

: Ygh]j U`d fY]gY`]b`6UmYfb`ghY][ Yb  
XfUa Uh]gWk .`K Ug`a ØggYb` : Ub g`k ]ggYb 3

8 ]Y`H]W\_Yhd fY]gY`ZØf` : Ygh]j U`g`i bX`J YfUbghU`hi b[ Yb`]b  
6UmYfb`ghY][ Yb`XYi h`]Wk ""BYi Y`GhUh]gh]\_Yb`nY][ Yb  
`bZUh]cbgZU`hc fYb`i bX`DfY]gYb hk ]W`i b[ Yb`"



6UmYfbž`8Yi hgWk`UbX`!`8Yf`6Ygi Wk`j cb`A i g]\_ZYgh]j U`g`]b  
6UmYfb`k ]fX`hYi fYf`"5\_hi Y`Y`8UhYb`XYg`@UbXYgUa hg`ZØf`GhUh]gh]\_  
nY][ Ybž`XUgg`X]Y`H]W\_Yhd fY]gY`ZØf`C dYfbž`A i g]WU`g`i bX`?cbnYfhY  
i a` , ž( `DfcnYbh[ Ygh]Y[ Yb`g]bX`"8]YgY`DfY]gghY][ Yfi b[ `ØVYfghY][ h  
XUg`J ]YfZUWk`Y`XYf`U\_hi Y`Yb``bZUh]cbgfUhYž`X]Y`Ui h`6F`]a`'5df`  
&\$&'`VY]`&ž) `DfcnYbh`U[ `i bX`Y]bYb`5bgh]Y[ `]a`J Yf[ `Y]Wk`ni`A`Àfn  
&\$&'`XUfghY`hž`U`g`X]Y`bZUh]cbgfUhY`bcWk`VY]`&ž`DfcnYbh`U[ "

Ni gÀhn`]Wk`ni`XYb`H]W\_Yhd fY]gYb`UVYb`Ui Wk`X]Y`DfY]gY`ZØf`  
7Ua`d]b[ Ui`gfØghi b[ `Y]bYb`5bgh]Y[ `j cb`' ž+`DfcnYbh`YfZU`fYbž`k Ug  
: Ygh]j U`VYgi Wk`Yf`VYbZU`g`VYfØW\_g]Wk h[ Yb`gc`hYb`"6YgcbXYfg  
ghUf`\_g]bX`XUVY]`X]Y`DfY]gY`ZØf`NY`hY`[ Ygh]Y[ Ybž`X]Y`i a`%)  
DfcnYbh`hYi fYf`[ Yk`cfXYb`g]bX`"GWk`UZgÀW\_Y`i bX`UbXYfY

5i gfØghi b[ g[ Y[ YbghÀbXY`k ]Y`@ Zha UhfUhmYb` \ UVYb`YVYbZU`g  
DfY]gYf\Ø\i b[ Yb`YfZU\fybžk À\fybX`Y]b][ Y`5fh]\_Y`k ]Y`; f]`g`i bX  
A i g]\_Vcl Yb`ja` DfY]g`Y]W\h`[ YZU`Yb`g]bX"

DfY]gYb hk ]W\_`i b[ Yb`VY]`@YVYbga ]hhY`b`i bX  
< m[ ]YbY

8]Y`DfY]gYb hk ]W\_`i b[ `ja` @YVYbga ]hhY`gY`hcf`nY][ h`[ Ya ]gW\hY  
HfYbXg" K À\fybX`8cgYbgi ddYb`i a` ( ž( `DfcnYbh`hYi fYf`k i fXYbž  
j YfnY]W\byb`7cfbZU\_Yg`Y]bYb`F ØW\_[ Ub[ `j cb`) ž- `DfcnYbh"  
A ]bYfU`k UggYf`]gh`i a` &ž%`DfcnYbh`[ Ygh]Y[ Ybžk À\fybX`X]Y`DfY]gY  
ZØf`9fZf]gW\i b[ g[ YhfÀb\_Yž`6]Yf`i bX`K Y]b`Y]W\h`i a` V]g`ni`%ž  
DfcnYbh`ni [ Ybca a Yb` \ UVYb" `5i W\`fYnYdhZfY]Y`GWa Yfna ]hhY`  
\ UVYb`bi f`i bhYfXi fW\gW\ b]hh]W\Y`DfY]gghY][ Yfi b[ Yb`Yf`YVh"

⇒a`6YfY]W\`< m[ ]YbYUfh]\_Y`g]bX`YXcW\`XYi h`]W\Y`DfY]gUbgh]Y[ Y`ni  
j YfnY]W\byb" `8]Y`DfY]gY`ZØf`8YcXcfUbhg`g]bX`i a` ž) `DfcnYbh  
[ Ygh]Y[ Ybžk À\fybX`8i gW\ [ Y`i bX`G\Ua`dcc`5bgh]Y[ Y`j cb`, ž%  
i bX`- ž+ `DfcnYbh`Ui Zk Y]gYb" Hc]`YhhYbdUd]Yf`]gh`i a`) ž+ `DfcnYbh  
hYi fYf`[ Yk cfXYb" `5b[ Yg]W\hg`X]YgYf`9bhk ]W\_`i b[ Yb`Ya`d]Y`\`h`XUg  
@UbXYgUa`h`ZØf`GhU]gh]\_ž`]bgVYgcbXYfY`ZØf`; Ygh]j U`gž`Ui Z`X]Y  
A ]hbU\`a`Y`gck c`\`j cb`G\Ua`dcc`U`g`Ui W\`j cb`8i gW\ [ Y`ni  
UW\hYb"

9]bZ`i gg`XYf`⇒bZ`Uh]c b`Ui Z`UbXYfY`6YfY]W\Y

8]Y`ghY][ YbXYb`DfY]gY`g]bX`b]W\h`Ui ZXYb`H]W\_Yh`i`i bX  
@YVYbga ]hhY`gY`hcf`VYgW\ fÀb`h" `5i W\`ja` `6]`Xi b[ gk YgYb` \ UVYb  
X]Y`DfY]gghY][ Yfi b[ Yb`a` ]h`- ž+ `DfcnYbh`Y]bYb` \ c`Yb`K Yfh`YffY]W\h"  
6Y]; UghghÀhhYb`i bX`6Y`YfVYf[ i b[ gX]Ybgh`Y]ghi b[ Yb`Y]Y[ h`X]Y  
DfY]gghY][ Yfi b[ `VY]) ž- `DfcnYbh" `8]Y`A Y`fk YfhghYi YfYf\Ø\i b[  
Ui Z; Ug`i bX; Yfbk Àfa Y`gY]h`5df]`&\$&`k ]fX`U`g`Y]bY`XYf  
< Ui dhi fgUW\Yb`ZØf`X]YgY`5bgh]Y[ Y`[ YgY`Ybžk À\fybX`X]Y`DfY]gY  
]a`6YfY]W\`<Ui g\U`hgYbYf[ ]Y`gc[ Uf`i a` ( ž) `DfcnYbh`[ Ygi b\_Yb  
g]bX"

Ni gUa`a`Yb[ YZUggh`nY][ Yb`X]Y`U`hi Y`Yb`GhU]gh]\_Ybž`XUgg

ghY][ YbXY`DfY]gY`i bX`Y]bY`Ub\U`hYbXY`ϕZUh]cb`X]Y`Z]bUbn]Y`Yb  
 A Ò[ `]W\_X]hYb`XYf`6Øf[ Yf`]b`6UmYfb`VYY]bZi ggYb`"6YgcbXYfg  
 : Ygh]j U`VYgi W`Yf`gc`hYb`g]W`Ui Z`\Ò\YfY`?cghYb`ZØf`H]W\_Yhg`i bX  
 [ fi bX`Y[ YbXY`5i gfØghi b[ Yb`Y]bghY`Yb`"K Y]hYfY`ϕZcfa Uh]cbYb  
 ni `DfY]gYbhk ]W`i b[ `i bX`ϕZUh]cbggUh]gh]\_`V]YhYh`8 YghUh]g"

8 YhU]`g	
C fh	6UmYfbž`8 Yi hgW`UbX
E i Y`Yb	<ul style="list-style-type: none"> <li>• k k k "dbd"XY</li> <li>• k k k "Vf"XY</li> <li>• k k k "XYghUh]g"XY</li> </ul>

6Ygi W`Yb`G]Y`i bg`Ui Z.`b!U[ "bYh