s b a y ; & e f e s h e n f y n m y h f q h l f & m a x m u f t y h r s m ; u h a w m i f c j c i f t m ; j z i h a x m u c b & & & ; a q m i % u h r s m ; u h j y k v y E h l r n j z p o n /

a&&hwnwbl hraompf t i f t w l u f a x m u c b & & & ; a q m i % u j c i f w o f y g o i m y & h j c i f a&&hwnwbl hraompf t i f t w l u f a x m u c b & & & ; a q m i % u j c i f w o f y g o i m y & h ; & e f p w i p w i u l y g u a t m u f y g a r ; c e f t c d u l o h o y y g /

u E l y w l E h f i h w o f t y l " m w l t v i f a & m i E s h o , f , l y b a q m i b a & ; t w l u f v l t r s m ; u p f t i f u l r n f u b o l x k w f , b h p l u o e n f / h r h j y r s m ; E s h a u s v u b a w m i z h r s m ; u h o h o y y g / o e b s f a o m p f t t i y l f q h l f & m t & i f t j r p r s m ; u h a & & h w n w b l h r a o m v D b a t a & t w l u f r n f & b e n f /

p f t i f x k w l y r h t w l u f t p h l w o f r D g ' o h [ k w e n f A d [ m w p c k & y g o v m ; / x h t & m o n f o b m 0 y w D e f u s i f t & a & & h w n w b l h r h u l j z p a y : a p y g o v m ; / x h t & m u h a j y m i f v b e f v l t y y g o v m ; /

q i f & a o m E h f i h r s m ; w l f a & & h w n w b l h r a o m p f t i E s h t u d & p h p f t i f t o k s E h l a p & e f b @ m a i E s h e n f y n m r s m ; a o c m p h & & & ; t w l u m y a q m i f v s u b o n h u l o r \* % v l y a q m i r l t q i l q i E s h q u b o f b a q m i & u b e f t p h l u h u E l y w l p n f % h E h l y g o v m ; /

a & & h w n w b l h r a o m p f t i f j z n l q n f a y ; & e f t w l u f E h f i h a w m i t p h l u h r n f u b o l w l u w e f a w m i f q b r n i u l u E l y w l a ' o c h t m P m y h l r s m ; t m ; a j y m j y & e f v l t y y g o v m ; /

x h e m u f & n r f e f c s u y e f w l r s m ; E s h y p i r s v i r s m ; u h o w i r s v a z m x k w f x m ; a o m t p h t p o l w p c l u l a & ; q h y o i h a w m i r n h a x m u c b & & & ; a q m i % u e n f r s m ; u h o & E h l b e f a q m i & u y g / p t c e f u @ o n i & m o D w a j y m i f v r E s h i q u E t b e a o m v l y i e f E s h u l u m l y b o b m 0 t & i f t j r p u l p r h u y u r E s h v n f q u p y r & y g o n /

jye v n b h o y j c i f

obm0ywDefusi f jyo emrm; Es h ywl outlyd axmucb&&& ; aqmi %u r l u l v y l aqmi E h l b e f u E l y w l p f t a q m i & n i u l j r s h w i b i l y g o v m ; / r n b n t a ' o w l f o b m 0 y w D e f u s i f q h l f & m j y o e m r m ; o n i a x m u c b & & & ; a q m i % u l r u l v l t y b e n f /

6. 5 axmucb&&& ; aqmi %u r E s h a b ; ' l u e s a & m u E h l o n h t E & m , l u h v o n c j c i f

o b m 0 a b ; t E & m , f r s m ; o n i f t j c m ; a b ; t E & m , f r s m ; x u i q i f & b o m ; r s m ; u l y h x c h u l y s u p b a p y g o n / o h o m f a v f r h j c i f E s h r n l a c j i c i f p o n l o b m 0 a b ; t E & m , f r s m ; a l l u m i h v l t r s m ; \ x c h u l v G h r u l a v s m e n t a p & e f t p h l E s h v l x l r s m ; u v l y a q m i E h l a o m e n t v r f a j m u f r m ; p h l & y g o n / & m o D w a j y m i f v m r m E s h o b m 0 y w D e f u s i f y s u p b v m r l t & e f r i r m ; v m o n E s h t r o j y i f x e b a o m o b m 0 a b ; t E & m , f r s m ; w d y h ; v m r n i u l v n f b u l w i c e f e f E h l y g o n / a b ; ' l u e s a & m u E h l o n h t E & m , l u h v o n c j c i f ( D R R ) E s h i q u E t b e a o m a x m u c b & & & ; a q m i % u s u b o n i v l t o u E s h t o u a r f o r t a u s m i f v l y i e f r s m ; p h l u u , l w i & m w o f t " l u s a o m t c e f u @ r s y g o i b e o n l / t p h l E s h a ' o c h t m P m y h l r s m ; o n i j y n b l v k t a y : u m u G & r n h w m o e & y g o n / o b m 0 a b ; t E & m , f a v s m e n t v m a p & e f v l y a q m i E h l a o m t & m r s m ; p h l & y g o n / O y r m - z h t w l w u f a & ; q h l f & m r D g ' r s m ; a & ; q & m w o f D R R u h l O b p m ; a y ; t a v ; x m ; j c i f v l t z h t p n f t q i l q i l u l y g o i m y & h ; v m a p o n h D R R E s h y w b o u b a o m O y a ' r s m ; u h a & ; q j c i f D R R E s h i q u E t b e a o m v l y i e f r s m ; t w l u f t & i f t j r p r s m ; u h y h a y j c i f t l y c k y r h t q i h t m ; v h w l f t a & ; a y : u p i r s m ; t w l u f t p h t p o l r s m ; u h b u l w i b a & ; q & m ; & j c i f









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rmvOEll fi f& Evangelical Association t zlt pnr s a' :Apf urfcmcm (David Kamchacha)  
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a' :Apf onf aqfaEfyfS oicetpmrsm; p&uull oif, b&ly? t rfo ll jyelvmaomt c&g rmvOD t p&ES h  
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b&m; ocif zelqifxm; aomt &mrsm; tay: yll aumif rrepth Munzlapmi ta&shuEli lap &eft wul rrd\ aeyk\ fyk sm; uul rruul wllf ajymif vlapEli lonh entvrfES h yw boufaom tluOPft cduul ptcef wlf azmjyxm; ygon/ trn; trftrsvtom; rsm; jzi h Z, m; uuluul jznqnfjci foubouxuf b&m; ocif t m; Oeaaqmi rray; vhaomqEjzi fi uRElywln aeyk\ fyk sm; uul ajymif v&rniull o&&m; &ef ta&bu lygon/

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yll x&muft uul &apaom entvrf rsm; jzi h csulyklyvly/ Oyrm? xifavmi pmacwv rdlrsm; tohlyk jci f? ', ftlrsm; uul zllt lyjci f? rdlzll olr [ wll ', ftll wpcwvnt wll f tpm; tpm trrdt uul csulyklyvly fES h vuzul&n? aumzlrsm; twul a&uul rlylonf yrm Pom uulcsuljci f ponf wlyzplygon/

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aqmi f&modwll f tyl" mway; jci f uul tohlyk jci f xuf taEgxnrsm; uul rsm; pthOwqif yly/ aE&mod wll favat; ay; pulrsm; uul tohlyk jci f xuf jywi faygufrsm; uul zc lyg olr [ wll vlulursm; olr [ wll , ifvdrsm; uul tohlykly/





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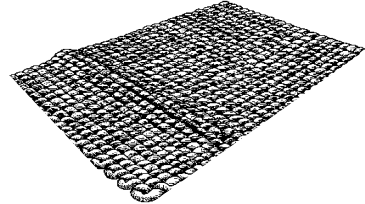
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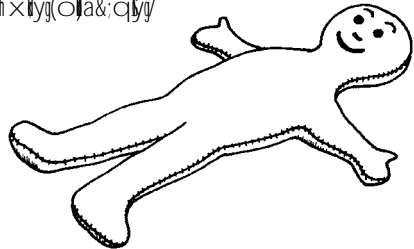


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## obmOywDefusi fqm jyo emrm;ES hywfoubom t allumi f t &mrsm;uW a&;om;azmfyay;onh toWOi haom website rsm;

[www.ashdenawards.org/case\\_studies](http://www.ashdenawards.org/case_studies) Case study database of successful sustainable energy projects

[www.eldis.org/go/topics/resource-guides/environment](http://www.eldis.org/go/topics/resource-guides/environment) Policy website giving information about natural resource management

[www.gnesd.org](http://www.gnesd.org) UN Environment Programme website about sustainable energy

[www.grida.no/UNEP/GRID-Arendal](http://www.grida.no/UNEP/GRID-Arendal) Information and maps about themes related to the environment such as deforestation, biodiversity and poverty

[www.iied.org](http://www.iied.org) International Institute of Environment and Development

[www.povertyenvironment.net](http://www.povertyenvironment.net) Poverty Environment Net shares knowledge and resources related to poverty and the environment

[www.practicalaction.org](http://www.practicalaction.org) Contains practical ideas related to issues such as sustainable energy, climate change adaptation and disaster risk reduction

[www.proventionconsortium.org](http://www.proventionconsortium.org) DRR consortium established by the World Bank

[www.tearfund.org/tilz](http://www.tearfund.org/tilz) Climate change and Environmental Degradation Risk Assessment (CEDRA) – a tool developed by Tearfund to give development organisations a detailed understanding of the risks that affect their development goals and the adaptation options they can take

[www.unep.org](http://www.unep.org) United Nations Environment Programme

[www.unisdr.org](http://www.unisdr.org) UN International Strategy for Disaster Reduction

[www.vitalgraphics.net/waste/index.html](http://www.vitalgraphics.net/waste/index.html) A UN resource giving information and statistics about waste management

[www.wri.org](http://www.wri.org) World Resources Institute

&modwajymi fvrEsi hyw bouaom t aMumi f t &mrsm; uila&; om; azmfyay; onh  
to hoi aom **website** rsm;

[www.adaptationlearning.net](http://www.adaptationlearning.net) Adaptation Learning Mechanism – includes predicted climate changes and impacts by country, with potential adaptation measures

[www.amberlinks.org](http://www.amberlinks.org) Links to many organisations working to respond practically to climate change

[www.climatenetwork.org](http://www.climatenetwork.org) Climate Action Network – a global network of NGOs

[www.linkingclimateadaptation.org](http://www.linkingclimateadaptation.org) Linking Climate Adaptation – information about climate adaptation

[www.maindb.unfccc.int/public/adaptation](http://www.maindb.unfccc.int/public/adaptation) A database of adaptation strategies

[www.unfccc.int/adaptation/napas/items/4583.php](http://www.unfccc.int/adaptation/napas/items/4583.php) Information about the impact of climate change and National Adaptation Plans of Action (NAPAS) for different countries

[www.unfccc.int/national\\_reports/non-annex\\_i\\_natcom/items/2979.php](http://www.unfccc.int/national_reports/non-annex_i_natcom/items/2979.php) Contains information about greenhouse gas emissions and national vulnerability to climate change

# t o h y k x m ; a o m p u m ; v h r s m ; t a y : & S f v i f c s u f r s m ;

atmu f y g a O g [ m & r s m ; u l l p p m t l y x w l f i t o h y k x m ; o n h t " y g j , f t w l l f & S f v i f a z m f y x m ; y g o n l /

t v i l u b i h q a v s n a t m i f  
j y k v l y j c i f ( **adaptation** ) & m o D w a j y m i f v r E s h i o b m O y w D e f u s i f y s u p b v m r l u l u l l w G h a j z & S f & e l v l y a q m i f c i f u l l q l v b n l /

a x m u c h l l o z m t m P m & b o r s m ; \ r D g ' r s m ; E s h i t a v i t x r s m ; u l l v f r l j c i f t m ; j z i h q i f & r h a w r l u l j z p a y : a p a o m  
& & h & ; a q m i & l u f ' c s u f t m a l l u m i f & i f r s m ; u l l a j z & S f & e l w & m ; r o w r l & a p & e E s h i a u m i f a o m z b z k w i l w u f l u l u l n a x m u l y & e f t w l u l  
( **advocacy** ) q i f & b m ; r s m ; E s f i t w l w u G a q m i 1 / 2 u j c i f E s h i q i f & b m ; r s m ; u l l p m ; a q m i 1 / 2 u j c i f w l u l q l v b n l /

a v x k E l u x 1 / 2 r s i ? a t m u f q l ' s i ? u m A e f l l a t m u f q l l ? t z e f E s h i a & a i b w l t r s m ; t m ; j z i h y g O i f a y g i f p y f x m ; a o m  
( **atmosphere** ) u r f h a j r b u l u l v f r j c k x m ; o n h " m w b a i b r s m ; \ t v i n o l r [ k w i " m w b a i b t t r f u l l q l v b n l /

a & a t m i f v i n a j r a t m u b & r s m ; u l l x e f o r f x m ; o n h a j r a t m u b a u s u j y i f u l l q l v b n l / x h a u s u j y i b u l o n i a j r a t m u b & u l l  
( **aquifer** ) w p c g w p & h c y a O ; a O ; t x l p b q i f j z w b e f o f i ; a p E l l b o n l /

Z D r d u f r p h u r f h a y : w l f o l r [ k w i a e & m a ' o w p c l u l f & h o m t y i E s h i w & p a e l o w O g t r d r d u l l q l v b n l /  
( **biodiversity** )

u m A e f l l a t m u f q l l f o b m O t a v s m u f j z p a y : a e a o m o l r [ k w i 1 / 2 y l u i f a v m i p m a v m i f u r f r E s h i p u r l v l y i e f t q i f q i h v l y a q m i f  
( **carbon dioxide** ) & m r S j z p a y : v m a o m " m w b a i b w p r d u l l q l v b n l /

u m A e f a j c & m u r f h a y : & S v l w p D b o l r [ k w i p r l u e t w p c k o l r [ k w i t z i t p n f w p c k o l r [ k w i E l l i l w p E l l i l u x k w v w l v l u a o m  
( **carbon footprint** ) u m A e f l l a t m u f q l l E s h i n r h a o m y r m P a l l u m i h j z p a y : v m o n h x c l u a p r i u l l q l v b n l / y h e f t m ; j z i h x l u m A e f  
a j c & m u l l E p p O l q e t p p i w l f x h a v & b o n l /

& m o D w k ( **climate** ) a ' o w p c l u t y c e l a v z d t m ; ? p k l l t r ?  
a e a & m i j c n & & f ? w r f x b y r E s h i a v w l u E e f w l y g O i h a o m y h e f h a v O o t a j c t a e u l l q l v b n l /

& m o D w a j y m i f v h l t c e l u m v a j y m i f v m o n E s f i t r O j z p a y : v m a o m & m o D w a j y m i f v h l u l l q l v b n l / x h a j y m i f v h o n l w p c g  
( **climate change** ) w p & h o b m O t a v s m u f j z p a y : E l l h a o m l v n f ? p p m t l y x w l f i f a z m f y x m ; a o m a j y m i f v h o n l v l o m ; r s m ; \ v l y & y f  
a l l u m i h j z p a y : v m a o m a j y m i f v h l u l l & n h e f x m ; y g o n l /

o b o e l & m o D w k w l n h a o m & m o D w l u l l & & j c i f a l l u m i h i o j c m ; o b m O a y g u y i f r s m ; ? p l u y d o b E f t x l u E e f E s h i o w O g r d u f r p l w n i  
t a j c t a e & h o m Z h r s m ; & & m a ' o w p c l u l l q l v b n l /  
( **climatic zone** )

q l l u v l e f t a & h a w m i f t m & s w l f j z p a y : a v & h o m j y i f x e b n a v w l u E e f E s f i t w l r l o n f x e p h 1 / 2 h o e f r w l y g O i h a o m  
( **cyclone** ) l u r f w r f o n h t y l l f r e w l f w p c l u l l q l v b n l / ( w l u z e E s h i [ m & l u e f r e f w l f w l u l n f z w l z a v l m y g )

o p a w m j y l e t w b r l v l o m ; r s m ; \ v l y & y r s m ; a l l u m i h i o l r [ k w i o b m O j z p p O r s m ; a l l u m i h i o p a w m z h v f r o n h a e & m a v s m e n t v m j c i f u l l  
( **deforestation** ) q l v b n l /

o u E h & j z p x e f r i u s , j y e f a & & s h w n t w b l f r h a o m e n t v r f j z i h a j r E s h i a & u l l t o h r j y l c i f a l l u m i h a j c m u b a o l a o m a ' o r s m ; u j z p a y : v m a o m  
v m j c i f ( **desertification** ) a j r a e & m y s u p b r l u l l q l v b n l / & m o D w a j y m i f v h l u x l y s u p b r l u l l y l q l z h ; v m a p y g o n l /

a b ; ' l u e j l x c l u v G h a o m v l x i t a y : t E & m , l u s a & m u l v m a o m t c q l j z p a y : v m a o m t o u l t l ? t r l ? p n t p r l ? t o u l  
( **disaster** ) a r f O r f a u s m i f v l y l i e f r s m ; y s u p b r l u l l q l v b n l /

ab; ' l u e a & m u e l l b o n h t E & m , l u l l a v o n c j c i f <b>(disaster risk reduction)</b> ajymi fa%lapjci f <b>(displaced)</b>	ab; t E & m , f r m ; E s h i a w l x e l l i r l u l l a v o n c j c i f ? v l t r m ; \ x d l u m g i r l u l l a v o n c j c i f E s h i x b l w l n p l f aqmi & n l u l j r s l w i b a y j c i f p o n h t E & m , f a v m e n t v m a p & e f j y k v l y o n h v l y a q m i f s u r m ; u l l q l l b o n f
r l a c j i b a & s i r l <b>(drought)</b>	a' o w p e c l n v l a v m u a o m a r & e l l b o n h l u m & s h a o m u m v w p c l u l l q l l b o n f
a* [ pepf <b>(ecosystem)</b>	a u s m u l w l a u m u b E s h i r l a v o o p o n b o u h b o m O y w D e f u s i E s f i t w l t y i r m ; ? w & p i n e r s m ; E s h i t j c m ; o u & s t p k t z l r m ; \ a y g i f p y e l p n f x m ; a o m v l y a q m i f r p e p l u l l q l l b o n f
o b m O y w D e f u s i f ajc&m <b>(environmental footprint)</b>	u r h a y : & s v l w p o o o l r [ k w i p h l e f w p c k o l r [ k w i t z l t p n f w p c k o l r [ k w i E l l f i l w p e l l i l u j y k v l y m l u f a o m o b m O y w D e f u s i f x d l u r l u l l q l l y g o n f x k d l u r l ( u r h t & i f t j r p r m ; u l e t e f o h ; a t m i f t o h y k r ) u l l y l e f t m ; j z i h E s p o q e f p p f w l l f x h a v l b o n f
o b m O y w D e f u s i f q l l & m r O g ' <b>(environmental policy)</b> a & a i l y e j c i f <b>(evaporation)</b> t j r w x l w j c i f <b>(exploit)</b>	o b m O y w D e f u s i f q l l & m x d l u r r m ; t a y : p h t e b f E s h i y w b o u t y o t z l t p n f w p c l u x l w j y e a & o m ; x m ; a o m p m w r f w p c l u l l q l l b o n f a & r s a & a i t j z p o l l a j y m i f v b h j c i f u l l q l l b o n f t r m ; t m ; j z i h y s u p r i u l l j z p a y : a p a o m o l r [ k w i a & s h w l n w b l j r h r & o m e n t v r t j z i h w p p l w p c l u l l t o h y j c i f u l l q l l b o n f
o w a v m u <b>(fauna)</b>	w & p i n e r s t a y g i f p h
l u a v m u <b>(flora)</b>	t y i r l a y g i f p h
l y k u i f a v m i p m r m ; <b>(fossil fuels)</b>	E s p a y g i f r m ; p h u " m w l o w l j z p o h ; a o m o l r [ k w i t j c m ; e n f v r t m ; j z i h q u l v u l w n & a e a o m t y i r m ; E s h i w & p i n e r s m ; \ t u i f t u s e r s m ; r s p o n f j z p a y : v m a o m a u s m u i r l a o b ? a & e E s h i " m w a i o p o n h a v m i p m r m ; u l l q l l b o n f
a & c j r p f <b>(glacier)</b>	j r i f r m ; a o m a w m i l w e f r m ; w l f a & c h r m ; j z p o h ; o n h u p l v p o l y o n f a o m E s f c h r m ; u l l q l l b o n f
u r h u d y a E g v m r l <b>(global warming)</b>	r m ; r l u m r l q , p e s p r m ; t w l f u r h a v x E s h i o r k & m r m ; \ y s r f o t y c e f j r i l w u l v m r E s h i p i f \ q u l v u l j z p y h ; a e r l u l l q l l b o n f , c k t c q a ' o t v l u f & m o d w k t r l r d u j y m ; r a l l u m i h u r h u d y a E g v m r l u l l j m o d w l a j y m i f v h } [ k y l f a z m j y v m l u o n f
z e l v l t t f ' m w a i O r m ; <b>(greenhouse gases)</b>	a e r i f r s a e a & m i j c n l u l p l y l , l a o m ? x l w l v l w a o m a v x k t w l f & s " m w a i O r m ; u l l q l l b o n f O y r m - u m A e f ' l l a t m u i q l l ? E l u l x l p a t m u i q l l ? n b e f " m w a i O E s h i t z e f w l b o n f t " l u z e l v l t t f ' m w a i O r m ; j z p l u o n f
ab; t E & m , f <b>(hazard)</b>	t E & m , f q l l h r l o l r [ k w i x d l u f P & m a p r l w l l j z p a p e l l l a o m o b m O t a v s m u f o l r [ k w i v l o m ; r m ; \ v l y & y i r m ; a l l u m i h j z p a y : v m o n h j z p & y l w p c k o l r [ k w i t a j c t a e w p c l u l l q l l b o n f
[ m & l u e f r i e w l f <b>(hurricane)</b>	t w a e l w l v o r k & m E s h i u m a & b l e y i l v , l w l w l f j z p a y : a v l a o m j y i f x e b n a v w l u E l e f E s f i t w l r l o n f x e p h l a o e f r w l l y o i l a o m l u r f w r f o n h t y l l f r l e w l l f w p c l u l l q l l b o n f ( q l l i u v l e f E s h i w l u z e f r l e w l l f w l u l v n f z w l a v i v m y g )
t o u a r f o r f a u m i f v l y l e f <b>(livelihood)</b>	t o u & s b e e l l e f t w l u f v l t y a o m p l f a q m i & n f r m ; ? w e z l l a o m u r f u s i h r m ; ? t & i f t j r p r m ; E s h i v l y & s ; a q m i l a l u r r m ; u l l q l l b o n f

(&modwajymi f vlv m rlu) oubmajici f^ avnicsjci f wplurfvlt wll f t wmt & jab; uifaom) yrmPol a&mu&Eli fap&eft wuf zelvlt t f' m wai 0 xlvfvwv rlu avsmenfajci f u l q l v b n / (urhysrft tycef jri frm; vmlu l 2°c at mub l avOnicsEli f&ef &nfr&fxm; ygon)

**(mitigation – climate change)**

obmOt & i f t j r p r s m ; v l o m ; r s m ; t w l u f w e z l l a o m o b m O t a v s m u j z p a y : v m o n h t & m r s m ; E s h i o , E z m w r s m ; u l l q l v b n /

**(natural resources)**

npinrfaprl obmOt & i f t j r p i w p b l u l n p i n r f v m a j c i f u l l q l v b n /

**(pollution)**

r l w f t z l a c r l a j r j y i b o l u s v m a o m r t ? E s f o l r [ l w i r l o b r s m ; ^ e i f \ y r m P u l l q l v b n /

**(precipitation)**

r l a & p l a q m i f j c i f a c j i r l o l r [ l w i o i l a v s m a o m p l a q m i f E l i b o n h y p i n r s m ; j z i h r l a & o l r [ l w i t & n l a y s m i u s v m a o m q b E s f a & r s m ; u l l p b n f j c i f E s h o l a v b i j c i f u l l q l v b n /

**(rainwater harvesting)**

j y e l v n j z n q n t w p p l w p b l u l , c i r l v y r m P o l r [ l w i t a j c t a e o l l j y e l v n b a m u & l v m a j c i f u l l q l v b n /

ayjci f **(replenish)**

p b q i f j c i f **(run-off)** r l a & o l r [ l w i t & n l a y s m o b i a o m q b E s f a & r s m ; a j r j y i f a y : w l f p b q i f a e j c i f u l l q l v b n /

q m ; " m w l y g o i r l q n a j r m i f r s m ; j z i l a o l f j c i f ^ a a y j c i f ? y i f v , f a r s u E s j y i f j r i l w u l v m j c i f o l r [ l w i " m w l w y p i n r s m ; u l l t v e f t u l t o l l y j c i f w l t m ; j z i h a j r q l v m i n E s h a & r s m ; w l f q m ; " m w l y g o i r l u l j r i f r m ; v m a j c i f u l l q l v b n / x l q m ; " m w l y g o i r l j r i f r m ; v m j c i f o n f a j r b u b w l f y g o i f a o m a j r l o z m q l v j c i f u l l j z p a y : a p a o m l u m i h p l u l y t a & ; u l l y s u p b a p y o n /

**(salinisation)**

a&&shwnwll t e m \* w i n t q u o p r s m ; \ v l t y c s u r s m ; u l l j y n D a p r n p f f & n u l l r x d l u a p b l , c l u m v t w l u f v l t y c s u r s m ; u l l c i l l r a o m j y n D a p E l i b o n h z l z l w l w u l u l l q l v b n /

z l z l w l w u l r

**(sustainable development)**

y i f v , m l l v b u r s m ; t y l l f q l l u v e l e w l l f o l r [ l w i w l u z e l r e l w l f E s f i t w l y i f v , f u r f a j c w p l a v o u w l f y i f v , f a r s m ; j r i h w u l v m j c i f u l l q l v b n /

1/2kvw&u w u l v m j c i f

**(tidal surge)**

w l u z e l r e l w l f w 1/2 k w y i f v , j y i E s h i y p z l w o r k & m t a e m u l b u w l w l f j z p a y : a v l a o m j y i f x e l o n l a v w l u E l e f E s f i t w l r l o n f x e p o 1/2 h o e f r w l y g o i f a o m l u r f w r f o n h t y l l f r e l w l f w p b l u l l q l v b n / (q l l u v e l e s h [ m & l u e f r e l w l f w l u l k n t z w l z a v l v m y g)

**(typhoon)**

z s u b a u m i f r s m ; a u m u y b o E l r s m ; o l r [ l w i t r a r f w & p i n e r s m ; t w l u f t E & m , j z p a p E l i b o n h v l i j z p a y : a o m a & m \* g r s m ; u l l o , f a q m i b o n h w & p i n e r s m ; o l r [ l w i i s u r s m ; u l l q l v b n /

**(vermin)**

ajrat mu&ajyi f u r h a j r r s u E s j y i f a t m u l u & a o m a j r a t m u b a v i n u l l q l v b n /

**(water table)**

obm0ywf0etusi f0l &m ajc&m (xif0æ0pr)

jzn0l0y0lrm;

t&itjprsm;	wp00t w0f t 0lly0om yrmP	wp00t w0f a&&hwnlwlrlrpbh &&0m:0om yrmP	wp00t w0f av0l0c0if &nrl00ul
(reipnyijulrswp00j) a0yl0000i frs&	v0vm		5%
a00e0t	v0vm		10%
pul	t&0ul500 yj t x0f		10%
tjcm:pm&:U&0l nrsm;			10%
t pm; t pm	wef		10%
t jcm;			

x0fhl 0lly0El 0 t mi f j0k0y0c0if	wp00t w0f w000yrmP	x0fhl 0lly0x0m:0om yrmP 0f [ w0f %	x0fhl 0lly0El 0 t mi f j0k0y00el 00p0l &nrl00ul
pul			25% w0jri0vm
Uw0x0ym;			15% w0jri0vm
yvwpwpl			8% w0jri0vm
zef			5% w0jri0vm
x0fhl 0lly00el rj0k0y0El 0om t &mrsm;			5% avsmen0vm x0fhl 0lly00el rj0k0y0El 0om x0w0y0x0m; on0l r0l0sm;



UAAEŁ ajc&m (x i l u s e a p r i)

at mulyj wluqcsu f m on f 2009 c e p i r w a w d i r e l u e p h i j k v y x m i y p 2008 c e p i j Guidelines to Defra's GHG Conversion Factors) r a u m u e k w x m i j c i i j z p o j y o n f  
at mulyjz. m u l i z n p l u b o n i t c q w i t o i e i i l i t w l u a e m u d i w l u q c s u f m u l a u s z i y y p p a q a y y y

av mi b m q j	w p e p i t w i t a v m i b m q j t o l j y i r y m i p	u m a e l h a t m u b l e s t n i t h o m P u l t a y m i l v d e l a t m u l y j * P e j z i h a j r i t u l y j	x l w a w l o n i p b a y j i l y m i P u l t u l a t & r z i h a w x j c i i	n i t h o m
r e l v i l r s v l y p p b e t t i l a y y i c i t (kWh)	kWh	0.537		
x k n r l v m i " m w d a i l (in cubic metres)	Cu M	2.2		
y l v i j z i h x l w v l y a o m " m w d a i l	v l v m	1.495		
v l w m j z i h r l p o u r s ' E, k q b l p b e f (1 * j v e l 4.546 v l v m)	v l v m	2.63		
o l v m j m r m i? a v o l [ l w a d w m A l i p o n i h y e l v n i o p l v i l v m a t m i f j k v y e i l h o m p b e t t i r s & h a z i t e o l j y i c i t	r d d		r d d	
, m o l r m i	o l i r a d m u l u b o m c e b t u l i t a o		u m a e l h a t m u b l e s t n i t h o m P u l t a y m i l v d e l a t m u l y j * P e j z i h a j r i t u l y j	x l w a w l o n i p b a y j i l y m i P u l t u l a t & r z i h a w x j c i i
a r m a w m i q j l u, i t a o: (50 to 125cc engine)	u l v l v m	0.073		
" m w q b l a r m a w m i, m o l t a o: (up to 1.4 litre engine)	u l v l v m	0.1809		
a r m a w m i q j l u, i t v w l (125 to 500cc)	u l v l v m	0.0939		
" m w q b l a r m a w m i, m o l t v w l	u l v l v m	0.2139		
a r m a w m i q j l u, i t l u j (500cc engine and above)	u l v l v m	0.0939		
" m w q b l a r m a w m i u m i l u j (o l a v; b l, u l, m o l	u l v l v m	0.2958		
' E, k q b l a r m a w m i u m i t a o: (up to 2.0 litre engine)	u l v l v m	0.1513		
' E, k q b l a r m a w m i u m i t l u j (over 2.0 litre engine)	u l v l v m	0.2580		
t r m i o l y b a q m i l q u b o l a &	o l i r a d m u l u b o m c e b t u l i t a o		u m a e l h a t m u b l e s t n i t h o m P u l t a y m i l v d e l a t m u l y j * P e j z i h a j r i t u l y j	x l w a w l o n i p b a y j i l y m i P u l t u l a t & r z i h a w x j c i i
r l x m j z i h c & b o i n j c i t	u l v l v m	0.06		
u m j z i h c & b o i n j c i t	u l v l v m	0.1073		
t a o a y: b w p l u m: (o l z i t b w p l u m:	u l v l v m	0.029		
av, m o y j z i h c & b o i n j c i t (o l i r a d m u l u b o m c e b t u l i t a o: o n l w l u s u l e l c u l b o n i t w l u j p l e i f a o m t c e b e m & p m j z i h t p m i x l w l u s u l r n j z p b o n i)	av, m o p l e i t o n i t c e b e m & l		a t m u l y j * P e j z i h a j r i t u l y j	x l w a w l o n i p b a y j i l y m i P u l t u l a t & r z i h a w x j c i i
p l e i t c h o m a v, m o c & l p o p p a y j i t u l p l e i t c h o m t c e b e m & p m j z i h w l u s u l e l y j o n i	e m & l	250		
x l w a w l u l a o m u m a e l h a t m u b l e s t n i t h o m y m i P u l t u l a t & r z i h t z l i t p r i w p t k v t w l u j p b a y j i l v l u q c s u l				

oMoycifi tyif(1) t&iftjrprsm; \ tajctae

o b m 0 t & i f t j r p r s m ;	t & i f t j r p \ t a j c t a e u l l a & r s w y c i f
a&	
ajrEš h j r q l v ĩ	
av	
a' o&iftyrsm;	
a' o&itw&pietfsm;	
tjcm; t&iftjrprsm; Oyrm- /lap;? a u s m U r l a o f w l t x l y p i n r s m ;	











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