

Risk attitude & Economics

Laura Concina

Edition coordinated by Caroline Kamaté

n° 2014-01



**Les
Regards**
sur la sécurité
industrielle



FONCSI
Fondation pour une culture
de sécurité industrielle

F 8ag`VSf[a` XadS` [Vgefd[S^eSxWk Ug'fgdW8a` Ue[fijeSxW/LZ bgT'Uz' fVWf dVWsdz
Xag`VSf[a` UvSfW [S V ^aLSfW [Fag'ageW8dS` UW

FZW8a` Ue[Xg` VedVWsdz bcbVWfeUa` UvW [YbaFWf[S^k ZSI SdVage [Vgefd[S^Suf[h[fVW S V fZVd
[fVWsur[a` i [fZ eaUvWk S V S_ efa WUagdSYWabW V[S'aYgW [fZ S^efs] Vza^Wde/SeeaU[Sf[a` e
S V @9A e [Vgefd[S^X]d` d` aUS^YahVW _ Wfi dVg^Sfad dVWsdzVd fdSWg` [a` e WUz

A gdad[Y` S'f[k [efZW` fVW[eU]b' Sck` SfgdWaxagdSuf[h[fVW [8dS` UMS V [fVW S[f'a` S^ki Se
i W^SeSefcb` YLa__ [f_ Wf fa [`ahSf[a` S V fa S f[U]bSf` Y fa_ adbai e[eegVz

A gd_ [ee[a` ,

[Wwf]k S V Z[YZ'YZf` W [WSeS V [`ahSf[hWbdSuf[UW
WVWab S V Xg` V dVWsdz [fa [Vgefd[S^eSxWk S V fZW_ S SYW_ Wf aXfWZ` a^Y[US^d]e-
La` fd[TgfWfa fZWWVWab_ Wf aXSdVWsdz La__ g` [fk [fZ[eSdV-
fdS` eVWdVWsdz dVg'fe fa S^ [fVWfW bSd[Vz

FZW` Vgefd[S^eSxWk La__ g` [fk [ea` **SSS?wytz?, .x`**

6 [dLahWdS V Vai ` ^aSV agdbgT'Uf[a` eXadXW/5SZ[WdVWSeAUgd'fA [Vgefd[WVWdWsdve
EZsdM` Xad_Sf[a` US^eXadbcbaeS^eS` V XadLa__ g` [USf[a` d VVWfd` YaT aXWde [fZW
5a__ g` SgfAI DAI afa` eVWf[a` aXfZVd[fVz

H[W fZW_ Sb aX^STeS V dVWsdzVd Xa_ S^fZW[eU]b' Vd [ha^hW [[Vgefd[S^eSxWk S V
VWVab kagd` Vfi ad` žKag SdW af dV[eVW kVfi ;feVSeki U[U] ZVdV

EZsdWkagd[WSe WfVd fZWLa__ g` [fk S V La__ Wf Sd[UWd bcbabaeVWsd' Tg` W

9X]hcf]U

8a^ai [`Ya` Xba_ fZVLa^Mf]a` >V@5SZ[V@eWVS e^Ugd]fA [Vgefd]VWV i Z[LZ
_S] `k XaUgeV@a` Z[YZ^YZf]` YdV@SdLZ dVg`fa fZVBag` VSf]a` [eb^VSeV fa bdaVf
>V@DWSdVežFZ[e[eS` [_ badS` f` W L@^Mf]a` fZSfi V@NbScf]Ug`Sd`k V]U]fW
STagf, fZV]M@ [efa bdaVfS` aTVM] S L@` U]f adS cgV]a` dV]fW fa [Vgefd]S^
eS^Mk Xba_ fZVba[` f aXh]W aXS Y[hW V[d]b[` V@8adV]S_ b^Mi ZSfi ag^V S`
V@_ a_ [ef adS eaU]a`aY[ef ZShWfa eSk STagf XWTSU] 11 ZSf Va S` fzdaba`aY[efead
WY[V@efZ[] STagf g` U]fS[` fk1

I ZSfi W [eZ fa Va i [fZ >V@DWSdVe [efa Tg]`VS Td]VW]M] W V[d]b[` V@ fa
XaeV]fZV]gV k aXfZV@S_ V@V]SdLZ fab]UXba_ V]X]V]fS` V L@_ b^W WfSck ba[` fe
aXh]Wž

>Sef`ki i W` S` f >V@DWSdVe fa TWSU]e]T]Mfa fZV]SkbV]ea` t Td] Y[` Y d]Wf]XU
L@` fVf fa [X]M [fZ ahV]h]W eS` V V]S_ b^M] _ S] [` Y [f ShS]`ST`Mfa fZVbgT]U
Sf`Sd]V]fZV]M]eS` V]M]Z]chi [Y W]S` V Xba_ fZVbgT]Ufa T]M]V]g` W]eS` V
d]Wf]XU[eegV]S` V fZV]fS] V@ [ha`h]M fa T]M]V]Y]Seb fZV L@_ b^M] i adV fZV] [hW
[ž fZV]Bag` VSf]a` i [eZV] i [fZ fZ[e` W L@^Mf]a` t fa aX]V]bV]ebV]h]V@a` agd
i adV fa XaeV]fZV]fS` e [ee]a` aX]` ai `W]M]S` V_ S] V]fe_ aV]f L@` fd]Tg]f]a` fa
S ea]Mk [i Z[LZ i a_ W S` V_ W Sd]ST`Mfa _ S] W]V]YZ]f]W]W]M]e]a` ež

Fag`ageW3bd]^ fZ]
9 [^V@? afV] 8a` Ue]

h?Bb /Q+mK2Mi

5JUMBFTLBUUJUVEF FDPOPNJDT
 ,FZXPSSTJTL VODFSUBJOUZ SJTLBUUJUVEF SJTLBWFSTJPO EFDJTB
 FDPOPNJDT QTZDIPMPHJDBMCJBT
 "VUIPSBVSB\$PODJOB
 1VCMJDBUJ.BQZEP-UF
 5IFXSPFTFOUJTEPDVNUKSEBSFSBQKDTVQWBEZCVTFQUBOBTISPS
 PGUIF-BCPSBUPSZPG&YQFSJNFOUBM&DPOPNJDTPG4USBTCVSH'SBO
 \$BSPMJOF,BNBUFDPPEJOBUEFJUTQVCMJTIJOH&MBJOF4FFSZFOTVSEF
)PXFWSUIFPQJOJPOTQSFTFOUFEBSFTPMFMZUIPTFGUIFBVUIPS
 "'SFODIWFSTJPOPGUIJTEPDVNFOUTGSFFMZEPXOMPBEBCMF GSP

#Qmii?2 mi?Q`

DVB\$POBNTBFBDO&DPDASN\$PTSCQSUUPZ
 -7FDFMZ,1.PQFBSTQBOE\$BUPQF1WQPP(EBNET
)FSSTSBYBNOUIFGMFQGMPOSZFBSTQPSPVQSEPRJO
 5PBEESTTTUIJTRVFTUJPO TIFVTFTFDPOPNJDFYQFSJNFOU
 FQSNFQVTCBDFSBHQSEPRJQVBRJOBSECBSESRU
 NJNJD SFBM XPSME JODFOUJWFT

hQ +Bi2 i?Bb /Q+mK2Mi

\$PCDB,1.3JTLUBVEUFDPOFMNCF,1.°PQFT3SEHVBURBPSOEVBM
 TBGFUZDVMUVSF5PVMPVTFHt\$B/OVfw!SfMIZBrWBJMBCMFBU

3 U H D P E O H

.H L V V X H

5 U F B F J T P S U B O E S B O U Z F E * F U S O F T T P S N B M E Z D D F F E T M V U D F D P D P N
U B U S F E U F N J O B U O E J U D O N B D H V S E S E S V O S E O U B O E J V U B R J O T X F X F
I B V U P E F A B I U A T T F T B O O T F J M B M S F P S Q E U X F X M S M T E B O T V F O R J O G R U F S U D J B
S F T M V Q V O U F E J U F Y B N M T B L F G S N W S E Z B M F B G S E T S B V U F J O F D P D P B O E
Q T Z D I P M P H Z P O U I F Q F S D F Q U J P O P G S J T L

3 J T L B O E S B O U Z F D R I O T M Z E T B O W S E Z B M F J O G P P O U F T M B M O N S H F T M D B
F H E P N U D T B E B U D B O E R S G E V S M D E D F U D & D P Q D P T N I B M T O U S E U O G B O M Z O H
S T L B T N O C S B U O C O E B U A N V O N F U R E J U D O N B D H N P U F D P Q D P N F U D O T D B O O P
C S M B E S E T T J F S E H C S P T L ' P S F Y B N M O U F G Q J B G M D R E U S F U F B M T B E Q S E M B U
N P M E T C B T F U E S P S T P E S S O U F S T L B S E D R P J O V P S B U V E U P O N S P D F D P D P N
V O F N Q M P Z N F O U M F W F M T F Y D I B O H F B O E J O U F S F T U S B U F T Q P M J U J D B M
T P N F P G U I F V O T U B C M F F D P O P N J D W B S J B C M F T U I B U J O G M V F O D F U I F P W

5 I J T E P D V N E O U

% F D P Q O V M O V I S T U Z F O B S N U F O F D R I O T M Z E H V T E F E Z C S T S B S J O U F G V E E F D P
O P J N T S J T E P D V N F T O F O B O S E B F D P O U P A S B O E T P N I E X F X O F O D F O M W N
U P U I P T F N F N C F S T P G U I F Q V C M J D X P S L J O H J O S J T L N B O B H F N F O U P S J O U F S F T
U P I F M Q Q F P Q M F V O E F S T U B O E G S P N U I F F D P O P N J D Q P J O U P G W J F X U I F U S B E
G B D J O H S J T L T

) P X E J E V V M B N B L F D R I P X E F I D I S T L T T T V O N H U B U I F E J U D O U T F Z N B L S F B
S E U R J O M B J O S T L U B V U E U F D B O O F E N I B T J U F F C B B I U F O B O S E S E U R J O M B P E M F A A Q F E
C Z F D P Q T E W U B U I U T S F S E B G U E S N T U E F S O O H # V M F J O V M I U S E W I H U R U F Y U
X F G Q J E O V N F T V E U R J O G F S N U F N P N F E O M Z O M I U E Q Z I M P H D E C B T F P X E P
F D P Q D P I N D P J U R S N U F S T J O G M F O D H S B U V E U P S T L M B U E H V P T N B L F J E P O U T B U
E S F O U R U F S E U R J O M B Q R U D E P O S F E U T J X I U B U T S F S E B B U F N U P E F S C I B O B O B O N D F T T
G B T I J P O

* O U J T S F T O U X B C O H I U B S R G Q U P S E V P D O T I J O U B U S O N O O F H U F C J D F T G P
F D P O P N J T U T B M P O F F D P O P N J D T B O E X I B U X F X J M M E F G J O F B T F D P O P N J
E B U E Z M F B G E F S C I B T F O N I E O U P J O T P D P O U P T U S O H J U B S P B E G O F O D
P G I U P O D T V S P E O U J T E P D V N O F S E D M S X F X M F U F U I F E G O U O Q P S U P S N
B O F D P O P N J D Q P J O U P G W J F X D B O C F R V J U F E J G G F S X F F O U G S P N N P S F D M I
E S B X U I F M J O F T P G U I F T U B O E B S E N P E F M U I B U F Y Q M B J O T U I F S B U J P O B M
E V V F O / F V N B O O S H O F O S S E T Y Q R U D E U J M I U S Z Z 65 X I D U T U F O B O S E B
U F S U D J B N P M F T F Z E N C U F D P Q T E N O B E E O X F E S O U F T U O S E S T L U B V U E U F
N P E M B O E T F O N I E P S G D U R B U S F V T U P E F V E F O E V V M B U V E U P S T L O U F N B U
T F U J O G R U T D I U S Q X F Y B N O F T P S I E U D N T G P E & S N P E M F P S F Y B N M X F J E D V T T
T J V B R J O T X A U F F N P M H F A V T O D S I S O C S F E U R J O T D I U S Q X F Y B N O F B S S F D B O
M O U F G F S T S B O F D P D O B U R G D V T R U F R Z O I M P H D E B T O U F B O J E V V M B I D F T B O E
U F Y Q S N F O M W E J F O D I F T I R U X P V H Y B A N O T U B U F S M J E U P Z F T E O X E T S G F N D X I B X F
X P N E Y Q R U D B S Q M P E O D B I U O S E U R J O M B M Z F O J D I S T L " O E F S O B F U M F S Z D I F N E
Q S P T Q U A U B S Z T J O U R S E V D S F I B U S ' Q S T E F O T P N U F S F Y B N M T U B U D P U S T U X J I U
U I F U B O S E B F D P O M I S S U S F S E U R J O M B T T V U R I O S F F B N O E I F Y Q S N F O M B O E
F N O S I F W E J F O C S R U F T F V E U R J O U C F W P S O S E D M S X F J E D V T T U I F P Q S F U E J O
P G S L Q S P C B I G F T U B O E S B O U Z F E F M B E E V V M B U N B L J U N L F T X B R O O S T U Z
D I P J D F T

5 I F D J P F G R U P O D J T Q I F S F Y B V U T F V O S P S G F T E O F V B I E F L O C H S E S U S F P D T V S H A U F E P S T L S F
Q V S Q P T F J T U P H J W F B G M B W P S P G F Y J T U J O H M J O F T P G S F T F B S D I

\$M B MPZSEJT D VPTOT QUPY B VTFV B Q EFUIFSF TMAPB EMESEF D JPFZOLF BUPS I E
BN JTUP GF T EBOO ET E EONE T P N EDCB DTP JUPFNBEJT B OZE KPTD EWEJF OCSF
IVNBO CFIBWJPS JO DPOEJUJPOT PG SJTL BOE VODFSUBJOUZ

& R Q W H Q W V

* OUSPEVDUJPO XIBUJT FDPOPNJDT

3BUJPOBM BUUJUVEF UP SJTL

. . 3JTL BOE FYQFDUFE WBMVF »
. , 3JTL BUUJUVEF ½
. 1 1SFGFSFODFT BOE VUJMJUZ Ć
. 0 &YQFDUFE VUJMJUZ UIFPSZ ..
. » 3JTL BWFSTJPO . ,
. ¼ .FBTVSFT PG SJTL BWFSTJPO . 1
. ¼ . &DPOPNFUSJD BOBMZTJT . 1
. ¼ , &YQFSJNFOUBUJPO . 0
. ½ 8IBU BCPVU bBOPNBMJFTc . ¼

%JTDSFQBODJFT CFUXFFO UIF SBUJPOBM NPEFM BOE SFBMJUZ

, . -PTT BWFSTJPO . ½
, , 5IF FOEPXNFOU FGGFDU , ¶
, 1 5IF TUBUVTRVP CJBT , .
, 0 "HFOFSBM UIFPSZ QSPTQFDU UIFPSZ , 1
, » -PTT BWFSTJPO IVNBO PSBOJNBM CFIBWJPS , 0

0UIFS BOPNBMJFT JO SJTL BUUJUVEF

1 . 6ODFSUBJOUZ BNCJHVJUZ BWFSTJPO , ¾
1 , "NCJHVJUZ JO DPNQBSBCMF DPOUFYUT 1 .
1 1 "NCJHVJUZ USVTU BOE PQUJNJTN 1 ,
1 0 #BZFTJBO JOGFSFODF 1 1
1 » 5IF bMBXc PG TNBMM OVNCFST 1 »

4VNNBSZ

#JCMJPHSBQIZ

, Q W U R G X F W L R Q Z K D W L V H F R

" TUBOEBSE DPOTFSWBUJWF EFGJOJUJPO PG FDPOPNJDT JT

FDPD BNF TMDDB ODEB OBE UF S ENPDEJUS NPJOB OE DPURDGNPQ ET ECE
TFSWJDFT

) P X W S B M T T V F O R J O N B O E S F A N P S E F E G J B O N B R B L E O P B D D U P U O O U B L E F Q B
G P S N U F V T M T B D I G B U M B M D I Q S P E V P O N P O B S Z M D I R D . P E S O F D P D P N B T
P D V T F J E T V C A U F E P I V N B O W P S B B E C F D S P N B F E B D O U J U B U Q S B U X I U
N B O Z P U I F S C S B O B I H P B G P T M D R I H Z D Q G T Z D I P M P H Z C J P M P H Z B O E O F V S P M P H

" O B F S E S Q B O T V U H E B F D P Q D P T N E V Q U I F B E J T C B T F E P O D F O P O P N F O B
O B N F M Z Q I F O P N F O B U I B U

S N A U P E Z B T Q F S I V N B O W P S I U B Q A V F U F E P N D B O G P S B B F T S D V T V J U T W S Z
X E B S Q O H O J U T W U S F B P S Y B N N Q B R M I E G M P M O H D B O S C W F E B T T D E D D Q I G F O N P N F O B
B M B V H I Z N E B T P C P S V E O V M F W P S E J T J M O J F G T U P Z T F S E D K S B T V F B Q S O S P O F
* Q U S O I X E D J O H B E P U B S V Z N O F A T U P O N B J O H B S C B I B E R U J O U V H M B J F G R I O U F I S E
P E S R U N B L E F F S R U B U E N S B G A V S E U S E E E D H P U B L F B S U B S Q U B O N U P X X O B D H
P O F D T D I J M E U P Q M B Z U F O B M T L J O S S B E P J O H U P U I F D I V S D I <

. H \ L V V X H

& D P O P N J D D I P J D F T

4 F F O J O U I J T X B Z U I F N B J O J T T V F G P S I F D H P O P E N J D F S W J D B S D M B O E 3 E U T R V S B S F
Q O U J B O E M A P V O F U O V A M X T B L U S E S T C O F F F C E X P S N B Z Q P J C T M F J U U B S E S
U I F B C P W F F Y B N Q M F T U I B U F D P O P N J D Q I F O P N F O B D R U S D B S O O P O T P O M Z N P O F U B
C V U B M T P T J U V B U J P O T X I F S F U I F P Q U J P O T E P O B O O P W B B Q I F D J D O F J B S Z W B M V F *

5 I F B W F P T U P D O J M Y B N O T G P D P Q D P Q I F O P O Y F O B O U R S E V U D H T M C D & B U
I B U P E E D C K I F F U O V B U B M B F S D B J W 8 F D M B M T U T K O I U E F J D P O N B L S F L F
F D P Q U P B H P S Q U F B H E O D B O C J N B U T E W V M B S P V O C P F M G N S D 8 I F U S
J U T B O E W V M S B S P V O F M E U P N B L F T P N F U B O T V U C R X U J T B H U R O L H F U S
E F D J T J P O X I F O G B D F E X J U I B O F D P O P N J D D I P J D F

& D P Q D R I N B Z B T V P O R J O M A Z A M V E S B V Q I E B T T U R N O G P P N P F D P V O P J N
J T B I Z Q P U I F U J D B M S F Q S F T F O U B U J W F B H F O U X I P N B L F T S B U J P O B M E F D
T U B O E B S E O F P D M B T T J D B M F D P O P N J D N P E F M U I F T F E F D J T J P O N B L F S T I I

. Q V S F M Z T F M G J T I B O E O P U H P W F S O F E C Z P U I F S T` D P O D F S O T

, B O Q S E U R J O M P Z N E N J F U F J S X O S G H U A O I F O P S N B R J O V B B M B I U F U N I F B O E

1 B C M F U P D P S S F D U M Z Q S F E J D U I P X U I F F O W J S P O N F O U X J M M C F B G G F D

) P X W S N P M F C B T R U E F P O B T U R J O N T C E U B O E T D S I S D M S E E U I V N B O O P S I B
J O T P N F U P B A Q F O I M Z E U P O B U L E U P B D D U P U O O U B L E F Q B
N E Q U S F S T V D I B F S T O S F S O D M J U E S U R J O M B J U N J U E D P U B U O V B U I T M S V F
U P S E U V G S F W O T O B E F U R U B U D I E D B Q B F O T S B O B U F O B O M P U Z O S E F O E
D P N Q M F Y Q S P C M F N T

\$ N B T D B O E O F T E F D P Q T E N V F C B U F E S P L P O F B B O E E I S O F W E J F O B F Z
I B F U F U F E U F J S E S U D I E F S M U X I U F D P O U P S U F R I B O X E F O F S U D I E B O E F D R I O B N F
S F T V M U T X F S F O P U D P O T J T U F O U B E K V T U F E U I F J S U I F P S J F T B D D P S E J O H

: 4 P V S D F p : / / e n . w i k i p e d i a . o r g / w i k i / E c o n o m i c s
1 - J N J U F E S B U J P O B M J U C Z P V O M E T P E S S F B O F S P S O F E O U F B E C T F M P X



'HoQLWLRQ

& DPOPNJDT

& DPOPNJDTUF WZPGI B COOPJOGFUTUDJEN RUP EUP FDPD FEBB * W W E FMT NB
N BIFNUJEB O EUTUDJEFUD JPOV B BLSF EMM Q ECE E S RJB EFET T F D B GPANN B OMBE
EBUB UFTU UIFPSJFT BOE NPEFMT

'PSBM OUNF LFS XBTJB FXFOE FUBB FDP QPTNDPQOE F BYQ SN FOMEJ DMOJF
'PSE FDB EFFNJB XZBDF UIW QPSRGI B BT I BT OF F N QSDJ NLZ EPC \$ B/W
E BE S JFVGSNUF QVSMF W/B S NUF OF QVSMF W/B S NUF OFS TMAPV O DUPSNE
QSP DFTTFTTUBOTENZEPDSTXID I NZB ECF P SAMA BO EZ BCBDIW EUTUDJEB
B OMBE & DP QDP EUBT ECF EZE NM V E UG ESB M TB OUEFJUSB DRJO TUCFFUOF N
DPOTURMFEV HI FDRJOU D POV FT NDEPEMUP N BOUNUF EUBTPNF
RVFTUJ POTDPVME OPU CFBOTXFSFE 5IFMPOHTUBOEJOH JEFB U
CF DUPSNE NUBUD CUF DB NEFIZ D DFFOLE BB DMPVJO XUBT PNOZ E RVFS JGZ
FDPOP NJD UIFPSZ

#2? pBQ`
2+QMqKB

.PSFS D U ONZBZPGI E T BODJF TVEF IBOHFE B OSE BODI XMB CEFVONECFE
O OUF POF I BICEF MPEMB QSRB DBT DFN HUFEB T TURNOGR UI PNP F DDPVOTPN
JOCVSPGN SF GMQV BOE BMBEUB NPN # F MPEMN P EFS EMOUJO W EVSRVT
OJBTFT UIBU DBOOPUCF UBLFO JOUP BDDPVOU JOTUBOE BSE UIFP

5IFZBDDUPSNW BURJOJ IVNBO DIP D OUF E JON B D HSD FITN BOT
NBZ OPU CFB CMF UP QSPDFTT BMM UIF JOGPSNBUJPO OFDFTTB
OBIMZ FUP OBUH FVTF CUQTPJVT PUP NGS IUFJ E W VMB OUEF BTTURNOQ
PG GVMZ SBUJPOBM FDPONJD BHFOUT NBZ OPU CFPDSSFDU

3FDSW WBT FE QVRS BO E W VMB DBO N SUB E BOT DSD JUBRJOB OUEFZ
NZO ECF MUP NRJESZJUS F VBS &V OF BDIHSPYQ B D H D WYKTOU BRJO T
NBZ GBJM UP JNQSPWF UIFJS SFBTPOJOH BOETPNF NPEFMT BD

'HoQLWLRQ

#PVOEFE SBUJPOBMJUZ

5IFEF EOPPVO EMEJE SURJOVBXZDURSE V DUFED VURJO V O P DS Q ZOU FFO
UF QSD V N EOPJOMBUBZTUB TT JONF EMB OE B RDNB DP OUPS B OUEF B JGZ
IVNBO VPSBU T P SAMA FDRDIF S COX B TUBQ FV OF D RPOVBO EMBUM Z
J SURJOM B V HIZT P NFF EFC VI B OJUS I W SO W XE H S I W PS E D B BURJOMBX
UF NP B E VUF JH W W MGP QNIB E BURJOGR F BUD F OUBTJ QURIO FDRDTRIN P QBM
. i e .

2tT2`BK2Mi OOUF B FSI BOE OUPS SPVURJO B COEFJUBU FD RNDRJO GPYQ SN F OME EBSMAE
2+QMqKB UP FDPONJD QIFOPNFOB & YQFSJNFOUBMEBUB JTEBUB

XLDISB EMBUM E F EST B O DESU ISQ SQ PTF SDVROBFE DJFOETSJE NBO BCE
4VOE"ŠQ >

5IJT OFXSB B ODPMMT EOPSB DRJO CKFFO F D BDTBNQIESPNI TGPST EBI O
QB D WBSQZD I P E " OJ ED BRJOGFEN QSRJO DGN EHO H F TUR PGV T XUBTB XEB
PGI B /P MISJ FJ & DP O PSX RL JOUF F NFFLOUT GPYQ SN F OMB OE OPEM
FDP QPTN IOFNBO B IO E P NRU BOE ANZ Q > 5 F, 1 1 / P CMISJ FJ & DP O PN
4 OFODFTURBODTIP HU%B OM B IOFNBOE TFGUF XSE B QTEB COOPJOP
FDPOP NJDT JT E JTDVTT FBE OMBUB OS OQ P N J T O I S F Q P S U

& DP QPTNB OZE I OTEPVSBQJUS T QURON EBT OFBOJE W VMB O EPHV Q O VPS B
" M B V HOU EMOZD I P HDS JUMJGT UP OB OSEBURJOMB P EAFES OUR PD PN FZI EUT
FDPOP NJTUT JOTJHIUT GSPN QTZDIPMPHZ IBWF JOTQJSFE OPU POC
CVU BMTPIUF EFWFMPQNFOU PG OFX NFUIPET TVDIBTHBUIFSJOH

5IFJUF BURJOGRZD I P ZBOE FDP O PNP XE XIZ D DFFOLUX P T EMD ODFT
TISF NZOPNNJUSF UT BOEU C F G F B NGS JUSB DRJO) P X V S I E J E SGO
CB DSR VIOE OQB DIF EBT SDB R VRO T N W BJOJUN QSBURJOM B NEJLQJHVI
CFUXFFO UIFBJNTBOE NFUIPEPMPHJFT UIBU BSF UZQJDBM PG FBD

" GJSTUTUFQ JOUIJT EJSFDUJPO XBT UBLFO CZ)FSCFSU " 4JNPOJO UIF . i > 1 ` T

& D P QDPTNG SN F QURJCFGNVU FJUSF U IUF DP QTE'N W JO NS ET OUVURJO T
B HSHUB C FVWSS OJUSB URJO TUCFF O F DUB O RDN QJIUBP DVT ROPNVSTF
UZDIFYQ SN F OJUTU F G EDRJO TBB F FUDJN P BVO SEB GSGOD P QED Z RPD H
EUIFGQJBFSTM& D P QTE'N VMDM Z IR VURJOF NUPFW B SPEDQSE M BJE HPUFT F
PVUD RNDUTIF PUIFS IBOE QTZDIPMPHJTUT BSFNPSF JOUFSFTUFE JO JOE
DFOUFS UIFJS BUUFOUJPO PO QSPDFTTFT JO QBSUJDVMBS SFBM XPSM

.H\LVVXH

3FTFBSDIRVETUJPO

51FUZDIBFST DB R VPSO BTZB O E D RTOBEN BE P QNF PEX I SF B TZQITP HUT X PAV
QSGGFS WBRZ O P Q B P Q M F EP JU

51 SF SF M PJTOD BUEJ GSGO D RUCFEDUX P IVN BJOOTDUFIT XZFYQ SN F W
BSF DP QJEB&D P QTE'N BUBD BUISO HMEGFBUQ F M SF BUDUN P QUS ZOJD B QV
BOE UIJT BUUJUVEF JT SFGMFDUFE JO UIF XBZ FYQFSJNFOUT BSF DBSSJF
QFPQMF XIP IBWF OP JODFOUJWF UP UFMU UIF USVUINBZ MJF

([DP SOH

%POBUJPO UP B DIBSJUZ

'PSYB NND JTCP NF BTBFLFE IP M X X PNE E PUCB B DSIBU Z BUN RVMD I EZVT M M Z
TUBUF JT IJHIFS UIBO UIFBNPVOU UIBU UIFZ XPVME HJWF JG UIFZ XFSF BDUVBM

*O H FSNIDJE S R U E U J T U Z F G S P O N F Y Q S N F G M F D P Q T E ' N Z B F J P O N B I S F
X I P S B I Q U F J O S W O B O P S U S F Q T B S M M O D G E D W O U I F B F S I B O Q Z D I M
P H U T S F J O U S F U F E O Z Q B F U D I D I D F T B O E P N F Q B Q S D Q B U O B E M F G U B U T J
J O E F Q F O E F O U P G U I F J S B O T X F S T

OVFS N F OUSB URJO TUCFFUFX P T E M D E O D R V F M S I S E U F H U Q U R J O B O S F B T F E
UIFPWF SMBQ JONFUIPEPMPHJFT BOE FYQFSJNFOUT BOE SFTFBSDIRV
TNJBS 4 P N U I F E J G S G O X P E T S B V T U P B S F E U I F T B N F Q N ' P S Y B N N D P Q D P T N
V T B I F E F B Q P M D J H P P E S O B E O G B I J M Q D I P Z V T B I F U S N T T E M D J M N B B O E
O F H P U J B U J P O ' P S B N P S B E F Q Z J M F E B S U J D M F T F F

51F DSP EF DP QDPTNG SN F QURJCFGNVU FJUSF U IUF DP QTE'N W JO NS ET OUVURJO T
CZ EFTDSJCJOH UIF CBTJD GFBUVSFT PG FYQFDUFE VUJMJUZ UIFPSZ /F
UFTWDJTPYQ SN F QURJCFGNVU FJUSF U IUF DP QTE'N W JO NS ET OUVURJO T
PGMVT TFT BOE QEBE CSF FURJOCSP C B M F J T B J E F D V T T T M I N V B M F F S E T M U
BOE UIFJS JNQMJDBUJPO TUIBU BSF HFOFSBMMZ BDDFQUFE CZ UIF BDBE



5 D W L R Q D O D W W L W X G H

5I JT DIUSE RV XIUW F NBJJH UT QWEJF EZ CF UOSEBF DPJ ANPNPFYQ RUDE
VU JMIJUSE RVB ORWF BV EUGDEW VNB PSTL8F BTT V BUE FDP ON B ISF
OEW VNB XIP NUN BLF BO FJ DOPPF SURJOMW F TF OBUFBX BT CSFDMZ
DIPPTU XJDB FJ S FUCPS U8F US XIUW F EGJ B OGP'SLO FDPJ BNUF O
EJTDVTT BTTVNQUJPOT BOE UIFPSJFT

5LVN DQG H[SHFWHG YDOXH

5XP EFGJOJUJPOT PGGFS BO JEFB PG IPX SJTL JTHFOFSBMMZ QFSDFJWF

3JTLPVO

• 5IF QPTTJ CJMJUZ PG JODVSSJOH NJTGPSUV OF PS MPTT

) B[SE O TSO DBDIB OGM PSPPSV O O XII BAN NZC BSHC LFUQZ
PG TVDIBO FWF OU TVDIBT GJSF PS UIFGU D UIFBNPVOU PG UIF D
QSF P OI B H DPEJUS T QAU D DBSTUDJBN ZD BV TJ BGVFOFU
PDDVS

3JTTL

B3JT UTU F OFPVI BB DIPTURJOSBJ WQW E HIF DJDFGEBBJOJ MFBUMB
M TBO V OENF RD/P N BF OROJ OFJUBB D.DFF WJH BGMF O DUF RD/P N F
FYJTUT PS FYJTUFE 1PUFOUJBM M'PNFTUW BFNZIRVW B O TFOEZ BW P S C F
DBSSJFT TPNF SJTL CVU TPNF B S F NVDI NPSF SJTLZ UIBO PUIFST

5IF EGJ B OGP'SLO FDPJ BNEGGORUPT B MO BVE'PM BV HO H S O MFTSJ
Q S JFVE BT OFV B FDPJ PNB OCF B FETJUB OFH B WFO TTVDI BU OMP
BDDJEFOUT BOE CFOFGJUT TVDI' B P S B TDFBSPD FENSJUVQ FOJCOOPGWB WJX O
SJTL JT NPSF MJOLFE UP VODFSUBJOUZ UIBO UP OFHBUJWF FGGFDUT

5P MS J GZFNJ M ZX F XM MUF CURJOP DP QSTLBO EGJFYQ RUDEW F
FWFB OHEVUDPNFT

'HoQLWLRQ

_____ & YQFDUFE WBMVF _____

5IF YQ RUDEW FBS OE FBSBJUUF XJUF EVSS H SIF BQ/PJAVW FUTBUJUVSBIW
DBOUBLF

"TTV NUBO BSGF OSWO SBLFT BQW BUNXO SJFZP BO BO B KCPV BU
)PXFWS UIFBNPVOU PG UIF QSPGJU JT OPU DFSUBJO
JOHPPE ZFBSTJU JT IJHI 9 XJUIQSPCBCJMJUZ Q
JOCBE ZFBSTJU JT MPX : XJUIDPNQM FNFOUBSZ QSPCBCJMJUZ . Q

• 4PVSD F://www.collinsdictionary.com/dictionary/english/risk
• 4PVSD F://en.wikipedia.org/wiki/Risk



51FTF PSISD D SFBSEIP B VFFO BOUEF \$ T TEFIE SGT UB TUP RNF5TF FO
USSF OSEVP F TLOPPJ BVE O DGXJUM M B H SB E EFEBB OSEMFJT RIG Q C BNFJTU J
Q BOOUP BUDQ F SGT LPUFU BX F BTTVMX P Q R W T B HPZF BPSB CBE
ZFBS *U JT DMFBS UIBU JO SFBM MJGF UIFS FBSFNBOZ QPTTJCMF
NBZEJ SSGO BV F TP XVS O WJT JN Q YB NQ XF E REO P VT UCDVPOSEB T
XIDINF BUX F E PUOP FEN BLF B TPO N BUCP TU S VPIJOGSFGT O B MIZ
XIFUIFS UIF QSPCBCJMJUZ EJTUSJCVUJPO JT VOJGPSN OPSNBMP
5P FWBMVBU FUIFJS BDUJWJUJ UIF FOUSFQSFQFVS NVTU DBMDVM
UIF QPTTJCMF HBJOT PDDVS *OFFYDQFODPNFJEW BMBV U IFTBDFUSJNVFEJUZ I FB O
JU JT DBMDVMBUFE BT GPMMPXT

¿D âÒ , â Ó

(DP SOH

&YQFDUFE QSPGJU PG BO BDUJWJUJ

*G GPS FYBNQMF UIF QSPGJU JO BHPPE ZFBS JT . ¼ ¼ ¼ ¼ ¼ BOE JO B CBE Z
UIBU UIFTF UXP FWFOU T E P D V S J T U F F Y Q F O D P N F E Q S P G J U J T ¼ ¼ ¼ ¼ ¼

&YQ FUDVW F&7 T BZQ F FUDJN F BSF VSI HGVSVW FGR F BDI W JELPZF TUOSFND
BSF BTJ V B R J O O F B E U W F X J F U E N F S E O P J O W S F B U V B R J O T F B D I W N E U Z
OFWFS QSPWJEF B GVUVSF QSPGJU PG ¼ ¼ ¼ ¼ ¼ UIJT JT TJNQMZ XIE

* UT JEFUW F D BUBX IFO NCBH DD PXTFC DV TEPVORJO RUGVUSF ZDIPJOT
P O R J O U T B U G M F O D U P S I U F T B I G H S J O Z X F E G F X U X F N F E Z O V C O B O E
PVUDPNF

'HoQLWLRQ

&WFOU PVUDPNF

" OAVF OUT EZOIS V NTO D ELD BO ISDUEV Q FUCETENDQ SBJO DOF PSYB NMO B H P ZFES C
JT P O V F O B I C B Z E S T J B O R S V F O " M B V H O S F M M V I G O T N Z B V F J N Q S B J O D P O T F R V F O D F T
F B I C J S U I B O V D M F B S B D D J E F O U B (¼ T V N N J U N F F U J O H J O U I F G P M M P
U P C F J O E F Q F O E F O U P G U I F J S J O G M V F O D F P S J N Q P S U B O D F
5I FP V D P N F E B O V F O T J T S F M B U R J O F U F H P Z F B P S I U F C Z F E S & B D M F O C S O H T D P O T F
R V F O U B U T B C F O I U F E J U D O N B I S F P S F B N Q O B H Z P E E M T S B I H I B E U R J O T M X
M B C P S Q S P E V D E U W J U T Z B J T T V I N F E M W F B U U I F T F D I B S B D U F S J T U J D T B S F J N Q M
FWFOU BOE DBO CF FYQSFT TEFUJOSNPGQJEUJBSZ UFSNT

5P SFUVSO UP UIF FYBNQMF XF DBO EFGJOF UIF BDUJWJUJ EFTDS.
FV F O B O E D P W U F E S F O P D S B J O O F S X R E T L F B U D E P V D P N F Z I C E J H I S P S
MPXFS UIBO UIF FYQFDUFE PVUDPNF OO UIF PUIFSIBOE BO BDUJ
FBDI ZFBS JT bTBGFc 5IJT BD WJFV S T O V Z F S T U O P O S U Z L E D T F S U T B R J O W Z P N F
UIF TBNF OBNFMZ UIF QSPCBCJMJUZ UIBU JU XJMM HFOFSBUFB b

\$ M B M I Z F U D P O P E O B O B S T U Z B D J W T J N Z D S P B S F B O B D P N M P X O T F O
U F N U F S D B S T F L T B T J U P E J U M T E B N B H I T T F E S V O Q U P S B N D I G P E S F
N E O E S S G O D E X E F U F F D P O P E O B O G P S L B O U E P T F S F P D P N M I Z O M E J O
U F O F U F S D P O B O P O P G I E N U F S O F D P O P U R O U R J O G P S U D P S O D B M O F I U
P D S T W I L O P X S F U N B N C Q C B I Q X W A M B O F O I U P D S T W I U B Q C B I Q B O P Z F
PS [FSP JT TBJE UP CF TBGF PS DFSUBJO

.H) LVVXH

3JTL JO FDPQPNJDT

5P TVNNBSJ[F BSJTLZ BDUJWJUJ NFBOT UIBU FWFOU BOE UIFJS PVUDP
N F B M T P C M O O U F B F S I B O E T E B D I W N F U Z O E U I F R U P N I F S E O O F D P O P N
S J T L J T B T T P D J B U F E X J U I V O D F S U B J O U Z S F H B S E M F T T P G X I F U I F S U I F F

1 &7 J O B S F M E W F O M F X J F U E V E B H S F S E W F B U F W S B H F O S P E C J H S F O S X F P N B S F Y B N Q
. » DIJMESFO EPFTOPU DPSSFTQPOE UP B SFBM OVNCFS PG DIJMESFO QFS XPNB
° 5I JT EGU B OTJN QSBJORULF JQNO EOUF B D V P O U B P G P M X T C F O I E S V B F F O Z I M P H D E B T O T U B U
EJTUJOHVJTI SJTL JO UIF EPNBJO PG MPTTFT BOE SJTL JO UIF EPNBJO PG HBJOT

*O B FSX RE TLF DSBOU Z RJVM OTJIF B N PRCO P QZOFF EFF B BUFD E W VNB
JOEJGGFSFOU BCPVU XIFUIFS UIFZ DPOUJOVF UP IPME UIF SJTLZ B
0CWJVPVTMZ UIF TFM MJOH QSJDF DFSUBJOUZ FRVJWBMFOU JTH

"OO`T DFSUBJOUZ FRVJWBMFOU JT 1/2 » ¶¶¶
/FE`T JT 3/4 ¶¶¶
BOE -VD`T JT 3/4, ¶¶¶

51 JTM B EPTBNTM EGGU B DCP`S JUBV EUSP VHI B DSPUN QDFUO E W VNB H ETO\$ &
BOE UIF PCKFDUJWF & 7

3JTL BWFSTJPO BOE SJTL QSFNJVN

'HoQLWLRQ

3JT L VSTUP QN QFJU BUIF DSBOU Z RJVM OFSBSTJZB DJ WJWJWJUB OTJ YQ RUDVW F
\$ & & 7 CFDB STLVST F STP QJ M MPUHSZS UBISTJLVF Q GZIN EZH FV V Q BQ RUD
Q P JMT HCB 5 F E GSGO D BK E FUF YQ RUDVW F B WFE DSBOU Z RJVM OTJ DMBU FSTL
QSF NVN 31 & 7 \$ & 5FSTL SNV NT Q.PUFJOU F D FBOEG S JVBST F C VRSB JU JF
NBYJNVN BNPVOU PG NPOFZ UIBU BO JOEJWJEVBM BDDFQUT UIFZ NJHIU

(JWFO UIJT E D G JCTJSUJTFLOB WFSTF CFDBVTF IFS \$ & 1/2 » ¶¶¶ JT MPXF
4IF QSFGFST UP HJWF VQ B QBSU PG IFS FYQFDUFE PVUDPNF B SJT
UF PUDPN EBPB ZFEB /PUFUBJ JGO DMP WFRSNGSFUBO SB DSBOU Z RJVM OPG
1/2 » ¶¶¶ UIF PVUDPNF XPVME CF FWFO CFUUF S UIBO FYQFDUFE

3JTL MPWJOH

'HoQLWLRQ

3JTL M P W J O H O U I F P Q Q P T J U F E J S F D U J P O U I F D F S U B J O U Z F R V J W B M F O U
U F Y Q R U D V W F 5 V T L F S T L S N V N T O R J H F B G F E T E T O F N Y E N V N B N E P A C P Q Z F
U B U I F C S F P J D X I N O N R J H F V V Q E E S R J N B U B O U F S T J Z B D J W P S J X I W V S T L F B O M P P
V W F G I U S T L S N V N S F G T E T O F N Y E N V N B N E N B O U E Z E S F E Z E R M T F X I F O J D H P P T
C E K F F S T B Z B D J V B Q U E Z Y Q R U D V W F 5 F Z Q S F S R J N B U B O U F S T J Z B D J W E U S Z I U B O
B D D F Q U J U T F Y Q F D U F E W B M V F S J T L J T B Q P T J U J W F D I B S B D U F S J T U J D

-VD JT SFBEZ UP BDDFQU UIF SJTL BOE IJT \$ & 3/4, ¶¶¶ JT IJHIFS UIE
XPVME SV T F Z B O P U C O P X 3/4, ¶¶¶ P U F B F S I B O R E G S T B O P 3/4, ¶¶¶ 10 M B W D E F Q

5P DPODMVEF JOEJWJEVBM TTVDI BT /FE GPS XIPN UIF SJTL QSFN
JT FRMPBF YQ RUDVW FBS TEBU CSJL OUFBM /FEJSTL OUFM CFDB JTSFBI
FRMBUF & PGIUSTJZB DJ WJWJWJUB E GSGO C EVD DGB B LOPX QFSN PIVOT ¶
P S C F B S J O H U I F S J T L P G B O B D U J W J U Z U I B U I B T U I F T B N F F Y Q F D U F

"O B FSX Z PNF STBV EUPSTJUP JN MZTL DGEW VNB JEG QFSGP OSJZ
BDJWRJ B O B \$ ZBDJVKJUIZF TBNQ RUDVW F OAKS SSBICM JRSEYBNQ
XFDBO BTL "OO -VD BOE /FE UP DIPPTF CFUXFFO UXP BDUJWJUJFT

UF P O J F A G O U F G W P J V T B F N Q F Y Q R U D E P Z E W F I U S . ¶¶¶ ¶¶¶ 3/4 ¶¶¶ ¶¶¶
U I F T B N F Q S P C B C J M J U Z F Y Q F D U F E W B M V F 3/4 ¶¶¶ ¶¶¶
P S B O U F S B D J W I B U Z B O S F B U F S 1/2 ¶¶¶ ¶¶¶ ¶¶¶ ¶¶¶ ¶¶¶ ¶¶¶
Q F D U F E W B M V F B M T P 3/4 ¶¶¶ ¶¶¶

"M B V H U F X P B D W T U E U F T B N F & ¶¶¶ ¶¶¶ ¶¶¶ ¶¶¶ ¶¶¶ ¶¶¶ ¶¶¶ ¶¶¶ ¶¶¶ ¶¶¶
T U B O E B S E E F W J B U J P O , 3/4 , 3/4 U I B O U I F T F D P O E W B S J B O D F , ¶¶¶

7BSJBODF

'HoQLWLRQ

7BSJBODF NSF BIF WUS WJOGPW FT BTORBO FEZ CVUSDOJ HUF NFBGUP TRVIB
EFWJBUJPO PG UIF PCTFSWFE WBMVFT GSPN UIFJS NFBO JO BGSFRVFO

8IF QF YQ RUDVW FTUF TB ISTLVST ED E W VNBX EZ GFS B GSB DJWRJ B Z U
STJZPO HF UF BUDJVKJUIZF VBSICM J"USU WAFSP QF D EBS ZX EZ GFSUF
STJZB DJ WJWJWJUB OUKHIS SSBICM J"UOZB NSTL OUFMOJE W VNB PFTUCP B
DM BQSGS O DUFZD P G S I U F X P U P C F F I W A O B O S F B E G S G O " T " O U S T L V S T F

TIF XN VFS IUF TFD PLOEVBUNW TVSEICMJUZ OUSVFE X PVCJDESSGO
BOE -VD UIF SJTL MPWFS XPVME QSGFGS UIF GJSTU BDUJWJUZ XJUI NPS
5IFSPS XFDBO B TLEFVNB LFDROUF SFTFOG O SBOUZO O SBOVS
BDSEU HUF QST P OBLBV EUOUF OYU RUIOX FSG NZSODIF N RDPNNPO
B QQB DIFT ZFB E OEFUUF B UTJ YUFZUP W ZE FDP ONBJOH V S EFL
OB MIZ RYQ RDE WJ MUF SZZ 65 5JUF B Z BT VWF QFE WO /FVNBOO BOE
.PSHFOTUF S O Q O V J P O O BOE .R S B I O E T U F S B O E F E E O Z B A P W B H F

.H L V V X H

____)ZQPUIFTJT

&YQFDUFE VUJMJUZ UIFPSZ &65 IBT JUT SPPUT JO UIF IZQPUIFTJT UIBU BO BH
VO SBO DRJ O E D T X F U F C R O R E S F V G P S N E S S G O V F O X I U U F S P C B I O J E U Z U T F
QBSUJDMBS FWFOUT XJMM PDDVS

3UHIHUHQFHV DQG XWLWL\

4PNF GVSUIFS FYBNQMFT BOE EFGJOJUJ POT BSF OFDFTTBSZ JO PSEFS U
VOEFSTUBOE UIF EJTDVTTJPO UIBU GPMMPXT

(IDPSOH

____ -PUUESZ

8 F C O H X I U B N U F S Z P S G N O D U U F Z M T I D B I T U S E D M S R U F S Z - & B D O E W V M B O D I P P T F
C E X F U J P N F S O B F W B C Z P S O E C Z B M U F S Z D U L F I F U D I L L P G F S Z P W I F P Q S O U D U Z X O
. ¶ ¶ † X J U I Q S P C B C J M J U Z P G ¶ . 5 I F F Y Q F D U F E W B M V F P G M P U U F S Z - . J T U I F S F G
P G I U D I L L T J F R M P U F & P G - J F . ¶ † B S T I L V E S T F W F S Q S T P O X P O U X P N E C Z I F U D I L L F
/ P X B T T V W U R E S J T B O R S R U F S Z - O U W T D B B U E L L E R I T & S P B Q E V D B I O ¶ ¶ X J I U
B S P C B I O E G ¶ ¶ S M B M Z U F Y Q R U D E W F G P - T J H I S I U B O F D U P G I U D I L L F . ¶ ¶ † Y ¶ ¶ »
. † F W F S Z P O F X I P J T O P U I J H I M Z S J T L B W F S T F J T M J L F M Z U P U B L F U I F D I B O D F F

*G XF BTTVNF UIBU FBDI JOEJWJEVBM DBO POMZ CVZ POF UJDLFU UIFSF
CVZ BUJDLFU GSPN - -
CVZ BUJDLFU GSPN - ,
PSEPOPU CVZ BUJDLFU

6 TO HIF EGO B O J H V O S E S F B M U F S Z I J B O F O C F D B J V T F O P S B O D E U B Q Q F O T
E L B G V S F U N F O E F Q R U E G H E J O E W V M B I S F O B U R J O G R E G V S F W O X J M S N J O F
U F P U Y P N G S I U F O E W V M B P S E Y B N I O B P T G P ¶ † I F Z C U P V U B - I . U D L L B O N E U P S
X J O O H G R ; # E Z G P V U B - I , U D L L B O E X P R O X F V F B S F M B S O B F W F O " \ O P
U J D L F U - . U J D L F U - , U J D L F U ^ B O E G J W F Q P T T J C M F P V U D P N F T O \ O P U J
- , X J O C V Z - , M P T F ^

-JLF UIF MPUUFSZ FYBNQMF XFD POTUBOUMZ GBDFTJUUVBUJ POT JO XIJ
O B F W T E P C Q P J O V B F S O B F W E S F Y B N I O L F N M V E G P P P E T S O W E U B B
E F D J T J P O N B L F S D B O B G G P S E 8 I F O F W F S B O J O E J W J E V B M D P O T V N F T B
S J F O D F U I F Z E F S J W F T P N F T P S U P G T B U J T G B D U J P O P S Q M F B T V S F G S P N
J O H S O M P S O L J O I I P O I Z Q S F S I S / T J U B I T T V N U P O E E W V M B I W F S F S O D F T
O B N F M Z U I F Z D B O E S B X V Q B M J T U P G B M U F S O B U J W F T G S P N U I F N P T U Q S

(IDPSOH

____ "OO -VD /FE BOE UIF MPUUESZ

'PSFYB NMBT " O T O L V E S T H F S O S F S O O D P S M F S Z D U L F S F B O , U D L L T J S F S I E P O P
U J D L F U C F D B V T F - , I B T B I J H I F S F Y Q F D U F E W B M V F X J U I S F T Q F D U U P U I F Q S J D F F
O R D I L L R U B - O U D L L C F D B U N F T S J F G P U - . U D L L E S J I T F R M P U T Y Q R U D E W F B O B M Z
B O , U D L L T J S F S I E P B - O U D L L F P O O M U F S Z S F S O D F T D B O S J F E T E P N K E -
U D L L F O R D I L L F - . D U L L R O U F H F S I B O E T J M F S V D X N V B E T S F S R J C Z P O I G P U K P
U J D L F U T U I B O B W P J E S J T L

* 5IFT SBF PUPNJDXTDI X F V B B O U S F U " T X F M E N U P H W E E M P S R G F D P Q D U R B Z X F M B
T J N Q M J G J F E U I F M J T U

PUIFS . 11111± DPNQBSFE UP ¼ 1111 6UJMJUJTTBJE UP CFPSEJOBM X
EJ EGGODFTM 111 ¼ 1111B OIEFSB QD HGMFSD B FVBU FS IUB OF BVDIBW FGP
UF E EGGOD*RGFUT N B I B O ESYB NQ ZFYCF TO MBW FJD EMBN LF EE SE PFTUOP
DIBOJH KJIUF BDI NUP ODESOEN BRJO4NJES MIZ BJOMFVW FGIU V JMTJOUZ J
BT JNQPSUBOU BT JUT SFMBUJWF WBMVF PS UIF SBOLJOH CFUXFFO VUJM
4 FBSXF IM D REDF EUF HPZF BB OUEF C ZFEST F SUM ZP XMSXF X MWLJUP
LOPX I P S F T EBSTUZFV OBOE XITBIFSPM BCF C BIC JSZQD H V SBDP
BMUFSOBUJWFT 5IF OFYU TFDUJPO BEESFTTFT UIJT RVFTUJPO BOE JOU

([SHFWHG XWLLOLW\WKHRU])

" VUJMJOUZICMUFPS O MFD B FVW BLSF DSDUP IBQ B BDC BICB D F P XVS
JGFUFS B FVW BUX F IMUPSOISBV CSUD BOE SXDIB/ C BICJ B X F FIF
C B K F F C S F I B O E R D B B O T S J U N F E M J N E S U F Z G S N U F S T U Z B D J W Q B U Z N I
NFBTVS FUISPVHIB DFBYQDFVWU B E JPLUJ RIG WZ F

*O PSYB NQ LFSTUZBDJWB UKZP Q EMTU P N B T H P Z F B B O E B Z E B E G X I D I
U F S F F U X P Q E M T U J M T U M U T 1 1 B 1 O E 1 / 1 1 1 1 Q E O H E R U B P U P N G I B W O
JOUFGVUS -FUT ECFB B T F B N R R G S P O Z F S O F D U F H P Z F B I U P D S T X I U
C S P C B I C Q B Z : E B T F N P Z F S O F D B C Z B S X J I U D P N T Q N F U S Z S P C B I C J Q Z U J T
D B T L F S T U Z B D J W D B U Z C C E J E E B T Q . Q 5 F Y Q F U D E V W F & 7 P G I U B D J W B T Z
BMSFBEZ CFFO EFGJOFE BT UIF FYQFDUFE PVUDPNF CFGP SF UIF FWFOU

¿ ð Ò Ó â », â - -

5IF FYQFDUFE WBMVF DBO CF QMPU UFE POU IF BCTDJTTB PG UIF HSBQI J
) P X V S I B E J D O N B I S R V T B L F U R D C S U F P U P N I F L O P X O B O U E W N F E T
U F S T U Z B D J W Q B U Z O D U F F O F T Q B C B I C J U B J I U Z F J U S L O P X I B V D S I S D M Z
F U N B E 5 F F Y Q F U D E W J M & G E G I E S T U Z B D J W T U U F Z S B H G I U V J M T U S J V E
G S N U F Q E O M T P U P N K T H U F E B S E D R P U F C B I C J U Z U X J M S V O U F
Q S F W J P V T F Y B N Q M F U I F F Y Q F D U F E V U J M J U Z P G U I F S J T L Z B D U J W J U Z J T

¿ ï Ò Ó â , â â - ç Ò , â - ç Ó - ç - ç

5IJT TIPUKEDIF VJMTJUEB DSDUP P N J O U F U X P Q E M T U Z F S T H P P S E C B B P O
U S W F U P U F Y Q F U D E W J M J U Z U F Y E J O I U B I U Z B S F M J M Z U P D S D O V B F S X R E T & 6 J T
U F Y Q F U D E R J O G F E G V U S V J M J U Z Ó â , ' a s P N B N I B N U D I E S T Q U F D P Y Q F U D E
V U J M T J M O Z F S B P N O E P J O O B D O U F S B Q D G H U S F . L F M O U B I B D P O I W F O U ' U P
Q E U # J T U F Y Q F U D E W J M P S E U Z D G O M T D P J O E P J O G P N T Q N F U S Z S P C B I C J T Q J
. Q B O E P V U D P N F T 9 B O E : J G Q 1 U I F F Y Q F D U F E V U J M J U Z J T F Y B D U M Z Y
V U J M J U Z J T V 9 5 I F P S E J O B U F P G Q P J O U \$ J T U I F F Y Q F D U F E V U J M J U Z E I
Q 1 » B O E J U T B C T D J T T B J T J U T F Y Q F D U F E W B M V F

8 F O P X V F B J O M N F S T U R E F S C U F F W A V P G T B T B O P J O G N B O B O O H U F B D J W J U Z
5 I F S C S X F D B O S U P N A W P G T B T B O P J O G F B S E Z B D J W T B O J E V F B J O M
U F S U D I E B S P Y O S I U F E E S G O B U V E U P S T I W B X F O U S E V D O U E G M P J V T U P F O
8 F I W E G O F U E F D S B O U Z R V M O B T F B N R R G S P O Z H U B I U F O E W V M B I D L T I E F T
T B N F V U J M J U Z B T U I B I S F J T Q Z B I D B U J W B J T U Z I F T B N F B N P V O U P G V U J M J U Z

ç ½ ¿ Ò Ó â », ð ï Ò Ó â , â

UIVT

ç ½ ¿ Ò Ó â », â - ç - ç

5IF SFMBUJPO CFUXFFO UIF DFSUBJOUZ FRVJWBMFOU BOE FYQFDUFE VU
PG UIF JOEJWJEVBM JORVFTUJPO

.H\ LVVXH

QSF GFSFODFT DBO CF EFTDSJCFE CZ MJOFBS VUJMJUZ GVODUJ POT BT
MOJFSB P NOBRJOGRU J MTU XHUF EZOUJ SSP CBNFJUM DM B MIZ RHOZ GUEJOPS
XIJDI UIF DFSUBJOUZ FRVJWBMFOU JT FRVBM UP UIF FYQFDUFE VUJMJUZ

&65

8F DBO TVNNBSJ[F F Y Q F D U F E V U J M J U Z U I F P S Z B T G P M M P X T
· JU JT QPTTJCMF UP NFBTVSF VUJMJUZ GPS LOPXO BNPVOUT PGNPOFZ UIF IJ
IJHIFS UIF NFBTVSFE VUJMJUZ
· JUT Q EOWUP NF SFUV FQ RUDEUJ MGBSTZB DJ WZUXEJ UQJHF V JNEJUFZGFSN
LOPXO WBMVFT XJUI UIF QSPCBCJMJUZ PG PDDVSSFODF
1 STLVST FVWS QJEV VMBX ET SOST OF BNRJPOV OSBU F RMA OB NPT O OBT
DBO CF HSBQIJDBMMZ SFQSSTFOUFE CZ B DPODBWF DPOWY VUJMJUZ GVO

4 P B S X F I M T F F O U P F X F T B O E V V M B S F S O D Q U S N T O U J N B O U E Z I P Q F I D E
V U J M J U Z B S O M F F O X D I I M B O V S O D P U P N A B O S E F D P O U P N B Z H U F E
U P D U P F V S S E B O E S B O U D F T T V U N E E B O S B T P V O C B O E V M P O P X U F B B N T G P
F Y Q R U D E U J M J U Z Q U E B N P U Q F M C F V F B U I F U F B Z S F E D U J O N R T V B R J O 4 N J
M S M Z P U F D P Q T E K R A V S H V U F L B H P P E D D O S T U Z D J S V N B T O D F T M T C F V S P O F
X J U I U I F U I F P S Z

0HDVXUHV RI ULVN DYHUVLRQ

& D P Q D P J U B R J O T N I R O Z P M F S T U Z P U D P N F S T V T L O R X H Q M P Q U V E U P S T U J T
J N Q S B J O F S N B Z O S B T P O I Z B E T F J N Q U B R J O G S F D P Q D P T M F U N F O R M A T O E V V M B
J O T S V O D F D R E P O E Q D V C M Z O O U F P O F I B X G F E T F U F V O S E F F O E I V N B V O P S F I B
P O E O O E V V M B M V X F N H U C E O U S F U F E O J O E V V M B M A N T B S L V E S T P O P O U F B F S
I B O V E O S I U B Q U E H S F H H B C F V F S T J B V G M F Z R J B S F E T T S F P H F S O M V U P T O T B O E
N P E F M W B M J E J U Z ' P S F Y B N Q M F B N B S L F U B O B M Z T J T S F R V J S F T I B W J O H
S T L U B V J E U O U E F J N Q M N R U O P J O G E P R J O M R O Z N F B O E H W S O N E T O I V U P U B L J O P
B D D P V O U U I F H M P C B M M F W F M P G S J T L B W F S T J P O S B U I F S U I B O U I B U P G J

(FRQRPHWULF DQDO\VLV

& D P O P N F U S J D T U V E J F T U I B U B J N U P F T U J N B U F B H H S F H B U F S J T L B U U J U V
T F U S T B B D J W T P S F Y B N Q J O X I M O P X I G X P L I S X I U T N J B S B J T I C T M X I P S B
F Y Q P T F E U P E J G G F S F O U M F W F M T P G E B O H F S F B S O X B H F T U I B U S F G M F D
E J S S G O D F U B F O T F S J E G Z U S T L X F D B V W F U F M V M P G S L V E S T P O B V F S Z S L V E S T F
B H F O U T I P V M E E F N B O E B I J H I X B H F U P X P S L J O B S J T L Z F O W J S P O N F O U

4NPLFSTBOE OPO TNPLFST

5I F X S P R F S T D I B 7 Q E D J O P M E J F T B H Y B N A F F S T D I B 7 Q E D J U T 1 - 1 5 Z D W H S R F E
X P L I S T O P X P U F T N P S I B O E D M P R S I F S Z V T F E T O N P B S P Z O S N S F S T L F J O L H
B U U J U V E F B O E T U V E J F E U I F X B H F E J G G F S F O U J B M P G T N P L F S T B O E O P O T N P L F S
U B U T N P S I P L E S S I F S R K C U X I F Q E M T U B Q N U B X P L I S X I P S F O P T O N P S I F
" M B V H I U C R B H S P T G R P L I S X S F D P N Q U F O P S I F S T L U T F Z O D S V E L F M V M P G P N Q F O T B
U J P O X B T M P X F S G P S T N P L F S T / P U F U I B U C P U I D B U F H P S J F T P G X P S L F S T T N P L F
B W F S T F B T U I F Z X F S F C P U I D P N Q F O T B U F E G P S U I F S J T L U I F Z J O D V S S F E

(JDP SOH

(J F A O U F E G O U B O J E D V T S F M E B S B I M V F S X P I M F Q R U D U C F J E M B T U B O S E U L V E S T F
J O E V V M B S I U F T B N S F Z R C % J S S G O C S F O D S T L U B V J E U F M B U P E S S G O R K C N L E T
B O E V S B T 6 T O H J T O P N B R J O B O E B J O T H V B H S M P S F R G I B V J M J O U E Z O F D B O
F U N B U F M V M P G S L V E S T P O P S N U F X B H I S S O M P G P L I S X I U T N J B S D I S B U S T U D I T
F H T N P S I F O B N B I P V S L O P U V B R J O C U X I S F U F M L M P P E C P I O H O K S F E T E S S G O
8 F F Q R U D E U J I F I H I S I U F E S S G O D O U F O V S R G O K S F T U F I H I S I U F M V M P G S U
B W F S T J P O

4JNJMBS BOBMZTFT IBWF CFFO DBSSJFE PVU JO PUIFS DPOUFYUT 'PSFY
& #MVNFDVSTPFTETbTFDUJPOBMEBUB POIPVTFIPME BTTFU IPMEJOHT UP BTT

Q QUBO-TSFOE B N N # 2 4 » 15F S B TUB P OUFEGH V TM/BPFD P OIE NN S BOD
 DISB OUSTUJTGPP VT NITPS FZENT BO M E FOESN B/PJO ROOD PNF B OTE V D IOBT
 RVBOUJUJZ BOE UZQF PG BTTFUT BOE MJBCEJMJUJFT FCUBD L BDDPVO
 (F B H F 4 [Q S V TUNFT SFT BBP SPOSFUQZ TSV O P F U E J SSGOVU J M J Q U E Z O B O E
 GQJ E P TUBJC RTGLJFUEB 4 [Q S 2 1/2 B Q S T S B S T I V F M P L F U E J S V O D S F N V N T
 BT BZXBWV F B O B J F X O M I O P T Q Z E S Q T S V O B I O U E F O V N S R E P A N T B T S Y Z
 Q S I U F Q C B I Q J E U Z Q E E D F O P D S T V O T S V O D F L N B F H M F I O S P S I F M U S F G F S R V F M O Z
 VTFE BT UIF CBTJT GPS FT USJNF E N B D P G S J T L B U U J U V E F T
 5P TV NSUB LF V T M X E P F U N B F S T L L B V E U F G T U S U B T T V N F S E Y H O U O M P S N
 GPS UIF VUJMJUJZ GVODUJPO XIJDI DBO CF DPOW FY DPODBWF PS
 TFD P O E I N B F U F D O E F J O C Z N F B O E P F D P O S P B I N O T E E E J D P O U B L F O S O E F
 V O S B O U Z I F S W S E M P N P Q T U B J I U B V O N E P S J R E Z F M O F S T L V E S T F C B J O H S M F
 BOE JONBOZ TQFDJGJD DPOUFYUT & RVBMMZ JNQPSUBOU JO UIFT
 S F E S S G O D B T T G T F M Q S X I P N U F M M P G S U V E S T P O T E S S G O N Q S F U O E O D S T S F
 T R P E F N S B I Q D E U B T V D I B H F E O S E P I K F E U E J X F N B U S F B E M H P V G E L U P O C D
 ' P S Q U B O D X F D I O U E J S S G O D R X F C F O M N T B B G E N B T B O E X I F S Z C F W S T U
 BGGF DUFE CZ BHF PS JG JU JT TUBCMF UISPVHIPVUB QFSTPO`T MJ

([SHULPHQWDWLRQ

" O B F S B Q S Q B O T U P N F S F O V E W V M B W N T B S U V E S T P O M B J Q S N F O U R J O S F T W T F T
 S F V T M B Z T M B E O U T B O U N T B Q H J F W S E M R S N G R G I E V J M J Q U E Z O U F Z D P O U E F O
 P O P D M B O N B F T O P S U V E S T P O M A N T J F B Q S E G I E D S W S E U F S I U B O M B Q J O U F S T V E F T
 J O V F O H F S T L L B V E U Z G O Q H P T F F D X I V J M J Q U E Z O G O F T U E J Q S N F O M E E B 8 F
 O P N P L W B P N G I O N U F P E T V U P I N E S F S V L B V E U S F T F U N F E Y B A N O F C V A S B
 J O S J T L Z T J U V B U J P O T B O E F W B M V B U F Q B S U J D J Q B O U ` T S F T Q P O T F
 \$ I B S M F T ") P M U B O E 4 V T B O - B V S Z B E E S F T T F E U I F 3 P M T U B F O E O B O F Y Q
 - B S Z 1 1 > 1 S D Q E U O X S F S F T F C E M U B M T U P G P U R S J T T F S B M . B O E B T L W E E X I
 U I F U X P P Q U J P O T " P S # U I F Z Q S F G F S S F E

0QUJPO "		0QUJPO #		&YQFDUFE QBZPGG E JGGFSFC	
PG	PG	PG	PG		
PG	PG	PG	PG		
PG	PG	PG	PG		
PG	PG	PG	PG		
PG	PG	PG	PG		,
PG	PG	PG	PG		,
PG	PG	PG	PG		,
PG	PG	PG	PG		,
PG	PG	PG	PG		,

5BCM FIF-UFO QBJSFE MPUUFSZ DIPJDF EFDJTJPOT XJUI MPX

1 S DQ E U O X S F Q E B B S E O P I U F J S F S M U P U E O F J U F M A U S Z I Z D I P T P S F Y B N N O B
 Q S D Q E U O I P D I P T U J O Q M O U F P O P M C F J E B X J I U S P C B I Q J U Z S 1 . X J U

1/2 8 F E P O P U H P J O U P B O Z E F U B J M B C P V U U I F G P S N U I B U B V U J M J U Z G V O D U J P O D B O
 * N B B F B Y Q P O U B O G U E O P * G F U D O E F J O B T F U N B F E B T B F G O U B O T M O J S B O U E F B H U F S U L
 O F U S M B J G O E U M U E I S I U B O I U F B H U F S U L V E S T F N S F W S I U F J H I S B J T L F J H I S I U F D P O D R E Z E
 G V O D U J P O B O E U I F I J H I F S U I F M F W F M P G S J T L B W F S T J P O * G B . U I F O U I F B H F O

QSPCBCJMJUZ PG ½ ¶ 5IF UIJSE DPMVNO TIPXT U&7 E QG G P Ø FODF JO UIF F
" \&7 P QPJO # 8IF QVFS IUF E GSGO DT FQ PUFJ WFG JUSGS RUFSEJTBSEURJOMB T S J
OFVUSBM QBSUJDDJQBOU TIPVME QSGFGS PQUJPO " UP PQUJPO # PO UIF F
UFTZIRW/DIPP UR P Q T U J W T B H I I S F Y Q R U D E Q P B G P S F W S P S I U F G J U S M I P M Z
B E D B B E S T U W V S X P M D I P P U R P Q B O D U F N B U O M V S Z O F T N E P S G S P Q P J O #
BT JU JT DFSUBJO UIBU JU HJWFT BIJHIFS QBZPGG UIBO PQUJPO "

5IF BVUIPST G P V O E U I B U F W F O X J U I U I F T F M P X T U B L F T U I F N B Y J N V N H B J

¼ ¼ PG QBSUJDDJQBOUT XFSF SJTL BWFSTF

¾ XFSF SJTL MPWFST

BOE UIF SFNBJOJOH , » XFSF SJTL OFVUSBM

5IJT TV Q T U P E F U B B N P U Q F M O F S T L V E S T F) P X W S I E F S F N E Z B T Q T U P D L F
J O P B D U P P S O B N M J U F M V M P G S U V E S T P O U F T B G S T N I B M M S H F B N U F B O
N P Q Z P X E P S O B E L O C M F B G F U R U P J O S F P M O Z Z Q U F U D I B O E E U P Q P M A S F B
N P O F Z

(IDP SOH

_____ - P X W I T H I B N P V O U T P G M P I Z Q F Z U S F U B M D B M H B J O T _____

5IF BUNST D Ø F Ø M U F J S Y Q S N F O P S I H I S T U B L F Z T V U U O H . ° B O E ¾ P S G B O E ¼ ¶
J O P U J O B O E ° ¼ B Q E Q P U J O # I F O U F T B H I I U B L F T S X E Q U F U D I B I R M V M P G S U
B W F S T J P O X B T T J N J M B S U P U I B U C B T F E P O S F B M M P X T U B L F T) P X F W S X I F O U
B U P S T Ø V O E S B E O S F B J O F M V M P G S U V E S T P O U J S E Q S D Q B O X S F O U R J M M P U B L F
B O Z S J T L B U B M M B O E D I P T F P Q U J P O # P O M Z J O U I F M B T U R V F T U J P O

" O Y O B Q U B O P S I U T C W F S N E C U B X I F O F Q U P O E M H B T S B I H I X F C F D P S F F N P
S T L V E S T F 3 F E G S G O D E X E F O S B D H O B E U R M U T . B O U E F Q U P O E M P U X O P M O Z
; N B L F U P P Q # S E U Z H B N M O B U T J O U P B I T M Z P T B O F O U F U B L F S F E Q U F U D I B
Q B S U J D J Q B O U T U F O E U P C F C S B W F S B O E U Z Q J D B M M Z V O E F S F T U J N B U F U
P O D F S F B M Q B Z P G G T B S F P O P G G F S

% F J R O F N Q S B O F S T M U E F D P Q P Y Q S N F O U B O P W E J F N R I S E O D U F Ø W O N E O
T J U V B U J P O T X F O F F E B T J N Q M F S N P S F E J S F D U B O E M F T T D P T U M Z X B Z U P
S T L U B V J E U B Q E J G S G O T S M Z T S F B U B M B O E V Z T E S O B S F / F V S I U A T X F U J M M
O F F E U P W B M J E B U F U I B U U I F B O T X F S T U P U I F T F V O Q B J E B O E I Z Q P U I F U J D
Q S F E J D U P S T P G B D U V B M C F I B W J P S J O S F B M T J U V B U J P O T

% P I N F O B V D S S E R B U / E C B T F U R E S N B O J P F D P Q P Q B M O R 1 X I D I
J O M E F T Z N F O S F V G P S U B V J E U E G S G O D P U Y T H F S A V E S J O W H O B G N D B I S T
T Q S U B Q U E S F I F M U B O E S D E F U D 5 F Q B M N T H E M E F U T S V T O M O P S N B R J O T V D I
B T B H H I F C S E X F N U O D P N R F E U E U B Q S F O F F E U E U B O V N S B F O E B E D F U S P O
D J W U B M T E M H P O K E H U I F H U I F M U B V T B Q U E S I R / P I N F O B V ¶ > 5 F B U N S T U F U F E
X I U F S B V F S Z N M R U R J O D M P E F S C I F U B I C F W B S Q M A U F S Z Y Q S N F I O U N J B S R U
U E L D S S E P C Z) P M B J O - B S Z F T Q P U D M A U F S Z Y Q S N F O X I S F C S E D Q E L O D M V
X J O V Q U P 1 ¶ ¶ ‡ S F W F B M F E U I B U

BSPVOE ½ ¾ PG UIF QPQVMBUJPO XBT SJTL BWFSTF

.1 SJTL OFVUSBM

BOE ½ SJTL MPWFST

/ P U P O X Z I F U F J S O G O H J N J B S R U) M B J O - B S Z ` B O U E F S N Q S B U O U E F T S O L U B V J E U F
C M I E B U N S T M R P V Q U E U I E B O S R U F F H F S M S U B U J E U F 3 " R V U P T O P X X I O M J
E S F Z P U P L S T U L O H S O C P O B M G S N ¶ \ . ¶ X B T S B U B M Q E U P S P G S Z C F W B S Q
U F S F B U B L M A U F S Z J F A O F E U B V B M M J T U Q I S F U Q I H P N P U B E F G B L E P Q B O P S K F
U P U F (3 " R V U P T O B P N F S F E D H S B M A F S T L V E S T U B O N F S Q L V E S T P O C F D P N F T
N R F J H O Ø B U J I U B H I B A Q H M I M E U E B G F E T N B L F T M Q N F P Q Q U P Ø I D S T L T
B O E N P T U T V S Q S J T J O H M Z U B M M F S Q F P Q M F U F O E U P C F M F T T S J T L B W F S

½ * U J T J N Q P S U B O U P N B L F D M F B S U I B U U I J T M B T U D P M V N O X B T O P U Q B S U P G U I F F Y Q F S J N
¾ " T N B M M S F N B J O J O H Q F S D F O U B H F S F G M F D U F E Q B S U J D J Q B O U T X I P T F B O T X F S T X F S F J O D
B U U J U V E F

:KDW DERXW ÛDQRPDOLHVÚ"

"MM UIFTT TUVEJFT IFMQ VT UP VOEFSTUBOE IPX QFPQMF SFBDU U
FYQ RUDPN RUCF SFPSMSTJZE FJDP O4RBS IBFD P.DUPAS ZF M E SODE
BTTVUNETS ULBV EUSF BPS HFOF RUTOCSEBF SPOTFIRKZOMB BTTVNFE
UBQF MCF JIUS BX ETC SJLVST FSBX ETC OMOUFUB LSTLJDEFQ FLOWGNOB
PSTJUUVBUJPO BOE PVS UIFPSFUJDBM NPEFM DBQUVSFT UIFTT FMI
&YQ RUDEUJ MFBZBT CFJE OIXT EOEWS ZSO DGFDP QDPTNBOE FJDPION
CFF QDRUJ EFOEUVMEJ UZF TJOUJT XEF SFOB EMOFB SFBOVNSPEQBSTJ
FYQSNFONBOE QPSBF DP QDPTNC BSBYBNAP OF XE RQZDIPR HT , BIOFNBO
BOEAST ZIBVGF VOE XEPCON UBUTZUF NUDIE MZVWUJF SF EURJO GFRQ RUDE
VUJMJU ZBUOFRBZ BOE 5WFS 9 1 4

*OUFGMPXO H DUBXCF BMOZ BSEFTCP N.O.SIB O EQSN FOMFSTMU BLE FQBPNS
UF SF EURJO GFRQ RUDEUJ MFBZBFG DV TJFONS JUUBJ FSTMUP Q SDTIPR HD
NRJ BURJOT JI SF D EPOUFGSF UBBSF JOEFQ RUCBFTOQ BGSNFB O SBIVT
BQQMJDBC MF JONBOZ EJJGGSFOU DJSDVNTUBODFT 8FDBMM UIF

"OPNBMZ

*O FDPOP NJDT BO BOPNBMZ JT BCFIBWJPS UIBU JTOPU JO MJOF XJUI UI

5IF UZPGIUTTF B OATNBS T QIRZ 5IB M EPUF FNSFF O GFORERD B FUMF BZ
LOPXOSBT QFUDB XIDIX MMSQT EGO DIUSQ) P X VSO BEMVO PNFJSE
T G OFJOMZ F SFOB UJF HSBDF QURJOP CF B DUEPSO UJ OFX SBMIBZ
UVTO DIUSQ XF SETTOP N EBE FABURJOGFSNEURJOMB F WBS IUBI BV QUPZC FFO
NPEFMFE CVUUIBU IBWF B MBSHF JNQBDU PO EFDJTJPO NBLJOHV

'HoQLWLRQ



' L V F U H S D Q F L H V E H W Z H H Q W K P R G H O D Q G U H D O L V

& N Q S D F S M U T V H U H E Q H F S M G F M O F S T L V E S T F' O J U F U Q H Q M [F N S F F T
X I F O F T B N S T R G Z C V T S V O D E U D R T N S F U B O F S T U W U T Y Q R U D E P D V P S T S J
E V F S T F C V P S B B O E H N B N E Q U E S Z D U L U R U D R T N S F U B O T U Y Q R U D E R D M P N S T L
M V F S C F V B S X I G B T T U M E N I F B V E U G E P O F D R D O P H N F O S F Y B N Q D B K Z T V P E
S J T T L T U I F O U I F Z T I P V M E O F W F S H B N C M F B O E B O Z P U I F S C F I B W J P S D B O C

* O U F G W P J V T U S X Q J E D V T U F S P M B S L V E S T P C O E J U P O N B D H V S M E O F S B O U Z
. P T U Q E V V M B S F S W D B O R U C S E S L T B S E S T O F P U Q J O T X U I F O U P P N I F O U P . ¶ ¶
T V S F

8 F J O U R S E V D F B M Q I B N O E J D H X F B T U U L X F F O F S I U S F J T S T U W F Q C B I K F J U O J
U F E P S D B F W S B L O P X F O U F S J O P V S O U F B C B M F Y B D E M F G I F Q C B I K F J U J
J O W P M W F E

/ R V V D Y H U V L R Q

0 O F G I F N P O U F S U Q H B O E D P N N I F O C B I O V N B E V P S X I F Q B D F J U S T U T
M P T V F S U P O O U F S N T Q T U N Q S R J O W F F D P D P B O J E F O N B D H V S M E O F S B O U Z J U
J T T F D P O E P O M Z U P S J T L B W F S T J P O E J T D V T T F E J O T F D U J P O

- P T V F S U O S E J F O J V U B R J O T X F B F M U P O G F E Q E O M T F S D B F W M B M U P U F
E F J O P O N B I S I M B E P T S F E V R D C O U F J S F N B U P S F Q F J M Z B J U V U N E T J V B R J O J
X I D I U F Q C B I K J E L Z C O E V V M B J H U T Q F S M P T S F E C S F F A V E J E S S G O M B Q I V B R J O T
X I F S F S J T L M F B E T U P H B J O T " T , B I O F N B O B O E 5 W F S T L Z B S H V F E U I F J E F

M P T T F T M P P N M B S H F S U B B O F D N B S S F O C E B V E S O H Z H B J O T <

* O B F S X R E T L F Q C B M P T J T N V D H I S I U B O S F Q S F J O D G R O B B I F T B N F J M B E F O

(I D P S O H

___ 1 F S D F Q U J P O P G M P T T F T B O E H B J O T

* N B B Z P V X P O S E N D B E U B ¶ ¶ ¶ X N B B U F S E U E U F F E O B O B E U M B V H U F
U X P J U V B R J O S F B I F T B N F J M B E F O O R U H F V F O J G F S N U F M P T T J K M S F F A E O B O M P
U F S N T N P S F B D V U F M Z U I B O U I F Q P T J U J W F S F B D U J P O U P U I F X J O

5 I J T H F S O F Z I P H D E S C J M X I D I N H U C M O J L R U E P S T S V M O U Q J O N F B O E U
M P T T B W F S T F B H F O U T C F I B W F E J G G F S F O U M Z J O U I F T B N F T J U V B U J P O E F
B T M P T T F T P S B T M P T U N J T T F E H B J O T

- F U V T U B L F B O F Y B N Q M F C B T F E P O E J T D P V O U T B O E T V S D I B S H F T

· 5 I F O F Y U D I B Q U F S M P P L T B U B N C J H V J U Z B W F S T J P O X I J D I J T U I F E F T J S F U P B D R V J S F J O G

(IDPSOH

____ %JTDPVOUBOETVSDIBSHF

*NBGF BNTV JVBPRJZ VSB B CUPVCZB5 T JI SURUJ H 1 IUBJ ZV OAFJT TNP BB, 1
EJTD RUVJJE DVSEUIF D BFT HUS IUBJUSJT BVDI M ZJED PUS @ N GFBUTPUF JVBPRJ
X I FZP VSB B CUPVCZB5 T JI SIUBJ RIT 1/4 B OUEF D EFS RVTZP W BUIUSJT B SDVSB F PO
UIF BSUJDMF BOE OPX JUDPTUT , 1 1

*UTJV TMBZFS RU HAVV QJB DEPUVOP B DUBFSDI ESB B TWF QGFUE ESGO DTF
TBN SFP OTFR MOKG TUSVBRJZ V X H VSP C B W JOMMOMRJCZULF5 T JI S U
XIJMFOJUIFTFDPOE ZPVXPVMEOPU

"O B FSYB NQ BIUTUQ FCF WBSX BOP VOZE, BIOFN, BDT DI B5OBS, BIOFNBO
RUM 1/2 1/4 OUM QIPJUS W X U FZBTLFS DUBJUIP X FZ KE HUFEBUBJUS L FOUF
GPMMPXJOHUXPTJUUVBUJPOT

(IDPSOH

____ 3FBM XBHFBOEQVSDIBTJOHQPXFS

"DPNQ B N EOLH B TMBZFS JUTV DUBEO BDPNNAYOSFJQDHSB D EPTOTJUT V B OBM
VOFNQMPZNFUO CVUOP JOGMBUJPO 5IFDPNQBOZEFDJEFTUP EFD SFB

"DPNQ B N EOLH B TMBZFS JUTV DUBEO BDPNNAYOSFJQDHSB D EPTOTJUT V B OBM
VOFNQMPZNFUO BOE JOGMBUJPO PG . , 5IFDPNQBOZEFDJEFTUP JODS
ZFBS

*O CUPVBRJOUTSFJT 1/2 E FSB JOF BK B H FT» OPJ BK B HFS B JOUFTFDPOE
TJVBPRJEP E P ED RNPQ FOSTIFS BE FSB JOFX MBE VUUF . , OCBURJUB % F JRO
UFXP JVBPRJ T JCH F RQSBBSN T KE HNTF DUB C WBSPGI B DP NZEFQ FOE
PO I RXTGSEN F E4 , PG S DQ BUCSFFIVEJ FG TUSVBRJ B/TB SP6 FSVZ C B S c
XIJMPNOZ , T J E U F T B N G F P T F D P V O B R J O ' D M B R M T O U F G T U B J T F D P S F O E B
B C S F F I V E H B B O S F N R U O O R O N E K B H F V F Q G R S F B K B H F B T O C B V I E O T H Q B X F
IBWFEFDSFBTFE

4VDI CUPS BOP VQEN ZRUS BWT, BIOFN B G VSOZB ESETUFFET TVZNG BOT
PGBOFYQFSJNFUO JOW R M W S T L Z B P D E Q B S B N B N O C B O C L E T S W F S T L Z
) B M G . » X I F S F T F C E M U B J V B R J C O P M O H B M R O P O N L F B F S I B M G . » »
GBDFE B TJNJMBS TJUVBUJPO GSBNFE EJGGFSFOUMZ 5IJT JTUIF

(IDPSOH

____ 0VUCSFB L PG BO "TJBOEJTFBTFE QSPCMEN /

*NBGF \$ RASZT96 C S B I F S I U F P O S F B I G P O V O M T B / O J E F B X T I E D U T Y Q R U D E P U M M
1/4 1 1 QFPQMF 5XPBMUFSOBUJWF QSPHSBNTUP DPNCBUUIFEJTFBTFIBW
TDJFOUJGJDFTUJNBUFTPGUIFDPOTFRVFODFTPGUIFQSPHSBNBSFBT

JGQSPHSBN"JTBEPUFE , 1 1 QFPQMF XJMMCF TBWFE

JGPBN #T B E U P E U S F J T B C S P C B I G J E U Z 1/4 1 1 F M Q 1 0 M V F E B O E B S P C B I G J U Z
UIBUOPCEZXJMMCF TBWFE

8IJD IQSPHSBNXPVMEZPVQSFGFS

*OUJT E F S O U R J O B O R U H F B W O T J Y Q R U D E P P D S D 1/4 Q T F M C F Y Q R U D E P E F 5 V T
QFPQMFQSFGFSUIFTBGF PQUJPO XIFSF , 1 1 QFPQMFBSFDFSUB.
X I S F U F C B I G J U Z B U I E Z X J N M O V F E C U U B E M M 1/4 1 1 F O U J T D B 1/2 F
P Q S D Q B U C S F F I S E S E B N ' X I J M P N O Z , B I P T S P B N # T Y Q R U D E L F N H S J U Z
P Q F M C F V F B B T S B L V S T F B H E M O V H I F Y Q R U D E O V S P G M J V F E Z O L F X P
QSPHSBNTJTUIFTBNF

,BIOFNBO BOE 5WFSTLZ QVU UIF GPMMPXJOH RVFTUJPO UP UIF SFNBJOJ

(IDPSOH

___ 0VUCSFBL PG BO "TJBO EJTFBTF QSPCMFN /

*NBHJOF \$ PMSZT: GF GSB KPS IUF PUSF B LGPO VOM TB/BJEF BXIED UT YQ RUDEP UMM
 ¼ ¶¶ QFPQMF 5XP BMUFSOBUJWF QSPHSBNT UP DPNCBU UIF EJTFBTF IBWF CFFO
 TDJFOUJGJD FTUJNBUFT PG UIF DPOTFRVFODFT PG UIF QSPHSBN BSF BT GPMMP

JG QSPHSBN \$ JT BEPQUFE °¶¶ QFPQMF XJMM EJF

JGP BBN ¶ B EUP EUSJT B GPC BJO J BUZ P C Z X E M B O E B GPC BJO J BUZ ¶¶¶
 QFPQMF XJMM EJF

8IJDI QSPHSBN XPVME ZPV QSF GFS

1SP BBN \$TUF TBN FSBB N JUFNT P M J W F E O V N S P Q F M C E O H B O E P O B N
 % JT J E F O U J D B M U P Q S P H S B N # * J O G U F S W T B M V U G F V Q S S Q S B I C S M N U J B S T F F R V B I
 U F S N T E F Y Q R U D E O V N S T C E M F J W F E / F W S I U M T O S D Q B U O B D F J U M J T T F D P O E
 Q S P O N S T Q P O J E S S O E M P Z I Z , D I P T S P B N \$ B O Z D I P T S P B N % M B M I Z T U
 W P U F T Y Q R U D E U J M J B Z I B U C F E U J U B S T L V S T F B U K P O M D I P P S P B N " T B O E
 \$ B O E S T B W F S X P M D I P P S P B N T # B O C E S Q D M Q S F O D F U F C F F O S D B F W
 T I W / C F D P O F G S F Z T I W / P M O Z F Q F S E M B O E J S S G O D F U F C F F O S D B F W B O E
 O P U P O U I F X B Z U I F E J G G F S F O D F T B S F Q S F T F O U F E 5 I J T J T X I B U X F D B M M
 J T J O U I J T F Y B N Q M F M J L F J O P U I F S T W J P M B U F E

'HOQLWLRQ

___ 1SJODJQMF PG JOWBSJBODF

%J SSGO SGT BOPJO GFB TBN E D F S P N T I M Z W U F T B N S S O D F B U T J L F
 Q S F G F S F O D F C F U X F F O P Q U J P O T T I P V M E W F S O E Z E G E E B O L F N B O I F J S E F T D S J Q U

5IJT Q W Q H J S S G O D T X E F F O B E B P O E C E N Z E J S S G O D F U Y " T , B I O F N B O B O E
5WFSTLZ PCTFSWFE

5I F G W F B O B S B O J D R O Q S B W F W B S P E C U V T T U J T D P N N P O J U N B S H T Q P O E F O
 B N P O J W P E B F O E T W A N D O E E M F O X U F O T B S N F Q P D E S C W P R W P J D J U O E X
 N J O V T B F T Q P O E P S D E J X U F S G O M H B S T S U O D B M Z I E W F O G S F B O E
 U F S E N T E Z T U X W I P C S F L V S T E O U F C M J W F B S P O U F Z X J I P C S F L T J B E O U F
 C M J W F T M P T U D W F S T J P O B O E U I F Z B M T P X J T I U P P C F Z J O V ' B S J B O D F B O E H J

/ F Y X A P P L B O Y E N N O U B E P F T U Q P M F M V N B I O V B U M J O H B O E F U B U M T M N Z
 I B W F F U I J D B M J N Q M J D B U J P O T B O E Q B S U J D J Q B O U T N B Z C F S F M V D U B O U U
 E F B U I P G P U I F S I V N B O C F J O H T

(IDPSOH

___ \$PODVSSFOUEFDJITJPOT /

*NBHJOF UIBU ZPV G B D F U I F G P M M P X J O H Q B J S P G D P O D V S S F O U E F D J T J P O T ' J S
 J O E J D B U F U I F P Q U J P O Z P V Q S F G F S

%FDJITJPO J DIPPTFCFUXFFO
 gPQUJPO " " DFSUBJO HBJOPG , °¶
 gPQUJPO # " , » DIBODF PG HBJOJOH . ¶¶¶ BOE B ½ » DIBODF PG HBJOJOH C

%FDJITJPO JJ DIPPTFCFUXFFO
 gPQUJPO \$ " DFSUBJO MPTT PG ½ » ¶
 gPQUJPO % " ½ » DIBODF PG MPTJOH . ¶¶¶ BOE B , » DIBODF PG MPTJOH O P

*O E J D O J I F U N B S J U Z P G O E W V M D I P T U R J O E O E ¼ D I P T E P P O B T S Q E U F E
 C Z S J L V S T P O U F B Z P X W S O J E J D O J J P Q S D Q B U D I P T U R J O E O E D B O C F
 D B T B E S T I W F S T X I J M P M O Z . D I P T F S B U W F T G I F T B N G E H D E W F P Q P J O \$
 4 J D U F F T B N F U R J O F S K U R U B O B S D Q B U X F N B P L O U P X ½ P G F S T Q P O E D A O T F
 P Q P J O ' T B O % B O E M P Z O D I P T E P P O T # B O E T \$ F W F S D F U S E T U F S T M U S E U F E
 C Z F Y Q F D U F E V U J M J U Z U I F P S Z B D D P S E J O H U P X I J D I S J T L B W F S T F B H F O

SJTL MPWFST XJMM DIPPTF PQUIPOT # BOE % 5IF SFNBJOJOH ,° P
UFZX SF FIUS \$ UVST FUZDIPT EPPOCTBOE BS \$ UVVST UFZT M OF E PPOCT #
BOE %

5IF NBJO SFBTPOJOH CFIJOE EFDJTJPO JJ BQQFBST UP CF

* U QASRSTUWJ D H Š Š Š ZBT M T RUOPUB CP EGJW 2 MF ŠXJUP UCJ H BUC EP
BOZUIJOH UP DIBOHF JU

'PSN BZSB SBTJ NH LC SF BT PVDI P QWFSB D SED IPUF SQJOM TGPYQ RUDEUJ MJUZ
JU JTOPUBU BMM SBUJPOBM

6 QJAVD S ONZUF DP QTE NKS T LUJDB C B ESTMUBT V DYQEN FOU BX SF DSES E
PVUCZ QTZDIPMPHJTUT *O QBSUJDVMB S UIFZ DSJUJDDJ [FE UIF GB
/FVSIUM T VSUSFYQ SN FOUVPM QVIF MUB L FTINMEMONSH F JDBM TTF RGN S E
UIF JODPOTJTUFODJFT GPVOE JO FBSMJFS XPSL

4 PBF Q AVJCSJOMBS UJUFU FUDJAN P EMOJSDSD *OGJRTU QDTSEB V QEN ZO
EJGGFSFOU DPOUFYUT BOE U GBB MTTVUNPQCFJ R OUP GJ J S VBN S JIB QUDFF P U
VO S RZHUJ XE F SFB E IVNB VPS, B IBO FN B G VSOZES F E B QWFX Z BU
EJE OPU DPNQMFUFMZ EFQBSU GSPN FYQFDUFE VUJMJUZ UIFPSZ
NBJOJURJO TBN N B J C AVBX IF G DFJUR TT SHJ # RPS B D VOTJUT OFX
UIFPSZ EFSJWFE GSPN MPTT BWFSTJPO JONPSF EFUBJM XFJOU

7KH HQGRZPHQW HñHFW

*N B J B U B ZV S B O V B EP QSEDQ U F O MFS ZN OY YQ SN FIO TM OF JMCU BU ZV
I B F B P N F B S E U K P X I O S O F U B I D Z P V X I E V M F M N / P X U J O L B O B C U R W T F
GJWF PCKFDUT BOE JNBHJOF UIBU ZPV BSF HPJOH UP CVZ UIFN TFD
X P M T M F M U J H I S F R M E U B A K S I U B O P T E X B I D Z P V X I E V C Z U F N O H S M F
Q F M O U P V W U J F S X O R O N S F I H M Z B U O F S O B F Z E S F X I O M P J C Z B U C Z V
UIFN 7BSJBUJPOT PG UIJT TJNQMF FYQFSJNFOU IBWF CFFO DBSSJ
00 F G U N P X T E M W E Y Q S N F O X B T S B B P C Z % B O M B I O F N B D L , I D F I B O E
3 J D I B S E S B B O M F N S O F J . B M

(JDP SOH

5IF DPGGEENVH

" DPGGFF NVH XBT HJWFO UP B HSPVQ PG TUVFOUT BOE UIFZ XFSF BTLFE
¿ , » BU XIJDI UIFZ XPVME TFMM UIFJS OFXMZ BDRVJSFE NVH "OUIFS
UF S O F U B I D U I F Z X P M C Z U F T B N F N V F H E E O M O H S Q F U F E Z C U F G U S P V G P
TUVFOUT XBT ½ . , XIJMF 1 . , XBT UIF NFEJBO QSJDF HJWFO CZ UIF QP

5IJT UZQF PG CJBTDPOUSBEJDUT FYQFDUFE VUJMJUZ UIFPSZ QSF
TBNF VUJMJUZ BOE UIFSFGPSF TIPVME CF WBMVFE BU UIF TBNF QS
5IJT BOPNBMZ B O B B X I M F O U S H G T M B S H F E J G G F S F O D F J O U I F W B M V E
PCKFDU DBOOPU CF TJNQMZ FYQMBJOFE CZ EJGGFSFOU QSF GFSFO
U B X F J H V P B H R U B L E J O P S Q P T J P O T B O S F V W B P J O G U T B N F H I B X P I E E P U O P
IPME *G XF JNBHJOF PVS IPVTF PS PVS GBWPSJUF BSNDBJS UIF F
CZ IF B G O P J O B X F I M G S P S H P P E P T X W S N B Z O V S I U S F Y Q S N F O I V F Q V F U B U
U I F S J T S A W D O P E S E F F O O M F Z D R S E H P P E S T B G O P J O T M P O U N Z B S P M F H
D E F G N V B T O F N B O F 4 X I T T D I N U D S B O B D I ¾ P S C B I U T R J O F B O I K B O E
WBO , O J Q Q F ¾ O F S H U I F Q P T T F T T J P O F G G F D U B Q Q F B S T J O T U B O U B O F
* X B T I M S X I G U S V H U F U B U F M V W U J F S X O R O N S F U B O F Z B W U F T B N F
PCKFDUT JG UIFZ S P O M F S P X O U I F N

* OUIJTTFOTF UIF UIFPSZ JT VOJWFSTBMMZ DPSSFDU B SJTL BWFSTF BHFOU BWF
PS HBJOT

(IDPSOH

*OIJTQBQFS 5IBMFS TVHHFTUFE PUIFS FYBNQMFT UP TVQQPSU UIF IZQF
" CPUUMF PG XJOF

. S3 CPVUBIDB GHPPP EXOUFNUF . 2 »TPSB CBVB CUFU MG XZ STNUFSIJT XOF
N IDIUBGFS EP CZUUF XOF C EPS L. 1B CUFU)MFCV T FEM BVHII IF IWSQGFNF
UIBO 1 » GPSBCPUUMF PG XJOF

5IJT YB NQ DB QFBUEFNT GPMT VASU CHJ VQJH VQ CUFUTGRJ BT QDFVEZC S
3 B TVBTWF QGRUSD FGPF EZOLF NSD I BOUNVDHISIB OF SDF IENITMGPV
QB0OUF B FSI BOEZO H BUCFBJO BT D REOFE BJD B OTET FFO TBW BVC
5IJT YB NQ M B MZP XUBJ FSNVOJH BONGSN P OF OEP XN ESOFFE BIV BT
BO ED D H FBMVNB QOCFFI T VSF FJIB T B OF FVNB B \$POTFORMIEOU
FOEPXNFOU FGGFDU DBO CFTFFO BT BT QFDJGJDNBOJGFTUBUJPO PG MF

(IDPSOH

\$VSFBOENFEJDBMSETFBSDI
5XP TVSWFZ RVFTUJ POT
BHTTVNFZPVI BWF CFFO FYQPTFE UP BEJTFBTF XIJDI JGDPOUSBDUFE MFBE
B XFRIF SCBMOGFWV D H F J E F BTŠŠ ŠKBUJWF NYN V QP V XN C B M PJ
QBZGPS B DVSF
C4VQQPTF WPMVOUFFST XFSF OFFEFE GP S M FUIBBSXDPVMEUCF SERWFSNEO UJPO
UBJZVYQ PZPSTMB Š ŠŠIB OGD RUDOUHF JEF B8TUBUJWF NDNVN ZNBUZV
XPVME SFRVJSF UP WPMVOUFFS GPS UIJT QSPHŠBN :PV XPVME OPU CF BMM

" Q Q J W F T B S F B T J O U B X F M E T F J O C F S F B N M T L F X P R V B O T E S G
U F N T O D P U Y C M I E Z S F N U F N U D M M E Z T B N F X W S O W J T T F D P E O N F N E Z O
S F T Q P O E V E O S Z J S S G O B W F O S F T Q P U R R U R J O B B O E 5 B V S T S F T M U G E
T I P X F E U I B U U Z Q J D B M S F T Q P O T F T B S F , 1 1 G P S R V F T U J P O B B O E . 1 1 1
P O F T F M G U P B E J T F B T F J T B D F S U B J O M P T T B O E U I F F O E P X N F O U J T I F B M
B T G S I V H F B N U P G M O Z R O U F B F S I B O E B A O J H F B F B G F B V T U F O F B O R U G
Q P U F O U J B M M P T T J O D V S S F E J O Q B Z J O H G P S U I F D V S F

7KH VWDWXV TXR ELDV

/PXNB B BFTUXP S O N TSCQPTZABNMPOBOE ;FSXIBNMTFOBOE ;FS LIBVTF
. 2 3/4

(IDPSOH

:PVS SJDHSFBU VODMF QSPCMFN
:PVS B SFVSB SFGIFGQJB GND BHFUT O VADS OZEM JUNAZO BLOF U IF QP V
JOIFSJUFE B MBSHF TVN PGNPOFZ GSPN ZPVS HSFBU VODMF :PVBSF DPOTJEFS

:PVS DIPJDFTBSF
B*OWTUQNPSTJL \$PNZ BOWSBZF BIEJ SUPDL I B DIBOGGSPBOHZC
1 1 OVBWFBT DIBOGGNSBOH VODIBO E H B E I B O G E F A N D H Z C , 1 1 O
WBMVF
C*OWTUQHISTJL \$PNZ BOWSBZF BIEJ SUPDL I B T B I B O G E F A N D H Z C F
B 1 1 DIBODFP G SFNBJOJOH VODIBOHFE BOEB 1 1 DIBODFP G E F D M J O
D*OWFTUJO USFBTVSZ CJMMT OWFSBZFB S UIFTFXJMM ZJFME B OFBS
E*OWFTUJO NVOJDJQBM CPOET OWFSBZFB S UIFZXJMM ZJFME BUBY

(IDPSOH

:PVS SJDHSFBU VODMF QSPCMFN
:PVS B SFVSB SFGIFGQJB GND BHFUT O VADS OZEM JUNAZO BLOF U IF QP V
JOSFIE BSCMBUJED BTI BOEFUBSNZ SFF BV QVD" TJ O D B U Q S B O G R U T G S E M J U T
JOWFTUFE JOIJHI SJTL \$PNQBOZ # :PVBSFEFMJCFBSBUJOH XIFUIFS UP MFBWF U
J CZ O V T O H D B F S T F S V U T J B Y B O E P C S D P N N P O U P M V E O E Z O I B O S F J O H O G B U O

:PVS DIPJDFTBSF

B*OFTUQNPSEFSTJL\$PNZ#BOVSBZFBIETPDLIETBI BOGGSPBCHZC
1¶ OVWFB¶ DIBOG#RNBOHVODIBO¶E¶EIBOGEFNDUHZC¶¶ QJ
WBMVF

C3#BOUFJOFONFOQJHISTJL\$PNZ#BOVSBZFBIETPDLIETBI BOGF P
EPW¶OVWFB¶ DIBOG#RNBOHVODIBO¶E¶EIBOGEFNDUHZC¶¶¶
JOWBMVF

D*OWFTUJOUSFBTVSZCJMMT 0WFSBZFBS UIFZXJMMZJFMEB
E*OWFTUJONVOJDJQBMCP OET 0WFSBZFBS UIFZXJMMZJFME

*O¶¶¶NBMISGOFONFOVSDBFVSB OFXF¶¶BV¶OVAGUPZTPNFZNUBLOZV
DBJOFUQEZGIECP¶S¶VSDBFV¶F¶XIM¶MFUTVBRJCO¶¶¶N¶UFOFVMEF¶¶O
*OQSPCMFN, DITPUBUFVTOB¶¶¶MIZJUJTUIFBMUF SOBUJWFTFMFDUF
BUIFNPNLXOFU¶FJOFONFOIDJDFXBTNBI¶VHO¶CUPSP¶¶NT¶SOQJBJO
DBGSMBOECPD¶DTPPTF¶BUNF¶S¶G¶V¶ONFO¶Q¶Q¶VO¶B¶JO¶¶¶¶N¶NBZO
UFOU¶UDJLP¶B¶SDBFV¶OBIMZFUZSVOTJVB¶RJO¶L¶U¶V¶TR¶V¶RTJ¶WEJFLOIF O
XFDP¶S¶FOIB¶S¶F¶R¶H¶E¶PS¶DQ¶BUQOUF O¶E¶E¶F¶IT O¶BDIPT¶E¶P¶CO O¶¶¶¶N
°¶¶PULF¶S¶F¶R¶H¶U¶F¶U¶SN.B¶F¶DUF¶IHISTJLJ¶V¶BRJOUF U¶V¶TR¶V¶H¶E¶F¶% IJ5
FYQFSJNFOU IBTCFFO SFQFBUFE XJUIEJGGFSFOU TUBUVT RVP D
BOEBMUF SOB¶U¶B¶U¶F¶G¶S¶O¶B¶N¶F¶B¶W¶F¶G¶M¶S¶B¶N¶B¶O¶E¶;¶%¶%LIBVTF S

(IDR)SOH

— "MUF SOBUJWEGSBNE

· \$F / BRJOMBHIXZB BU \$PNJJP OT E JED HIRK BPNUBJUCV ECHFFUOP TGB Z
SFTSB¶¶¶BN¶TJN¶S¶WQJH¶¶W¶R¶N¶T¶C¶B¶Z¶V¶NS¶E¶PZH¶E¶L¶OL¶CHS¶B¶U¶O¶T¶R¶B¶M¶U
BOEJN¶S¶WQJH¶F¶TGB ZGUFSTUF IHIXZH VSBJTMBS EOH HIXZBOUSDIBO B E
JNQMFNF O UJOH TFMFDUJWF SFEVDFE TQFFE MJNJUT

*UJTDPOTJEFSJOHGPVSPQUJPOT

- B" MMPDBUF ½¶ UPBVUPTBGFUZBOE 1¶ UPIJHIXBZTBGFUZ
- C" MMPDBUF 1¶ UPBVUPTBGFUZBOE ½¶ UPIJHIXBZTBGFUZ
- D" MMPDBUF ¼¶ UPBVUPTBGFUZBOE °¶ UPIJHIXBZTBGFUZ
- E" MMPDBUF »¶ UPBVUPTBGFUZBOE »¶ UPIJHIXBZTBGFUZ

· ` 15 / BRJOMBHIXZB BU \$PNJJP OTSFBT JOHUF BPNUBJOPTU C V ECHFFUOP
TBGFUZSFTFBSDIQSPHSBNT J JNQSPWJOHBVUPNPCJMF TBGFUZ CVM
CMTUB O E J N S W Q J H F T G B Z G U F S T U F I H I X Z H V S B J T M B S E O H I H I X Z B O U S D I B O B E
JNQMFNF O UJOH TFMFDUJWF SFEVDFE TQFFE MJNJUT \$VSSFOUMZ UIF D
JTCV O EPTBU TGB Z O¶¶¶ PG TCV O EPTIHXZB BU ZLODUFSTJ B D¶¶¶H BTO¶¶¶V¶T¶Q¶R¶O¶E
JUTPQUJPOTBSF DIFDLPOF

- B.BJOUBJOQSFTFOUCVEHFUBNPVOUTGPSUIFQSPHSBNT
- C%FDSFBTFBVUPQSPHSBNCZ °¶ BOESBJTFIJHIXBZQSPHSBNCZ MJL
- D%FDSFBTFBVUPQSPHSBNCZ .¶ BOESBJTFIJHIXBZQSPHSBNCZ MJL
- E%FDSFBTFBVUPQSPHSBNCZ ,¶ BOESBJTFIJHIXBZQSPHSBNCZ MJL

5IF YOB QUB CPS IUTUQ FCE FVBS E P F T U ¶¶¶¶¶ B V E U P S T I L C V T S U F S C B T F E P O
U F U F O E Z R O D F M O X B U S F N B O U F J S S I S O T U F O E W V B G F S R N J B B O U F J S
D S I S O D P O E C S U F S I B O N B L F D B B E O V S E D I B O J O F F X O E L F S F R U J O
P G I E H B V E C H E B U N E S T I E O J H O H W Q D S V O T J V B R J O S S J S P X F U I B O
U I F Q F S D F Q U J P O P G B E W B O U ' B A W F O F X M I B O E I E U Q S L I E E C F X M T J U B I F F B O E
U F O F U B T F L O P X F O F W S I E U V T R V P D I P T F S G I S R V F N D J F O V I S G F
B M U F S O B U J W F T J O D S F B T F T * U T F F N T U I B U J O D S F B T F E D P O G V T J P

1 " O Y B N N O B U B V T R V E P T C B O E H A N U O S L P O T U F U P S Z G I E H X P N B G Z B D V G O L F I S F O P N X D U F J O T
X I P S Z F E P S I U F E H B G I U B Z S % P O J V T T I F S Z F E P S I J T G B Z F D B V T F T G E U K E B B T B S W S X P N E
C F F W F O X P S T F

E FSB UF XIMM OFGQB BQ BOP DIB OYFQ B NSP BVB B HFPVSD B FJV
BWBJMBCMF

4BNM PO BOE ; FSECBUT Q.PETD B FHTUV T R VFTCBNM PO BOE ; FS LIBVTF
. 2 3/4 U JT SFMBUFE UP UIF UFOEFODZ UP BWPJE DIBOHJOH DVSSFOU DPO
UBJTJ QJ PSQ PT JPFSTRU TMBH PUPETJO PSQ PT JPFOT UFU F OEP XPFSD
JU DBO CF USBDFE CBDL UP B NBOJGFTUBUJPO PG MPTT BWFSTJPO

\$ JHQHUDO WKHRU\ SURVSHFW WKHRU\

"T XF NUPJ OFS FSB BIOFNBO OFS Q EVHUF E B OUF XFDIB CSQB DP FDP
OPJ E JPN BJDH V SVEFSBU Z BTFE PO BURDE FQ RDEUJ M FBZ BU
JT DPOTJTUFOU XJUI UIF FNQJSJDBM BOE FYQFSJNFOUBM FWJEFODF

8IBU EP FYQFSJNFOUBM TUVEJFT TIPX

.H\LVVXH

5IF TQSNFUM FDP QPWF TG O SBU Z LXF MB E FSD E CSB BO CF TSMEXB
UXPNBJO DPODMVTJPOT

JOEJWJEVBM VUJMJUZ TFFNT UP CF BTTPDJBUFE OPU XJUI XFBMUI PS XFMM
XFBMUI PS XFMM CFJOH XJUI SFTQFDU UP BO JOJUJBM SFGFSFODF QPJOU

DIBOUHNTB LUFFQ BUVBRJO XPFMTTFFRN CSNZF XJUIB ON SPV NFO
XJUI SFTQFDU UP UIF TBNF JOJUJBM TJUVBUJPO HBJOT

5IF GJSTU DPODMVTJPO JT EJSFDUMZ MJOLFE UP BOPNBMJFT TVDIBT UIF
FGQ 15T SF BT SCS O DPF Q JUPS B DDEW VNB IF OFZVW F STZTJVRJO
JU SFQSFTFYOBURUBNFUESI F XFBMUI PG UIF JOEJWJEVBM CFGPSFNBLJOH UIF
DBMM UIJT SFGFSFODF TUBUF 3↑

5IF TFDP ONEJDNQDUJUI BFJT B TQEDIB OUF VJMJQWZGXIMXFF S
DMPTF UP 3↑ JO UIJT TJUVBUJPO MPTTFT BQQFBS MBSHFS UIBO DPSSFT
QPJOU PG WJFX UIJT USBOTMBUFT JOUP UIF GBDU UIBU UIF VUJMJUZ GVO
JT GPS HBJOT

.PS FWSBT XAVB FJGAWJV YBNA TQ F MGH FBMFZUP CSULVST EOUF
EP NCBH DTCV \$UAVSTOUF EPJDBMT TBTSCS ODEO F SUBTUXP
EP NCBT BOEFANBDE MZB OEUJF VJMJQWZGXIBPTCF DWFODD B QPUJW
RVBSUFS BOE DPOWYF JO UIF OFHBUJWF RVBSUFS

'JHV,SFIPXT B UZQJDBM DVSWF QSPQPTFE GPS UIF NPEFM

'JHVSF(\$BQIPGB UZQJDBM DVSWF GPS QSPTQFDU UIFPSZ CBTFE PO UIF XPS

5IF HSBQI JODMVEFT BMM UIF DIBSBDUFSJTUJDT UIBU BQQFBS BT
, BIOFNBOCOSTOEVHWHBTU Q DFZXTIOI Q WPNQBLFDROMPKXKPUFQT
GJSTU UIFZ DPOTUSVDU UIF DPOUFYU GPS UIFJS DIPJDF
UIFO UIFZ NBLF UIFJS EFDJTJJPOT BDDPSEJOH UP UIF CBTJD QS

5IJG TUBF QT DMENGSNO H SB NO HT X ISF Q WNP QIP B FSGS O D EOCB D EV T
IPXP SF Q T B OF VBVM BFD B FW T XF WBT F FCSNO HT CUP M ZGMF O DZ E C
SF BITJ VHTX FN US BPM T SHED TUF UB T R VCRNT PZOUf CUWUWZ X O XDI
B JVBRJOT Q T FQ\$ I B CCHHE RUBSUFc RBT \$ VEMBFc TI W/ JN MZ F B RURJOP
TU Z MP XWFS IUF QF FUBUW BTJ RBTUJ FJOUF QFPTON E DIBOHUFF QFKNJ
GSBNFE BOE DPOTFRVFOUMZ UIF DIPJDF PG UIF EFDJTJJPOT NBLFS
JOUNT QPM TE RBSUF UFZ FJOU CFS B WFSBOE DI QFSTUZE WFS B FWP XWFS
XIF OF D FOUT P OCH B TT \$ VEMBF QF WCF V TM/ BZL SEST F BOE DUJF B F
BMUFSOBUJWF

00F D DTXED IUFGBNO HSQDFTT D BFOGVMFS ZGMFLUWOUF PUPNGIB
EFDJTJJPOT PDDVST XIFO JUNPEJGJFT UIF SFGFSFODF QPJOU *O UI
DRUY BOE D FOMBI ENQ BFOUF E JUDON BSKIP DBO C FJDF \$ EVES FSB
SJTL MPWFS BDDPSEJOH UP UIF QPTJUJPO PG BMUFSOBUJWFT SFM

/RVV DYHUVLRQ KXPDRU DQLPDO EHKDYLRU"

"ON QSBUR VUPTO QPZISE SDBSTJO E SGO BOUTF DP QPTNZD IIP ZBOSP QMP
P ZCPW ZRUD J XIUFS IUT XE F \$FB E CNPS BJO QUBPS JGT BUCT S FVGSNUJF
F W B S NUPSGFQF EZT REND EN T&YQ SN F O PMS CBPS B ON BT QWEJF BO BQQP
WOUZ DIP OUB FUBFNYQ SN FOU BUJQV THUF FDP DUBNBTB OUEF B/OM PUZ U
SFQMJDBUF FYQFSJNFOUT XJUI IVNBO QBSUJJDQBOUT
'PS FYBNQMF JOBTFSJFT PG QBQFST \$IFO -BLTINJOBSBZBOBO BO
CFIBWJPS J Q Q S FNEUWFT BLTINJOBSZ B/OM B LFTU B WMOBSBZ B BOBO FUBM

HO
SD
P
SO

____ \$BQVDIJONPOLEZT

5IFZQSTFQ DBQVNDQZL RIUSTJZDIJDFJNB RUJF YQSNFO XF WBSQFTFQ
JOUJT DIUSQ ISF NP QZMFBQ FUP MDIB CUIHFF CSQDFDGB ENQ LFZD W/ HBIM BOE
USBEF BOE VOEFSTUPPE UIF DPODFQU BOE WBMVF PG bNPOFZc BT TPNF
*OUFJS , Q B SFA FOBLT JONBZBOBO B OPEB VOT FGSNOHGFO B STLVBSTPO
<BLT JONBZBOBLMFT > QI EMIM B DIN ZOB B WVO BO BURPULQ Q TT Q EOPYE IBOHF
QSPG ED E S RUTUFSQSF O D EOCHE YQ SN FCSI B ED PO FIBWUE XUB JHVO BNPVO
PGB QVQNDJF B F SN BF I BUE CUP OUP L FOUF YQ SN FOST B FSI BOE E S RUTUW
QWUF UF TBPUBO BS Q T B QZD ID F UF OV SRGNDJF TUPQWJOS BT SEFEB TFE
BGS IUF QZ FOX BT N BBSMT T EFT YQ SN FOS ISNWF E TP ND FGSNUJF WUF TUDJ TSX F
BEEFE UPSFQSFTFOU HBJOT

*OUIFTF FYQFSJNFOUT \$IFO -BLTINJOBSBZBOBO BOE 4BOUPT GP

XIFO D BQSB D FJLXO F ZHUB NUCUZET NZN BZPGI B INMBL B T RTVN BO WPS IE
JODMVEJOH SFGFSFODF EFQFOEFOU DIPJDF TBOE MPTT EWF BTJPO

5IFZ BSHVFE UIBU UIJT TVQQPSUT UIF UIFPSZ UIBU MPTT BWFSTJP

B O O WPS QUBQPP X SGBD T D FCSF Q DEUTS IUB QI S F E WPSBUSF TMOJNT B/OM
IFVSJ\$ IUFODFQES\$

"TJUT JOURJIJOUF TDPQI BT REP D VUWFSMEJF BUBHVE BOSTRUFF R VUJOGP
XIFUIFS UIJT CFIBWJPS JT JOOBUF PSMFBSOFE XF JOWJUF UIF JO
BOE BSUJDMFT GPS FYBNQMF

&DPOPND \$IPJDF 5IFPSZ "O &YQFSJN B FUBALU" QVBMZTJT PG "OJ
"OJNBMTD \$IPJDF TOWFS 6ODFSUBJO OV BIDPNOFBM EYF SUBIMFS &YQF

.H\ LVVXH

(SFBU "QFTD 3JTL 5BLJOH 4USBUNOFFUJOMB %FDJTJPO .BLJOH 5BTL
5P D FVDEJUT DIUSQB T TIPXO IP XFBUBBFF BE FFB.D IVN BOEJBM
CFIBWJPS DBO CF NPEFMFE XJUIPVU EFQBSUJOH XJEFMZ GSPN FYQFDUF
8IBUESJWFT BEFDJTJPO

8IBUTJN QSBURSF NFNSTUBJ COE WJMB'EJDO ZBFSEFW OPOIZ IF U LFT
JVMFBOUF DIRPHSDFTT XFFPO P NIFV SBFCV DUB O B CF MZGFSOMZ
JOGMVFODFE CZ UIFGSBNF UIF TJUVBUJPO BOE UIF TUBUVTRVP



2WKHU DQRPDOLHV LQ ULVN

8 F HWBSEDE FSDPJOGF P N H S QFS UQH B ONFJOPV N BO WPSIBUE F Q B
 GFSNU F SURJOMI P EPGTUB O SEBF D P OUPNS Z I ET EBT FT SCPUF DGB FUBJOGP
 QSP C B M CZUZE W VNB PSYB NND XIFO X H FJ ISP N BURJOMNIU JEM P D PSD F
 BHFOU T` CFIBWJPS XIFO GBD FE XJUI DIPJDFT JG FWF OU QSPCBCJMJUJF T
 00 FGH B N P TSE B T TUPNOCGPB FYQ RUDE UJ NB CUSEPQ QFUBS ZTU BPGI B
 D P NDF JOPSN BURJOMI SN F X P QFWJV T DUSB QW D RJO T MZ MHUF BU BQI M
 TJVBRJOT X F B U BVUN E J D ON B ISFU B X BBI B Q C B M FJTORI B W O U FZBSF
 DPOTJE' MSW O H F FYQFSJNFOUT XF IBWF EJTDVTTFE TP GBS IBWF HJWFO DM
 QSPCBCJMJUJFT PG MPUUFSZ TVDDFTT PS GBJMVSF PS UIF GSFRVFODZ F
) P X F W F S J G U I F T B N F F Y Q F S J N F O U T B O E R V F T U J P O O B J S F T B S F Q S F T F O
 F Y M W J O P C B M F J T S B M Z V B H V E F F B P G F S R V Z R O D F O U F Q U S F B I B Q M N
 D M F B S M Z D I B O H F T B O E U I F E F D J T J P O N B L F S ` T D I P J D F T N J H I U C F E J G G F

(IDPSOH

____ -PUUESZ

*N B B F S F Y B N M L E U Z V Z B W U F S Z D U L R J I U B Q E O W T H B B » P B S D F G P . † P Q Z O P X
 U B U I F Q C B M B Q Z D O H T Z B . † I F O J Q Z S B Q U P Y U S I M Z T S M S T F Z V X M V P C B M Z
 C Z I L F U D I L R 7 ») P X W F S J P G S B U R U B U I F Q C B M B Q Z D O H D M S C Z R N S \ , †
 U F Q P V I H U O E C F T P U F E Z O L F U D I L L F P S F W F S J P G Z E R U O M F B Z O F B S F Q C B M F J T U J
 U I F O Z P V N J H I U F W F O B C B O E P O U I F J E F B P G Q B S U J D J Q B U J O H

8 F S F S R U J T V C S B U B Z C B N F M L J M P P U E B B O M F O P D S T V B B T N G H V U B Z O J E T U I F
 N P U T N Q S B J O B T Q P G D S U E J F D O I F B Z G F S E U V J E U P S T I L 8 F H T D V I T M Q D U B P J O G S
 E F D J T J P O N B L J O H J O U I F G J S T U Q B S U P G U I J T D I B Q U F S
 " M B V H I B N V C F Z T J D N E Z G M T J V B R J O T F B T T U P N O C B U J O T P N E X X B D B O
 D S I S D M O Z S I U F M L J M P P U E B D S B D W F O T X I M D S T V O U P Q F B I U D I F T Q B M D Z F O X F
 D P O T J E F S T J N Q M F F Q J T P E F T J O E B J M Z M J G F " T X F I B W F B M S F B E Z T U S F T
 Q S P C B M F J T S B U F M B U F U C F M B U C N B L F B E D F B O S F E U R J O O H F S B M K F F B T T U V M K F
 B S F B C M F U P J O G F S U I F Q S P C B C J M J U Z P G B O F W F O U J O E B J M Z M J G F U I S F
 P V S F O W J S P O N F O U F J U I F S E J S F D U M Z P S J O E J S F D U M Z

(IDPSOH

____ 'BNJMJBSEWFOU

' P S F Y B N M X F N H L C F D G E J U B C B M F Q C B M B Q Z S B D E D F U P O B X Z R X Q U F
 D I B O G K E O R D H F Q U B J O M B V F S Z I F M L J M P P E G P E P N O B B B E U S P C J D I P C C J D P S V
 O F J H I C P S I P P E B T X F M M B T U I F Q S P C B C J M J U Z P G B S B J O Z E B Z J O N J E ' F C S V B S Z
 G P S E F D B E F T

& W F O B S C F E U R J O F B O U F U M M Z S I S D X R F M D P G E J F U O J N B O L I F N F J U S C F D B G T F P
 P S Q S F P Q L B P W K E H S C I F D B V S F G X N F B X J I U W F T W F O T 5 F Z B S F F Z B U N B B F B O E
 P S B N B S J U Z N J M Z O M E U E F Q S F J O D F A U S E J I S D M S Z O E I S D M K Z B D I B O P S N B P J O

8 F B Q L B P G S O M U R S E T M P S B T F N Z C S D I S J U O Z X D I D B W F S J O M S D F C F H F E J U D O P
 C V Z B U J D L F U N J H I U C F H F O F S P T J U Z P S T P N F P U I F S G P S N P G B M U S V J T N

BCBNF TSISV ODEHUBX F DUOOV FMZTC SFAO VSKE H NUB O ESP VJ D F FBH M Z
EFQFOEFOU PO PVS FOWJSPONFOU PS QBTU IJTUPSZ
8 IF O VFS QPSN BRJO B O I RFGFSR V ZROBSTUZAV OTJNT JD HB OUPFSX E P I ANJO E
BNCJHVJUJ BQBSU GSPN JOGFSFODF GSPN QFSTPOBM FYQFSJFO
(PWFSONFOUT UIF NFEJB BOE PUIFS JOTUJUUVUJ POT NBLF HSFBU F
PS WBHVFOFTT DPODFSOJOH DFSUBJO FWFOUT

(IDPSOH

/VDMFBS BDDJEFOUT

*N B B B B Q F M Q O M Q U F Q H I C S P P E P O M B Q P S C B O K P M L J P L O B K C P C B M J U Z
P G B O B D D J E F O U & W F O J G U I F Z B S F F E V D B U F E U I S P V H I F Y Q P T V S F U P T U
U B U I E Z E P O P C Q I F Q I E B U D B I S L G T U S F D B U M Z T B D U L S T O U I F Q A P S P W E J O H I F
J O G P S N B U J P O B O E P S T F D P O E C F D B V T F P G B O J O D P S S F D U Q F S D F Q U J

5I F S C S I F S X F B E T E I F C S P O N B V S B O E S Q B T O P N Y Q S N F O U B U Y B N O F
C B T E O T D P N U O V H S B D C S P C B M F T U J F T J T V S F O E P X Q A P N O B U I F B P O B U F
D I P J D F O B N F M Z U I F P O F U I B U H J W F T U I F N U I F I J H I F T U F Y Q F D U F E V

8QFHUWDLQW\ DPELJXLW\ DYHUVLRQ

"NCJHVPTTJUUVUJ POTBSJTF JO UIF BCTFODF PG JOGPSNBUJPO
FYQFDUFE VUJMJUJZ UIFPSZ BOE QSPTQFDU UIFPSZ NPEFMT FDP
E F J P O N B I S B O P O T T M C D F V Q C B M F J U B U D E I U Z E S F B N O P F B M B U F S P O N U B J
U F Z B D Z B U O H B R O U B N B Y N J F W F J S U J M U R M O E F T S P C B M F T U J V T L F T F N M E F
D P N A O M Z I O S P U F Q E C T M J B U Z B S F J T B O F S I P O P J O S R V E U F B N B J V L E Z S I P O
G S P N C P U I B E F T D S J Q U J W F B O E O P S N B U J W F Q P J O U P G W J F X

/FVSIUAV TBNBJ VUOUFJGPN BRJGFAU FAVGOJB GMSN P OES ZTSLBSFYB NMI BT
BO FGGFDU PO FDPOPNJD EFDJTJ POT 5IJT JT BMT P USVF JO TJUUVB
J D B T S L I F T Q E M I M Z F O O U F X I N O F T S B E V A R Q F E B O E F X C F S P O J V T L O E X I F
V Q P O X I J D I U P C B T F P V S C F M J F G T P S J E F B T " U Z Q J D B M F Y B N Q M F J
Q P J O V S F O T P O M F U B E F S F O E O V D C P S O D B T S N F R O C S B U F S U F E Z O H C S P O D F
B C B N F E G B O G F D F D I N O F T S X I D U F S F J T O S P O J V Y Q S F J O D I F B D B O S N F F
G S P N U I J T M B D L P G L O P X M F E H F B O E J O H F O F S B M N P T U Q F P Q M F C

5I FG TUBV ZPGIUT XE F S C E O P S X B B T S D E E P C Z % B O M & M T M S H X I P T Q M F D E V
U B J Q I E V V N B S F S I S E P C U Q N A U S F J T M L O P X S O C B M F J U B J O P H B M U O E B X T J K J
B N B J V P V U D P M - S M T M S H ; %) J T Z Q B F J T I B T O V M E J F E Z N B Z F Y Q S N F O B O E
I B T Q S P W F E U S B O T G F S B C M F U P P U I F S D P O U F Y U T

* % B O J F M & M M T C F S H J T B M T P L O P X O G P S I B W J O H S F M F B T F E B U P Q T F D S F U 1 F O U B F
4 B U F T H W S O N F O M O U I F 7 J O B N S B M T M S H T B F N O P J O G S N U I F Q P O P V O B O A E T O G M F O D M O V C
P Q J O J P O B C P V U U I F X B S X B T E S J W F O C Z I J T C F M J F G J O S F W F B M J O H U I F U S V U I D M
F W E J F O B S U F U P Q F S D E P D V O U F E O W P S Z B T V I D B B C B O U E J I B O V I S R C F Q R U D E D B M T U J X B T
N V D I H I S I U B O S C O U F E O , 1 1 S M T M S H X B T S E X I F 3 H U - S M M P P E " S E B I C S Q V O H Q F B U M B O E
G J S T U B U D P O T J E F S B C M F Q F S T P O B M S J T L B O E E E E J D B U J O H I J T M J G F U P J O T Q J

\$POTJEFS UIF GPMMPXJOH QSPCMFN

(IDPSOH

6SOT

51 F5 FUX P SO JOGFSOPG FZWSO*B O EOV*FBDI UJBOH1 C B1M6 F QMVD BOJDF5 SE
PS CMBDL 6SO * DPOUBJOT SFE BOE CMBDL CBMMT 6SO ** DPOUBJOT » ¶ SFE CB
:PV DBO DIP BTEFXPQ5 JDUFGMPXO HVUBRJO TGF5 ZV VB DIP BFOE5BO EN X
ESBXO GSPN UIF DIPTFO VSO BOE UIF DPMPSPG UIF CBMMEFUF5SNJOFT XIFUIFS
\$IPJDF " :PV NVTU DIPPTF POF PG UXP HBNCMFT

B.\CBMMJT ESBXO GSPN VSO * ZPV XJO .¶¶ JG SFE ¶ JG CMBDL
B, \CBMMJT ESBXO GSPN VSO ** ZPV XJO .¶¶ JG SFE ¶ JG CMBDL

\$IPJDF # :PV NVTU DIPPTF POF PG UXP HBNCMFT

C.\CBMMJT ESBXO GSPN VSO * ZPV XJO .¶¶ JG CMBDL ¶ JG SFE
C, \CBMMJT ESBXO GSPN VSO ** ZPV XJO .¶¶ JG CMBDL ¶ JG SFE

51 F P0ZJ 6SGO DEXE F SOVBO EOV*TXIX F LOPXUBI F ROW \$R3B DL BOE
SFE OTR F LOPEXSO* D RUD TYE DM E TBNF OSFGSEFB OEDCMCNV TUBJ
UF Q C B O P E S X O H B S O W S D P S T » ¶ P O U F B F S I B O X F S V C S U B O U P V
UIF QSPCBCJMJUZEJTUSJCVUJPO PG UIF UXP DPMPSTJO VSO * .PTU QBS
UP HBNI QIUJ TFD RQUBUM BVHSTUZIBT B LO PXCBIQBT Z D D O C D
VT M B5ZV O E » P Q S D Q B U O S F S B U B B O E U C 5 J T S F S O T F M E B N C H V U Z
B V S T P O Q S D Q B U O P R E U F M U F S X I S F U F U B L F S F U B T B N E I U V P C B I F T S B
VOLOPXO PS WBHV F

.HALVVXH

51FTBGF PQUJPO

51JT TIPKEDU F TGBPUJOT QUPUJRUJ F M V M P G 5U B T E U F E D M U F V F O C V E U F S R U
BXBSFOFTT PG IPX SJTLZ UIF FWFUOJT

1 B D Q B U O S F D S B D B O U P » ¶ Q P C B M B G I U D F O T E V S O * * O * C U P D B T U F Z I G F G S
UP ESBX GSPN UIJT VSO JO PUIFS XPSET UIFZ QSF GFS bLOPXOc SJTLZ F W
" N Q H V U B Z S T P Q T J O D R I O F O X J I U F Y Q R U D E U V J M I F U B Z U F D B J V U F M E P T b J E S I S O M B c
C F W B S I F F U D I E M E S B Q B U O F G S T O U J T D B P T O P J O , B B B I U Z E S F B U D B M Z O H
U B U I E Z C M F V F U B M S O * D R U D T N F S F E O T M B O S O * B O U E B U I U F Y Q R U D E R D M P N G P
V S O * * T (B V P S B U P U F N) P X W S J E Z S F M P B T U F D E I P P O X F E O B C O E U F O
J G F Z S E M M F V F U B M S O * D R U D T N F S F E O T M B O I F U F S I E Z T I R A V S F G S C B
C) P X W S B N E V U B Z S T P O N B U I F C S E D Q B U B S I R M N J O U F U F V C S B U Z I J U
J S S B U J P O B M C F I B W J P S J T O P U D P O T J T U F O U X J U I T V C K F D U J W F C F M J F G T
' P S I U P T E U S F U F E O U F E U T M B I U S H V N U F O E C M P X O H T I R U K J D D R I O F Q F D U B J
D B O B S J T F

1 51F YQSN FQE FSCDF E5F5F NHUJ NZX OM F G /FWSIUM T LFSF 5F N EQ B S U F B U T V Q S Q U B L G O U E D H V F O
X I F O Q B S U J D J Q B O U T B S F B T L F E J G U I F Z B S F J O E J G G F S F O U U P U I F P V U D P N F 5 I F S F T V M U T
B T U I P T F X F E F T D S J C F I F S F

(IDPSOH

1 SP.PG

"MBVHUIF QPCBNLHJZWRJQTBVBM DLO PXFOM TFCFVWFG B QPJUPS
FYBNQMF XFDBO BTTVNF UIBU UIFSF BSFNPSF SFE CBMMT UIBO CMBDL

1 SFE]6SO* 1 CMBDL]6SO*

UIVT

1 SFE]6SO* »¶

*GBQMBZFS QSFGFSTB, B. XFDBO FWBMVBUF UIF FYQFDUFE VUJMJUZ

&6 B, 6 .¶¶ 1 3FE]6SO** 6 ¶ -1 #MBDL]6SO**

&6 B. 6 .¶¶ 1 3FE]6SO* 6 ¶ -1 #MBDL]6SO*

6 .¶¶ -1 3FE]6SO** 6 ¶ - . 1 3FE]6SO**

6 .¶¶ -1 3FE]6SO* 6 ¶ - . 1 3FE]6SO*

"T V T V B M X F B T T V N F 6 . ¶ ¶ 6 ¶

1 3FE]6SO** <6 .¶¶ 6 ¶ > 1 3FE]6SO* - <6 .¶¶ 6 ¶ >

8IJD IJNQM JFT UIBU

1 3FE]6SO** 1 3FE]6SO*

*G U I F T B N F Q M B Z F S Q S F G F S T C , C . U I F T B N F Q S P D F E V S F T I P X T U I B U

1 3FE]6SO** 1 3FE]6SO*

XIJD IJ T B D P O U S B E J D U J P O P G B , B . J N Q M Z J O H U I B U

1 3FE]6SO** 1 3FE]6SO*

*O J T Q S M V S F J D V U F W E J F O S H U F T F D P N N P S T Q F O U Z O E F N J Q F T B J N Q S B J O D G F P
E G O J T F H N C E Z S T P O B O E S O P S T Q F O U Z O E F N J Q F T B J N Q S B J O D G F P
E J W J E J O H V O D F S U B J O U Z J O U P U X P N B J O D B U F H P S J F T

POF DPODFSOFEXJUISJTL

BOEUIFPUIFS XJUIBNCJHVJUZ

)F B H V B U S U V S T P O B O E H N U L Z S T P O S B E S G O P O U B O M B U P E S G O
D I J P F O U F E J P O N B J D H S O D F T F G M P X O H Y E N O X I M M O V U P V O S E F O U F
Q P T T J C M F J N Q M J D B U J P O T B O E N B L F Q S F E J D U J P O T B C P V U B N C J H V

3JTLZBDUJWJUJFT

(IDPSOH

4VQ QUBJHSF SFX PSTZB DJWJTBDE WLD BNOBUE B JDB . ¶ ¶ P S ¶ ¶ ¶ ¶ ¶ S U F M Z
R U Q P C B N F J T S B V O L O P X F C O P E X Q " O B I M Z F U Q C B I C B C H I D O H ¶ ¶ ¶ ¶ P Q S
B D J W J U Q F F P ¶ \ ¼ ¶ I V T L F D P M Q R S Z P C B I C J U Z " P G H D O ¶ ¶ ¶ ¶ P
C F U X F F O ° ¶ \ ½ ¶ . P S F P W F S X F L O P X U I B U Q # U I F Q S P C B C J M J U Z P G H B J
U I F S B O H F ¹ ¶ \ ½ ¶

"MUIPVHIUIFNFBQSPCBCJMJUZUIBU FJUIFSBDUJWJUZXJMMHB
B V S T F B K P O E S F S B D J W J U J D J W J U F Z D B J V B F T V S B C M J P U Z U B J U F T B N F
B H E X P M S F S B C U F S B D J W J U Z F I U S " P S # J G R U P U P N F S F U I F T B N B I O V
Q S P C B C J M J U J F T X F S F » ¶

" R V UPTU BJO BSBM BSZJFT X IUFFS IUSFJT BUESGO DDIF SDFUJIOGB NBJ VUXZIU
SFT QIRUP TTFT BOOTEUHF BVJEUPTULBM BVHI B-NVCEZSTP QT N RDP N N P O
UFSF SF E SSGO DFT ECFQ P OUKFSUF D FOUT J OCG EF OBMPT T SHDPT J P X VFS
UF E SSGO DTFOLB TMDSB J UTPS \$ ULBVJEB NBJ VUBZSTP QT XE F SFCB QUP
D RUYTU/ FVSIUATXFP P S WVBFB HETG OUP CF SFUPVSB OCB NBJ VUXZ F OFSF SF
QPUFOUJBM HBJOT SBUIFS UIBO MPTTFT 5IJT BTZNNFUSZ JT NPSF DPOT
T NNSCF C BNFJEUFS IUB VSH SP OFCG DIENBJUC FGP EF C BICUBUZVSH F
JNQ BFD DDPFT NBE SBWCEVJ Z FCMVXO HYBNV EFNUSPT TMOB C BNFJUJ

(IDPSOH

_____ "NCJHVJUZ UPMESBODF

\$ P QETS XIP SOTXU. 110 BND FBDI SO. FBDIMVBO V SFCBPN. B. 110 OUEF
CF C BICBESB XOH BOVNSTU 110 SO, UFSF SF BO VOLOP XSGOBNFGB SOFB
BOZTJOHMF OVNCFS 'PSFYBNQMF UIF QSPQPSUJPO PG CBMMTOVNCFSFE ¼ ¾
4VQQUPFIT BSQFSES XOH OVN 2 FPNBSO 8 I DI SO EZP VSES RUEB XGPN
6SO . PS 6SO , &4RMBB B BOE 2 4 BSUI

\$MFBSMZ UFSF JT OPBNCJHVJUZ JO 6SO . TJODFXFLOPX UIBU UIF QSPC
¼ ¾ 1/2 B DMZ 10 OUF D BBS ZO SO, UF EF C BICBESB XOH HT VOLOP
BNCJHVJUZ BT BMM UIF QSPCBCJMJUJFT PG XJOOJOHBSF FRVBMMZ MJLF
1 B DQ BUB D F EUMJUZ FCBP OFNU OUP SFGS6SO, XIDI DUBSUT SFRJVT
COID HSTUF EF E G CF B-NVCEZSTP O OUF B FSI BOXEF OFU BU JIG EF N IBE
CFFO GSBNFE BT B MPTT QBSUJDJQBOUT XPVME IBWF QSFSGFSSFE UIF VO

\$PELJXLW\ LQ FRPSDUDEOH FRQWH[WV

\$SBH 'PBO'ENP VSTZ OF THF E BNCUBZSTP O 5 FZ BV OUB NBJ VUBZSTP O
BSJTFT QBSUJDMBSMZ XIFSF UFSF JT BDPN-CP \$ DTEPOX S U L B T J N J M B S V
. 2 »

'PSYBND LFZBTLF S OUBOPVW EF SD FBMVFS ZULUJ NMSHT SO YQ SN FIO
1BSUJDJQBOUT IBE UP BOTXFS UIF GPMMPXJOH IZQPUIFUJDBM RVFTUJP

(IDPSOH

_____ -PUUESZ

5IFNPTUUIBU *XPVMECFXJMMJOHUPQBZGPSBUJDLFUUPESBXGSPN6SO * »
5IFNPTUUIBU *XPVMECFXJMMJOHUPQBZGPSBUJDLFUUPESBXGSPN6SO **

)BMPGIF CSDQ BUIBUE BO \$XEF R VUPTU TUB TBNFF" R VSBSPQ S DQ BJO
X SF PNOZ TLFEGLUB VUPTUOF O BONE VP VU KFB NBJ H RSBX SF PNOZ TLFE
UIFRVFTUJPO DPODFSJOH UIF WBHVFCFU XIFSF UIF QSPCBCJMJUJFT
5IFBWFSBHF SFTVMUTBSFTIPXO JO UIF GPMMPXJOHUBCMF

	\$MFBS 6OBNCJH	7BHVF	"NCJHVPVT #FU
\$PNQBSBUJWF	, 0 10 / ¼ ½	. 0 ¾ » / ¼ ½	
/PO \$PNQBSBUJW	. ½ 2 0 / 1 »	. ¾ 0 , / 1 2	

5BCMF3FTQPOTFTUPBNCJHVPVT VOPBNCJH 5VWVS CIZUJJOHTDFOBSJPT <

8IFO QIPFVY EFUDLLFGSN QPASO TUF DP SGO BWD B TUF E SSGO D B E FUFIX P
CFUTJT WFSZIJHI NPSFUIBO ¼)PXFWFS XIFO QFPQMFBSFBTLFEUP
UFJ S V W BRJOT JNJB C B B C B V . ¾ J T B B Q S B O R S T M C F D B J V P W E J F T S F P
E B J B I C B N F N P B U R J O U T E J F M B U E D S B O D J P F T V S O E I F B O E U B C F S T U B J H G P
IVNBOCFIBWJPS

° /JTUIFOVNCFS PG QBSUJDJQBOUT

" D SEED HPUJT ZQ H FJT X ID UT TV SDFZOLF YQ SN F QMFWEJF OBNFE V LZVSTP O
BSJTFT XIFO UIF JOEJWJEVBM QFSDFJWFT BEJGGFSFODFCFUXFFO
UF SF HSLORAKE HGT PNF FMOFFPSYB NMO LUT TV HUNBUQ F M QX I PSBL O M X HF
B M B CUP QSFUSGS RJ CUP O TSCOFHMF OSEU FS IUB OUPFSVF O B OUEBU G B GNDYQ STU
QSGS RJ T Q HUB P GOJB GMB D J W TU B O H M NPODFS TMUBAM DRJO TOJO E W VNB
XIP T RUFN MIVT B TY Q S W JB T JCGEM JT NSF UPVSB OFGB N E V UZULF S M J
IP X V S X I F O F D FOD I B O H S R U Z I R VUN BLF B D S F I R Q U C F F O U J B S T V U B R J O T
XJUI E J G G F S F O U M F W F M T P G B N C J H V J U Z U I F Z C F D P N F B N C J H V J U

\$PELJXLW\ WUXVW DQG RSWLPLVP

* UTJN QSBURJ OUBUJ BUB N E V LZVSTP O D B MOUC FUE CUPJO E W VNB O E F E W
USW JPS OUB FSD B T J E F B B D I G R U S Q I F S Q F M O C P N B R J O Z I T F N T O U V U R J O A D
5 S V T U T P O G I H N R U N Q S B U R J O N R J B U R J O C P S Q U S B D R J O X U F U F S Q F M Q U S F C S F J U
J T X S I U O F W H J B Q H T S P M J O E J R D O N B D H V S E I P X V S X F O R U F H U O J H M I
C E K F F L O S U Q G I S O E S V U J F W B O E B U B Q D E B C U A S T Q U S O S T F B V O L O P X O M Q F P Q
4 J O D F J O H F O F S B M X F B S F J O U F S F T U F E J O T J U V B U J P O T X I F S F U I
P U I F S U I F N B K P S J U Z P G F Y Q F S J N F O U T J O F D P O P N J D T B S F C B T F E I
P C S F W X I U B O O E W V N B P M E J D B O W F O S N U X Q D U T P V P G I H E O S Z C I B T C F F O
T V H U R H U B I H E J R D O P U S O B O B Z N P O V T B I R U B O B U P E M U U F O E W V N B B V J E F
U P S J T L

) P X V S I E S T U R J O J I Q X F F L O S U B O S E J L B V J E U F I B U C O P O E M T V E F E O F O B M
F Y B N M U T U F X S E R & D M F O E J T P O X U B E P M O J L N F S T O P S U B V J E U P N F S T T V
P G V U S Q I F S T S F Z R V O E S R A D P O O K I F F U D E J R D O P U S O B O S E J Z C F W B S
& D M F O E J T P O T P O O U F H F S I B O S E P D P U B A O V W H U E J F M O J L O K I F F L O S U B O E
B N E J V L Z V S T P O S F Z S H V H U B U S T O J I F S T G M P X T B O Z N O R P O F S E V F M V M
P G V O S H O U D R W C F T F F Q H V T P B M I S Q H B O V O L S T P X O M Q I P N X A M B M S
J O U S U F E B O E P C M Z J O M S Q U S B O K J I U B H O B J E S S G O R U V S U Q H S F Y B N M B G S O E
X J U I X I P N X F J O U F S B D U S F H V M B S M Z B S O E P X M P T F M C F I B W J P S X F L O P X
5 S V T U D B O C F N F B T V S F E V T J O H U I F X F M M L O P X O F Y Q F S J N F O U D B I

(IDPSO)H

5IFUSVTUHBNE

5X P B O Z P O V T B U B L O S Q U A Z S I B T S F Y B N M O . T B O E D B O U H A P P E Z B N P V E M
O P O F P S T P N F P G J U U P Q M B Z F S , 5 I F B N I F V H O G U S M F D Z E J S V F H E J O V Z F Q M B Z C E B Z F
, \$ D I M T , † / F Y Q A Z S E R D F T I P X N G I O T I P N R V L O F F Q B O E I E P X H M C I B U L
Q A Z S . 1 M Z S T E J R D O T V T Z E S C S B S T B T B N F B T A B O B M E P X N V M Z F Q C M F V T
U I B U Q M B Z F S , T I P V M E C F U S V T U F E U I F I J H I F S U I F B N P V O U H J W F O U I F I

" U I P S T S H V U F U B M B V H U I F H B J O V M F M S T L Q A Z S . S U T U O F H O J H C B J D L O U P
C B T F E S F O P C B M F J T O U O P M F V T B I V N B I O E T O 1 M Z S . X I P E P F U L O P U K F
P U F S Q A Z S I B T Q E F E G F E O P C B M J B U Z I U S G F S X J M E F D S P D U B E S J T J T B O V S O D F
B O E E H M O P U T F S I U B S T U Z T V B R J O B O E D I Z R V Q U E U I F H I S I U F M Z S T M V M
P G B N C J H V J U Z B W F S T J P O U I F M P X F S U I F B N P V O U T F O U U P Q M B Z F

5 I J T S F T M U N Q S B U R J O Q I B O M T O E B I E J T T V O B N E V L Z O U A S T Q I F S D F U Y T J / P
N B J S I P X N V D O P S N B R J O X S F D I F V P D P M U Q P S L O R A K E H F B E S T E V F O X I S E P
O B M S I U b Q C P N I S c N U Z C E H C S P E S V O S E F O U E F J N Q S B U R J O D G V P S I R O P M P X O H
F Y B N M U T G S N U F G A E E F D P Q D P T S F M O J L O K I F F L O S U B O E F D J O P P X N I B M O H C F F O
E F O F E Z S D B E D F T N B O E Z I N B O S J M V E F T V B S P V F E J B U I U S F J T B Q I E S T U R J O J I
C E K F F U O F X P " I J H M V M P G V U S O L O U V U R J O T I N B O S B U D P O T F R O S Q O M D I T J D F T
B U B O B U J P O B M M F W F M P O U I F P U I F S I B O E B Q F S D F Q U J P O P G C F J

" O H F S Q U S F U O J M O J L O K I F F O S I C P R O B B V J E U F T B O U E V E U N E C T C E P V O O Z # C S B O E
\$ P O I O E J I F Z O V W H U E E B O B I M E V T D N E F E S E X I S F E J R D O T I U B E F N B E F
B C P V U S F B U N F T O V N R J O H J U P I O T U I F S F B S F E J G G F S F O D F T J O J O E J W J
U I F Z M P P L F E B U U I F S F B T P O T G P S U I F T F E J G G F S F O D F T 5 I F Z F T U B
U P V E N J H L D S S A U X I U B N E V L Z V S T P O B O E Q U E U N F S P U O U T U D B H U R O O E F E
U P C F E H N O T Z F J O L H S F J N O F Y Q B Q U B O C P S I U T E S S G O D D F C M F P S T U B U P Q N U T U

BSFS BZEP H BMLJ V CSBDF JVBPRJOT FFAQJH BUJLZXJ M M G F P N G BJSB O E \$ RMOV F
. 2 0

% D \ H V L D Q L Q I H U H Q F H

*O S W P J V T D U S B Q F W B B T T V U N B K E F C S P C B M F J T S B L O P X D E W V M B D S I S D M Z
G S P D R U I F T O P S N B P J Q W F Z S D J I V B O D E P O T F U R A S F B V O U P S F E U J U G F O P C M V S F
P U D P N B V F O X I F S P E A Q U T B N H V P V D T E S R U N B L F B U E C K F O R U F B T T V N F
T P N D I E G S P C B M G E U J Z W P J O E S F Y B N I O U B L E M M F O T S F F R W N B Z M V Z J U P D S D W /
V O R S N E T U S W R J O 8 I F O X R V U B S F E U J U P D S I S O D G M O S F W O T X F O F U P S E M Z O
D P N I G U R J O M B B Q B F O U J E S R U D N B M U F G V S F P U D P N B T F O K P W F O T S F J O E F Q R O E F O
C S F Y B N I O U P D P O U T R U S P X T G P B J S E L F U F P D S I S O D G P O F F O E P F T U C G M F O D F
U I F Q S P C B C J M J U Z P G U I F P U I F S ' P S F Y B N Q M F U I F G J S T U U I S P X P G U I F E
P G O M F O O V S Q W F T F D U P S O X O U I F B F S I B O X E I F O K P W F O T S F O U E F Q R O E F O
U I F P V U D P N F P G P O F D I B O H F T U I F Q S P C B C J M J U Z P G U I F P U I F S

(IDPSOH

____ \$ P O E J U J P O B M Q S P C B C J M J U J F T

' P S F Y B N I O U B X O H K J I U P V F S O D F N I S S E S E B F S N B E F O D E F T G B O U F S P C B M G E U J Z
E S B X O H B U O P S I S E S E B S F P U D P N G I O T F D S O X E E F Q R O E B U L E G I U G J L S S X O U J T
D B T F C F D B V T F U I F S F J T P O F M F T T S F E D B S E J O U I F E F D L

% F Q F O E F O U F W F O U T B S F M J O L F E C Z D P O E J U J P O B M Q S P C B C J M J U J F T
*O C P U I F Y Q F D U F E V U J M J U Z B O E Q S P T Q F D U U I F P S Z X F I B W F V T F E Q S P C B
V W J F T B V A N E F Y Q R U D E W J M S R A U B E P E G S G O D I D F 8 T I W B T T V U N B O F E W V M B
E S F B V O U P D S I S D M W M W F S P C B M F J T O B C S E F Q F O E C R O D E F Q F U E W E T G O U P
V Q E B F T S P C B M F J U X I M S O F F X U P N F T S P S F B V O N U F U Z S D J I V O F O G S N B
U R J O P X W S X I F O K P W F O T S F E F Q F U E W E B O J H S O C B M F J U G F D P N F U R J O M B M C Z V
D P N Q M F Y G P S B H F O U T X I P B S F V T V B M M Z V O G B N J M J B S X J U I T U B U J T U J D T
B C B V O S F W O T C B T F M J O E S N B P J O D B O C M U E F E M F O C S F A U B M Z N O M D B T F T
& D P Q D P I O Z D Q W H D I N P E I F B L O B T T U V N O F E W V M B V Q U E U F S M F G B S E O P H P
B Z F T J B O Q S J O D J Q M F T 5 I J T X J M M C F F Y Q M B J O F E J O U I F G P M M P X J O H T F
U B U J L Z S F B V O U P D P N Q D V R J O E M E S P C B M F J U R I O C B T O F X O P S N B P J O F D I F V E
C F G P S F U I F P V U D P N F P G U I F F W F O U J T L O P X O
- F U V T U B L F B O F Y B N Q M F V T F E J O B X F M M L O P X O F Y Q F S J N F O U U I B U J O W F
F W B M V B U F U I F Q S P C B C J M J U J F T B O F N B P C E O F E S A Q F S F O Z U F W F O U T
\$ P O T J E F S U I F G P M M P X J O H I Z Q P U I F U J D B M R V F T U J P O

(IDPSOH

____ (S F F O D B C T C M V F D B C T

" D B C X O P M F V E O B J I B O S O B E F D B L Q H U X S P D B C D F N S F F O B M E P S B F O
U I F D J U Z : P V B S F H J W F O U I F G P M M P X J O H E B U B
B % » P G U I F D B C T J O U I F D J U Z B S F (S F F O B O E . » B S F # M V F
C " X J O F E T F O F G U F D B C M B F 3 # D S V W E F S M B C M B G U E X O F J O F T B N F D P O E
U R J O U B L Y T F E R O G O I P G I O B B B U B O E D M P E R A B U I O X O F T \$ S D P M E Z L O F G E J
U I F D P M P S P G U I F D B C ¾ ¶ P G U I F U J N F B O E G B J M F E , ¶ P G U I F U J N F
8 I B U J T U I F Q S P C B C J M J U Z U I B U U I F D B C J O W P M W F E J O U I F B D D J E F O U X B T # M V F

5 I F N E E O B C S T R W F R V P J O T ¾ ¶ T V H U Q A H T L Q F M O H W E F S N Q S B J O D P B F
U F T U J N P O Z P G U I F X J U O F T T S B U I F S U I B O U I F G B D U U I B U P O M Z B T N B M M G
U V T L B U T J M T M L J M Z E U J U F D B C W E F T P X W S ¾ ¶ P M O Z F U S P C B M J B U Z U X O F J T T
D S I S D J O E F Q F O M P O F S I W O H T W O U R P S P C B M J B U Z U X O F J T T S I S D Y I F V O
U B U J L Z S F P M O Z P E D B C O W F D U I Z U S F W F 5 F D R J O E M E S P C B M J U N Z V D I N F M B
U B O F N E E O B C S T R Y F X F P L I E P X P D S I S D M W M W F U F S P C B M J U R J O D I A M Z
5 I F M J O L C F U X F F O U X P E F Q F O E F O U F W F O U T B O E U I F J S D P O E J U J P O B M Q S
P S U I F P S F N P S S V M F # B Z F T ` S V M F T B Z T U I B U U X P D P O E J U J P O B M Q S P C B
J O G F S Q S F E J D U U I F P U I F S H J W F O P O F P G U I F U X P

'JHVSF51F.BQQMJDBUJPO PG #BZFTD UIFPSFN UP DBMDVMBUF DPOEJUJF

* & F X B D W M E F IPX NZBDFUF XIOFTS\$SDPMEZLDFG JM# DBC XUFMDF
XFOFFE UP LOPX UIF OVNCFS PG DBTFT XIFSF UIF DBC JT #MVF BOE JU JT D
UF OVNSRCFVBJTUE FLOFEJBM #BM BVHUT JS FFO½ 10 BPSX RE TXFORUPE
DPVOUBMM UIF UJNFT UIBU UIF XJUOFTT SJHIUMZ PS XSPOHMZ JEFOUJG
UJNFT UIFZ XFSF SJHIU ., 1 5IVT UIF DPOEJUJPOBM QSPCBCJMJUZ JT T

É ¼PçÙjìØÙàæíÚíÙØ¼PçÙ
AäUÜä iØÙàæíÚíÙØ¼PçÙ ¼PçÙ iØÙàæíÚíÙØ¼PçÙ

É ¼PçÙjìØÙàæíÚíÙØ¼PçÙ

.H\LVVXH

-PJD HUBFGSRV ZRQW O DBO CF NSJDUJNRUJ QBTO SEBUTUDIB CSQ B DIFT
_____ 5SBOTMBUF JOUP.GSERVFODZ _____

5IFM TTUP CM SFJEUJ JLNQSPBORUF BDI QMPPUSMIF Q QNTSQT FCOUFS NT Q
QSPCBCJMJUZ JOUP B GSFRVFODZ BQQSPBDI JO PSEFS UP JNQSPWF GPSFDBTU

7KH ÙODZÚ RI VPDOO QXPEHUV

*OUJTBUT FUBJOK F SE T EPCO F SFJWJURJOGPV N BSOB TJP ISRAUF EPUF DP NBPVO
PCSP C BNFJTBH BS XJILB OYFNMGPSN B QEN FIOZ, BIOFNBO OVSIOZE, BIOFNBO
BOE 5WF;S,LZ

(DP SOH

_____)PTQJUBMT _____

" DSBUP XOT TSFVZCKP IJTBM OUFNSH SI P TJMB C BV BCTSB CSO FB DZIECBE
JOUF T NBSM P TJMB C BV BCTSB CSO FB DZ "ETP V LOB & B V PCMOVBCTSB CZP
)PXFWFS UIF FYBDU QFSDFOUBHF WBSJFT GSPN EBZ UPEBZ 4PNFUJNFT JUNBZ
MPXFS
0WFSB QFSJPE PG POF ZFBS FBDI IPTQJUBM SFDPSEFE UIF EBZT PO XIJDINPSF
CPZT
8IJDI IPTQJUBM EP ZPV UIJOL SFDPSEFE NPSF TVDIEBZT

HOQLWLRQ

*O UIF FYQFSJNFOU , PG QBSUJDJQBOUT BOTXFSFE UIBU UIF MB
TV DZE B'PGI U NJP V HILUC B I P T B I BUEF T B N F C B B O Z M P Z , H V F U F
D S S C B O T S X F J D U T U B J J T U N J V D I S M E J M Z E U I U T M B A T J E M B E N F P E Z B X I S F
N P S F U I B O ¼ ¶ P G N B M F T X F S F C P S O

5P V O S E F O E Z I U F T M B A T J E M T J N S F M J M Z U F S Q U B G N S F W S B H X F O R U F E P S E V D F
U I F M B X P G M B S H F O V N C F S T

5 I F M B X P G M B S H F O V N C F S T

*O S P C B I C J B E Z U F B X C B H F O V S T O U F T U B J X I G S I S N B S H F O V S P C F O S N F O M
U B W L F W S B H S F T M U I P W C P D U P T Q R U D E V M F N I S F P S I B I H I S I U F O V S R G F O N S I F
D M P T F S U I F S F T V M U T X J M M C F U P F Y Q F D U F E W B M V F T

*N B J E P T O T H B S D J C P S N F T S F G E D U F S F T M U R U J S P X B I F B M E G F O N F B O E
B U J M F U B F S I B M G P X V F S P Z V Z E L S P X U S F F I F B E T B U S B O E C P Z D P N O F V
G F S R V Z E D O I D I I F B E T S P Z D M A W E T G S O S U F T Q R U D E V M F G » ¶ P X V F S J U J
M F T T M J L F M Z U I B U Z P V X J M M U P T T ½ » P G I F B E T X J U I , ¶ U P T T F T P
U S J B M T J U J T N P S F M J L F M Z U I B U Z P V X J M M U P T T B O F R V B M O V N C F S

*O U F I P J B O F B N I P X I V S Q F M O U E S M Z O F M B X O T I N I M I V N S T F B O Z Q F M Q
C M V F U B V F Q O T M B B N A Q C P C B M F J S B J N J B R U P T I S I F F L O F S Q P W O P O B J O
F Y Q M B J O T

5 I F B X G P G N B O V I N S C N F O F J U B Q F I P O H S U F U F M J M P R U E L B T S P F R V S G O V E R S
D J X M M E S V M Z F U T B N F S P G N I E U B M I B U T J D P N M Z O P X G B H B A S T O B M D H
J T B N U B U P J O G P U T G T J E B J S D I B T U O Z P D P N R E V T O S B X J I M L F O B I O Y E O G M J
G E V H F S B U T M C F D B V T F B G T G N E V K O D F P P V U F L O W E F B E T P N Z B O M B T I R B E O
U I F V O E F S M Z J O H Q S P C B C J M J U Z E J T U S J C V U J P O H F O F S B U J O H P C T F S V
P V S O E S I U F O C B M O T U S U P J O P S N T S I P F R V # O D B V Y F H S E F P M L M Z T U L B C B E
G O J B E M D O V E N B J D H S F S Q U P J O J M F S X O H F B F O X F Y B H S U F U F M J M P R U E L B O
B O B M Z T U J T H P P E J G T I F J T S C J H O U U I S F F U J N F T J O B S P X <

6 X P P D U \

3JTL BOESBUDZFN QSBJOE FDP VBSBIM TO VWSZB NFJGF FVOR SNUFXDI
XAMBIVN RTOZELJNJO B BOEPRVPO SFGMF O DZPESCS L QDFUJO BOSE PV
UFOEZ Q BUDGEMES \$ LMQUJT EPD VNF O E FSOE T ANQSBJOF DP QPN
UFBUDJMFSTMVUB QP FDP ON BJDH V SVEFSBU ZF DUBHSPFE QM JDU S F
HPV QTOE DVT FUEF PEGGO D FJ FOFOP TF X SP VST IPSTL B ORETF X SP B
STILT FJLHO SE SC HPS RV OSEFOUEJ SJ FSH FLO FVBSX I FOD FJUM FTBNF
QSP V N" HF SMI B B ZI BLF Q P J V T P B T CBZQ PDPVO MUF T QPDTSTLUBV EUF
VOEFSTUBOE UIF EFUFSNJOBOUT PG UIF MFWFM PG SJTL BWFSTJPO GPS
UFGF J V F G T S P Y B N H W S O N F O M Z " M B V H I T N Q S B J O R U I V B H S O F
UFBUDJN P M F E L D B S F Q U I F C F W S P G E J G S G O Q Z T B A H E T O P N U F T S Q E U R J O T
E S F B T F Z I Z Q H F T H B L E S U P U T S U P S I U F B D I B U Q F M O D I B O I E S F W S B D S E L H
U P U I F T F U U J O H J O X I J D I U I F Z G J O E U I F N T F M W F T
" O J E M E F S F G P S N U F H S E M F P M F J G T F G E O D I U S Q 5 F U B O S E B N P M E J
S W T J R E B I O K O P B D D U P N Q S B O E G S N F G M V E J F O D R E V V M B U V E U P S T L
D I B O H F E F Q F O E J O H P O X I F U I F S U I F Z G B D F B M P T T P S B H B J O * O H F O F S B I
F G G B O U E F U V T R V E P T S E U S F B D J F B I E T B N F Q N I V N B Q C C H O U P W P R E S T L
X I F O F Z N J H U N B L F B D R B U F B S I B O X E I F O F Z N J H U N B L M B U T F J S O R J O S B
N P S T J Z 1 6 J T J O D R I O O X J I U F G S F D U B T I E U B O S E B N P M P S F W S I W C F W S
J T G V Q E E G S G O D R U Y T U G S N W S Z B M F U P G T G R D W F O B O E S B D M B S T U B I E
Q P Q V M B U J P O 5 I F S F G P S F J U M F B E T U P B O P U I F S H F O F S B M U I F P S F U J D B M
' P M P X O H S E J T D V P T O G R E T U K P Q S M E F D P Q D R F U D J E N P M E U H D I B S J T E F E
D B U F E U P F Y Q F S J N F O U B M F W J E F O D F P G U I F M J N J U B U J P O T P G I V N B O C F S
E F J P O N B J D H V S V E F S B U Z I S D F U J O G F S U B O V M B R J O G R E Q C B M F J T S B
J N Q S B J O O E P O I Z S G U F J D M J O E V M K I P O F U P E H S T E Z T J V B R J O B O V W E F X I U B
B O P J O P U B L E V E M P S Q M Z N B I S F X I P N U V E S H D B M Q Q U F U F G F O J V F O T P
Q P M J D Z E F Q F O E J O H P O I P X J U J T Q S F T F O U F E U P D J U J [F O T
5 P D P O D M V E F U I J T E P D V N F O U E P F T O P U B J N U P C F B O F Y I B V T U J W F E F T D
N B J D H V S S E B O E S B U D Z E U S S T J N J T U P H F V E M P S P G T P N N F Q S B J O Q J H U T
G S P N F D P O P N J D T B O E Q T Z D I P M P H Z U I B U B S F M J O L F E X J U I S J T L B O E V O D

FYdfcXi Vjb[h.]gXcW/a Ybh

FZ[eValg_ Wf [e fUweW SUadV[Y fa fZW5dVf[hW5a_ _ a` e 3ffd[Tgf[a` ž@a` 5a_ _ ValSž @a` 6 Val[hSf[hW[UWUVžKag SdWdWfa eZSdWUabki fčS` e_ [f S` V V[efdTgfVfZWValg_ Wf g: Wd fZWVa`ai [Y Ua` V[f[a` e



3ffd[Tgf[a` žKag_ gef Sffd[TgfWZW ad] [fZW_ S` ValbW[XW Tk fZWSgfZadad fUWead /Tgf` af [S ki Sk fZSf egYVefZSf fZVW VVadeWkag adkagdgeWdXfZW ad] fž

@a` Ua_ _ ValSžKag_ Sk` af eW`fZ[eValg_ Wfž

@a Wd[hSf[hW ad] ežKag_ Sk` af S`Vd fčS` e`ad_ adTg[V gba` fZ[ei ad] ž



Kag US Vai ` aSV fZ[eValg_ Wf S` VafZVde[fZW5SZ[Ve WSEÄUgdfÄ;` Vgef[VWVa`Wf[a` fXca_ 8a` 5E; ei W e[fVž6alg_ WfeSdMShS[ST`W[f` /ad fST`Ve S` V VždVSWefS` V /ad = [V WždVSWefS` BSobVhVde[a` eUS` TVadWdW` a` f` Wca_ Sbd[fža` žWV_ S` V eVh[UWž



8ag` VSf[a` XadS` ;` Vgef[V`S`ESWk 5g`fgdW
SbgT`U[fVWf dVWsdLZ Xag` VSf[a`
y!+fk@SS?M/€TdZ?, .x@

S`AWC_ [W? a` ea 4B
Fag`ageWUWVj
8dS UW

FWWZa` WŁ
Fi [ffVd QeyW/€TdZ
7_ S[^ t, €tr t:QW/€TdZ?, .x



ISSN en cours d'attribution

6 allée Émile Monso
ZAC du Palays - BP 34038
31029 Toulouse cedex 4 - France

www.foncsi.org