

# CQ BOLAND



NUUSBRIEF VAN  
DIE BOLAND AMATEUR RADIO KLUB

Maart 2015

## KOMITEE VAN BOLAND AMATEUR RADIO KLUB

|                    |        |                    |
|--------------------|--------|--------------------|
| Conrad Esterhuysen | ZS1ES  | zs1es@bark.org.za  |
| Jan van der Vyver  | ZS1VDV | zs1vdv@bark.org.za |
| Rassie Erasmus     | ZS1YT  | zs1yt@bark.org.za  |
| David De Kock      | ZS1DDK | zs1ddk@bark.org.za |
| Olivier van Staden | ZS1OLI | zs1oli@bark.org.za |
| Fabian Palm        | ZR1FQ  | zr1fq@bark.org.za  |

### Gekoöpteerde Lid

|              |       |                 |
|--------------|-------|-----------------|
| Deon Coetzee | ZR1DE | pib@bark.org.za |
|--------------|-------|-----------------|

### KLUB BULLETINS

Tyd: Sondae om 07H45  
 Frekwensies: 3670 kHz, 7092 kHz LSB, 145.700 FM & ECHOLINK

### WEBWERF

Bark.org.za

### FACEBOOK

facebook.com/bolandamateurradioklub

## KENNISGEWING VAN DIE VOLGENDE BARK VERGADERING

Graag herinner ons lede van die klub vergadering op 21 Maart om 11h00 by die Voortrekker saal Wellington. Sien aanwysings na die geleentheid op bladsy 4 van CQ Boland.

### BYDRAES TOT CQ BOLAND

Die redaksie van CQ BOLAND verwelkom alle bydraes vanaf Boland se amateurs en vriende van die klub. Bydraes mag egter volgens die diskresie van die redakteur aangepas en geplaas word om sodoende die gepastheid en kwaliteit van inligting en artikels te verseker. Bydraes moet ten minste vier weke voor die datum van die volgende vergadering aan die redaksie met E-pos gestuur word.



**Stuur u bydraes aan:**



Redaksie epos: zr1fq@bark.org.za

## **VAN DIE VOORSITTER**

Ek sien uit om u te sien by die ledevergadering op 21 Maart 2015 by die Wellington Voortrekkers se perseel. Bly asseblief ook vir die gebruikelike 'bring en braai' na die vergadering.

Ek sien uit na vanjaar se amateur radio bedrywighede. Die komitee is reeds besig met die beplanning vir 'n spesiale geleentheid waarvan die details nog bekend gemaak sal word. Dit is belangrik dat soveel moontlik lede betrek word by sulke geleenthede en enige voorstelle in die verband sal verwelkom word.

Baie dankie aan die lede wie die afgelope kwartaal betrokke was met die opstel en lees van die Bulletins.

Ek verneem dat Karl ZS1KC weer besig is met die aanbied van RAE klasse. Sterkte aan hom en die kandidate.

Die AJV van die SARL vind plaas vanaf 17 tot 18 April 2015 en ek wil versoek dat u dit ondersteun as u kan.

Onhou dat u radiolisensie herna moet word voor 1 April 2015. Al is ICASA veronderstel om kennisgewings uit te stuur is dit steeds u verantwoordelikeid om seker te maak dat u lisensie betaal is voor die sperdatum.

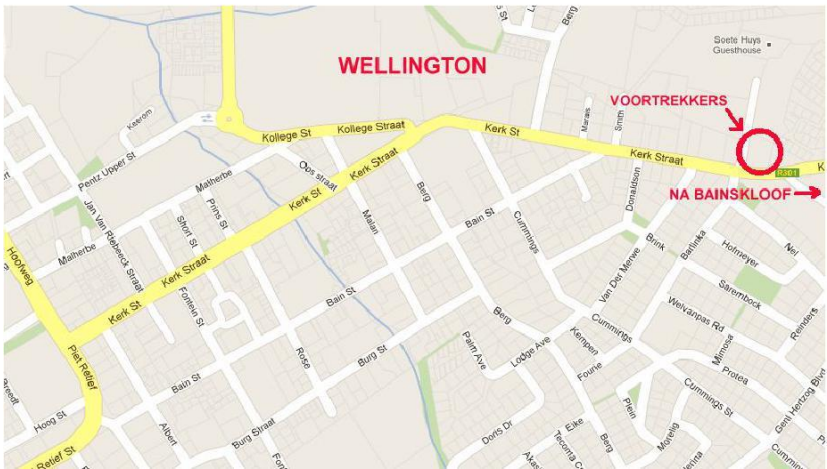
Stuur asseblief enige bydraes vir CQ Boland aan Fabian, ZR1FQ.

Conrad, ZS1ES

## BARK VERGADERING VAN SATERDAG, 21 Maart 2015

### Aanwysings na die geleentheid:

Ons volgende BARK vergadering vind plaas op Saterdag, 21 Maart om 11h00, by die Wellington Voortrekkers. Sien onderstaande kaart vir aanwysings. Die GPS koördinate is: S33.63812 E19.02004.



**U moet u eie rooster, hout, kampstoele en vleisbraaigoed saambring.**

## HERHALER SAKE

Indien u ook weekliks die Wes- Kaap herhaler verslag wil ontvang, stuur net 'n e-pos aan Rassie Erasmus by [rassie@snowisp.com](mailto:rassie@snowisp.com). Hy sal reël dat jou adres bygewerk word op die verspreidingslys. Die huidige stand van die herhalers word ook gereeld op BARK se Facebook blad gepubliseer.

Indien u ook 'n donasie aan die herhalerfonds wil maak kan u dit direk in die herhalerfonds rekening inbetaal. Stuur 'n e-pos aan een van BARK se komiteelede om die bankbesonderhede te bekom.

## HOE SLUIT EK BY BARK AAN? HOE HERNU EK MY LIDMAATSKAP?

Die maklikste manier om by BARK aan te sluit of om u lidmaatskap te hernu is om dit via die internet te doen. Ledegeld kan ook tydens ledevergaderings aan die tesourier, Rassie Erasmus, besorg word. Ledegeld is jaarliks betaalbaar gedurende Julie maand. Ledegeld vir 'n gewone lid is R100.00 en vir 'n skoolier of student R50.00

### Die bank besonderhede is:

Bank: ABSA

Tak kode: Internet – 632005 Toonbank – 334312

Rekening: 042 9720 974



## BARK BULLETINS

BARK se bulletin word elke Sondag oggend om 07H45 uitgesaai op verskeie frekwensies. Die verskillende frekwensies is gelys bo-aan bladsy 2 van CQ Boland.

BARK is altyd opsoek na nuwe stemme om die lees van die bulletins te behartig. Indien u belangstel om 'n bulletin te lees en/of op te stel, stuur gerus 'n epos aan enige van die komitee lede.

## MAPCODE

*deur Jacques le Roux ZS1JY*

Mapcode – die toekoms van liggingbepaling

Tot dusver was 'n ligging op die aardbol gespesifiseer deur die kruispunt van 'n lengtegraadlyn en 'n breedtegraadlyn, byvoorbeeld:

33.13434 grade Suid

18.23423 grade Oos

Alternatiewe stelsels het ontstaan, soos byvoorbeeld die Maidenhead Locator stelsel, waar 'n mens se ligging gespesifiseer word deur 'n vierkant met 'n unieke alfa numeriese karakterstring, byvoorbeeld:

KH61qp, wat ooreenstem met 33 grade Suid en 18 grade Oos

In 2001 het Pieter Geelen (medestigter van TomTom) en Harold Goddijn die Mapcode stelsel in Holland ontwikkel, kort nadat die volle GPS stelsel oopgestel was vir algemene publieke gebruik. In 2008 is die Mapcode algoritmes en data gratis beskikbaar gestel aan die publiek, sodat mens jou eie sagteware-applikasies kan ontwikkel.

Wat Mapcodes so veelsydig maak is dat enige punt op die aardbol verteenwoordig kan word met 'n kort string alfa numeriese karakters. In 'n groot stad is slegs 4 karakters nodig, terwyl 7 karakters nodig is in plattelandse areas. Indien die land nie gespesifiseer word nie, is hoogstens 9 karakters nodig. Voorbeelde:

Kaapstad Stadsaal se ligging:

Suid-Afrika spesifieke kode = (ZAF) B6.5R

Internasionale kode = 7K2CC.7MB0

Op die N7 snelweg, net suid van Malmesbury, Wes-Kaap:

Suid-Afrika spesifieke kode = (ZAF) QN.FD6W

Internasionale kode = 7K317.RGW6


Hoek van Ququzele en Tyayo Strate, Khayelitsha, Wes-Kaap:

Suid-Afrika spesifieke kode = (ZAF) MS.WFT

Internasionale kode = 7K33Z.1PDF

'n Mapcode se ligging kan vertoon word op 'n kaart d.m.v. spesifieke webtuistes, asook Android en Apple OS slimfoon applikasies. Mapcodes kan natuurlik woordeliks vinniger gekommunikeer word as die klassieke lengtegraad-breedtegraad kombinasie. Navigasie, veral na adresse in onder-ontwikkelde areas, sal bespoedig word, en nooddienste, munisipale dienste ens. sal daarby baat.

Besoek gerus [www.mapcode.com](http://www.mapcode.com) vir meer informasie. Gebruik ook Google om te bepaal tot watter mate Mapcodes tans in gebruik is, veral in ons eie land.


English UK ▶

# MAPCODE


A short address for any location on Earth

Home
About mapcodes
Downloads
Interactive map
About us
Mobile

### What is a mapcode?

Mapcodes are a free, open way to make every house or location on Earth addressable by a short code. With nothing else except your mapcode, for instance, a navigation system will bring someone to within meters of your front door.

[Read more about mapcodes.](#)



Ireland  
OC.T4

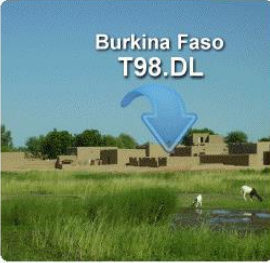
### I have a mapcode

If you have a mapcode, e.g. from a business card, you can enter it here:

Netherlands




[Switch to another country](#)



Burkina Faso  
T98.DL

### I want a mapcode

You can point out your location on an internet map, like Google Earth, TomTom Maps, Bing Maps and many others. It is even better if you can measure your location using a mobile phone, a navigation system, or some other device.



Egypt  
4Z.V08

## PEARS BHF KOMPETISIE WENNER AFDELING 1

Boland Amateurradioklub het die prys geborg vir die wenner van afdeling 1.

Die prys was 'n koopbewys ter waarde van R850 by Commco. Sybrand ZS1SAS het die 144MHz FM kategorie in bogenoemde kompetisie gewen en die prys is aan hom toegeken. Baie geluk.

## AMATEUR RADIO SONDER ESKOM

deur Fabian Palm ZR1FQ (*bron- ctsolar.com & eham.net*)

Amateur radio se grootste voordeel is sekerlik dat dit werk wanneer niks anders werk nie! Selfs al werk jou HF of 2 meter radio van 'n kragbron af, is dit goed om 'n battery/son herlaai stelsel beskikbaar te hou vir wanneer die ligte af gaan in sonnige Suid- Afrika.

Ek het twee insiggewende bronne op die internet gekry wat bietjie insig verskaf oor die opstel van 'n sonkrag stasie en die punte waarop jy moet let wanneer jy jou stasie op sonkrag bedryf.

1. Daar is 'n paar dinge om ingedagte te hou wanneer jy jou stasie op battery krag laat loop. Baie sonkrag beheerders kan RF geraas veroorsaak wanneer dit laai. Goeie insulasie/ grond of DC filtrasie behoort die probleem op te los.
2. Sonkrag is ideaal vir radio kommunikasie want dit verhoed die tipiese gesuis (60 cycle hum) wat deur kragbronne veroorsaak word. Natuurlik beteken dit ook onafhanklikheid van die Eskom krag toevoer/geen toevoer asook "power surges". Sonkrag vir amateur radio help in die vervulling van die nommer een doel van amateur radio: Betroubare kommunikasie in tye van nood.
3. Die sonkrag behoeftes van die normale radio amateur stasie behoort genoegsaam voorsien te word deur die gebruik van 200 Watt in son panele met 300 – 500 ampere ure se batterye. 'n Amateur radio stasie se son panele kan ook genoeg krag voorsien vir die herlaai van noodsaaklike huishoudike battery gedrewe items en selfone.
4. Die leeftyd van die son gelaaide batterye, en gevolglik hoeveel batterye jy gaan benodig, hang af van hoeveel uur per dag die stasie gebruik word. Hieronder volg handige inligting van die webblad <http://solarpoweredhamradio.com/>

The battery capacity you will need for your solar powered ham radio station depends upon several factors (I'm also assuming that you will be using a Sealed Lead Acid (SLA) battery.)

- The radio's current draw on receive
- Percentage of the time you expect to be in receive mode
- The radio's current draw on transmit
- Percentage of the time you expect to be in transmit mode



- How long you intend to operate

Let's say:

- 2Ah on receive
- 20Ah on transmit
- 50% receive / 50% transmit
- operating 4 hours per day

Since I'm in receive mode half the time, and consume 2Ah on receive, that means I'll consume 1 amp in receive mode per hour.

Since I'm in transmit half the time, and consume 20Ah on transmit, that means I'll consume 10 amps in transmit mode per hour.

My hourly current draw is the sum of those two, or 11 amps.

If I'm going to operate for 4 hours per day then I need 44Ah of capacity.

Expressed as a formula, it looks like this:

$$((Pr * Ir) + (Pt * It)) * Ho$$

Pr = Percentage of an hour in receive mode, expressed as a decimal from 0 to 1

Ir = Current draw in receive mode, in amps

Pt = Percentage of an hour in transmit mode, expressed as a decimal from 0 to 1

It = Current draw in transmit mode, in amps

Ho = number of hours of operation

Using our example of 44Ah of needed capacity, let look at batteries.

The following chart is from [solarnavigator.net](http://solarnavigator.net):

| Battery State of Charge | Battery Voltage |
|-------------------------|-----------------|
| 100%                    | 12.7            |
| 90%                     | 12.5            |
| 80%                     | 12.42           |
| 70%                     | 12.32           |
| 60%                     | 12.20           |
| 50%                     | 12.06           |
| 40%                     | 11.9            |
| 30%                     | 11.75           |
| 20%                     | 11.58           |
| 10%                     | 11.31           |
| 0%                      | 10.5            |

What this chart says is that if your battery's voltage is 12.2V then it contains 60% of its rated capacity. It's important to note however that if you use up 100% of the battery's rated capacity you have killed it, meaning you have drastically shortened its life. In fact, to preserve battery life you never want to get into the yellow zone in the above chart. This means that if it says 20Ah on the side of the battery it really means that you can use only 14.4Ah (the top 60%) without permanently damaging it.

To be technically precise, this measurement should be taken when the battery is not under load and has been resting for 3 hours, but the chart is close enough for our purposes. Also keep in mind that the industry standard for battery ratings is to assume that the discharge takes place continuously over

a period of 20 hours. Longer or shorter

Using our example and the above chart, to obtain 44Ah of capacity we need to buy a battery with a capacity of  $44 / .6 = 73.33\text{Ah}$ .

Here is the formula to account for this:

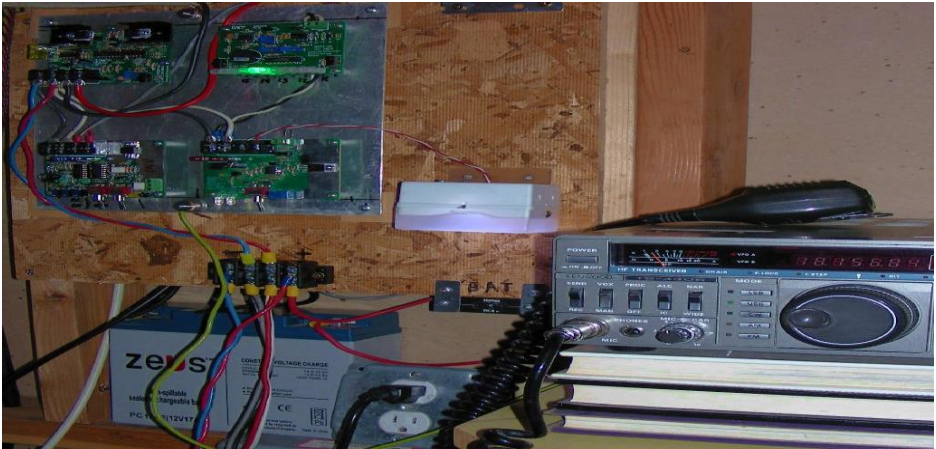
$$(((Pr * Ir) + (Pt * It)) * Ho) / .6$$

If your solar panel is simultaneously charging the battery (and if you only operate on sunny days) then you can get by with a smaller battery. If the solar panel and charge controller can deliver 60 watts ( $12\text{V} * 5\text{ amps}$ ) to the battery, then for each hour of operation you'll be recharging the battery by 5 amps. In four hours that's 20 amps.

Theoretically then you could get by with a 53.33Ah battery. Given system inefficiencies however that is probably optimistic. (I'll update this post after I run some actual real-world tests.

And one final consideration: Batteries sitting on the shelf will gradually lose capacity over time. Trickle chargers are inexpensive and the battery should be kept on one when not in use.

Hier is 'n volledige stasie soos gesien op <http://www.solorb.com/elect/solarcirc/fourkits/>



## Solar Powered 12V Ham Radio Station

(C) 2012, G. Forrest Cook

### Introduction

This article shows how to power an amateur radio station from solar power using four kits that are available from [CirKits.com](http://CirKits.com). The kits have been designed to work together in a modular way, each kit provides a unique function. A subset of these kits can be combined if one does not need all of the functions shown here. As an example, the SCC3 and BVM1 kits could be used together for a portable ham radio power system.

The four kits shown are the [SCC3](#) photovoltaic charge controller, the [BVM1](#) LED battery voltage monitor, the [LVD1](#) low voltage disconnect and the [DAS1](#) dark activated switch. The LVD1 output inversion modification has been applied to make the circuit a low voltage connect, this allows it to turn on an auxilliary AC-powered battery charger via a solid-state relay.

Each kit provides a unique function for the assembly. The SCC3 kit regulates the solar charging of the lead-acid battery, it switches the photovoltaic current to the battery on and off to maintain a user-defined float voltage. The BVM1 kit monitors the changing battery voltage, it can also be set to beep when the battery voltage is too low.

The LVD1 kit is wired with the inverted output modification shown at the bottom of the [LVD1](#) page. The LVD1 output controls a solid-state relay that switches on the AC power for a [DC Power Supply](#) that is used to charge the lead acid battery from AC line power.

Finally, the DAS1 kit is used to control DC operated [LED lighting](#). The DAS1 can be set to turn on the lights automatically at dark, or when they are manually switched on. It also has a built-in low voltage disconnect feature that shuts the lights off if the battery voltage drops too low.

When used together, the four kits allow an amateur radio station to run automatically from solar power when the sun is shining and from AC power when the sun is down. Additionally, the high-discharge capability of the lead acid battery can provide more than 20 amps of current when transmitting, but only requires a small DC power supply for recharging. This eliminates the need for an expensive 20 Amp DC power supply. Operation in this manner is limited by the transmit duty-cycle that is used.

Note that all four of these kits are designed to produce very little spurious RF output. Many commercial charge controllers use switch-mode technology that radiates a lot of RF noise. DC to AC inverters also generate high levels of RF noise. An all-DC power system can be advantageous, especially when operating on shortwave frequencies.

## Construction

The four kits were assembled on a large sheet of aluminum using insulated spacers and 4-40 hardware. The aluminum sheet was mounted over thin wood spacers to a piece of MDF board that was screwed to the wall. The upper and lower grounding points were built with a collection of 10-32 screws, nuts, washers and thumb-nuts.

All of the high-current electrical connections were made using crimp-on spade lugs. The lugs were first crimped then soldered to the wires to assure low resistance connections. All of the current-carrying lines are made with 12 gauge stranded AC wiring, high temperature THHN insulation is recommended. Two wires were inserted into single spade lugs on the SCC3 battery connector to save space on the connector, this can be seen on the black and white wires in the photos.

A 30 amp DC-rated circuit breaker (available on eBay) was wired between the battery and the DC Bus terminals, this is essential for protection against shorts and fire. A lower current DC switch or circuit breaker should be used in series with the PV panel to allow the PV current to be shut off when servicing. If the PV panel has a built-in series diode, the diode should be shorted out. The SCC3 has a built-in low-loss Schottky diode.

The solid state relay was mounted inside of a "4x4" electrical box with an outlet cover, this is shown next to the lead acid battery in the photograph. The DC power supply is

plugged into the same box and an AC cord is routed into the box with a standard romex cable clamp.

The PV panel's frame is bonded to a third conductor in the PV feed wire, that is grounded to the aluminum panel. The aluminum panel is grounded to a nearby copper cold water supply pipe, which also serves as the main shack ground.

### **Calibration**

The SCC3 kit can be calibrated in-circuit, it should be set to float the battery at around 13.8V (depending on the battery type). The other kits should be calibrated out of the assembly using the calibration instructions supplied with the kits. A variable-voltage DC supply and a digital volt meter should be used for accurate calibration. It may take some experimentation to select the appropriate on and off voltages for the LVD1 kit. Turning the AC charger on at 12.3V and off at 13.6V is a good starting point.

### **Use**

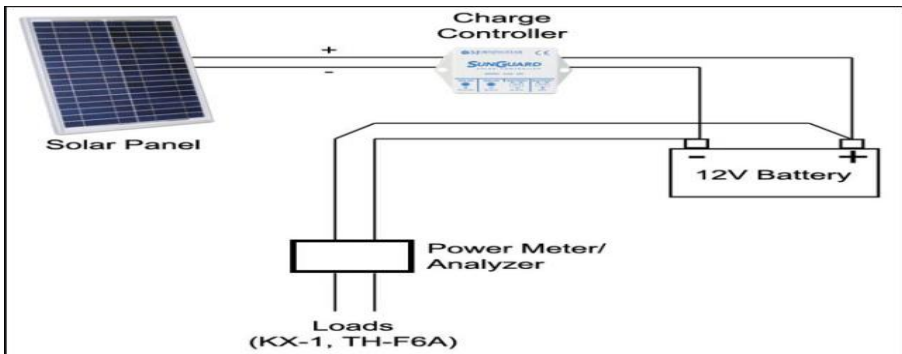
Operation of the main DC supply is fully automatic, just turn on the ham radio and transmit when you want. The lights will flicker on the various boards as the battery voltage rises and falls. The BVM1 board has fairly bright LEDs that flash for its voltage indicator, it may be less distracting to switch the LEDs on constantly by switching the board to calibrate mode. The DAS1 board can be used to manually or automatically turn the LED lighting on and off.

### **Larger Batteries**

The 17 Amp-Hour battery shown in the initial setup was able to run a low power (QRP) radio for quite a long time before the AC charger turned on. When transmitting with the Kenwood TS-430S for any length of time, the AC charger would turn on, and the internal resistance of the battery caused the Kenwood to dim and act badly when transmitting at full power. The original battery was replaced with a 180 Amp-Hour wet cell deep cycle battery (Super Start SSB 27DCMJ). Even this battery had trouble keeping up with the Kenwood's >20 Amp peak current drain when running at full power. One reader recommended switching to Interstate batteries, they have cylindrical cells and can apparently produce higher peak currents.

To solve the peak current problem, a 4.4 Farad 20V super capacitor was connected directly across the DC input terminals of the radio. These devices are commonly used as stiffening capacitors for automotive subwoofer amps and can be purchased on eBay for about \$40. The capacitor has such a large surge when it is initially charged that it can easily trip a 30 amp circuit breaker. A push-button start switch in series with a 15 ohm, 10W resistor was wired across the load circuit breaker. Just push the start switch for a few seconds before closing the circuit breaker. The radio works much better with the super capacitor across its power source. The capacitor's built-in voltmeter circuitry consumes about 30mA of current when idle (360mW), the load circuit breaker should be shut off when not in use to prevent unnecessary battery cycling.

For even more reserve power, a pair of 6V/225 Amp-Hour golf cart batteries such as the Trojan T105 type could be used. The stiffening capacitor would still be a good addition to the Trojan battery pair. Consult the [SCC3 FAQ](#) document for information on battery and PV sizing. If you use a wet-cell lead acid battery, be sure to put the battery into a box with a small vent fan that is ducted to the outdoors. Lead acid batteries produce explosive hydrogen gas and acidic vapors when they are under heavy charge and discharge.



### AMATEUR RADIO NEWS LINE

Amateur Radio News Line word Maandag aande om 19h30 deur André ZS1F uitgesaai op die 145.700 herhaler. Moenie hierdie uitsendings misloop nie.

## UIT MY KAMP KOMBUIS

deur André Ellis ZU1KOK

### KERRIE VIS

#### Bestanddele

- 1kg stokvis (vel aan)
- ½ koppie bruin suiker
- 5 knoffel huisies
- 2 groot uie
- 1 koppie druiwe asyn
- ½ koppie water
- 8 peperkorrels (peppercorns)
- 4 naeltjies (cloves)
- 4 allspice berries
- 2 lourierblare (bay leaves)
- 1 eetlepel masala (kerrie poeier)
- 2 teelepels fyn komyn (cumin)
- 2 teelepels fyn koljander (coriander)
- 1 teelepel borrie (tumeric)
- olie vir braai

#### Metode

Sny knoffel fyn. Skil uie en sny in ringe. Sny vis in eetbare porsies (los vel aan) en braai in olie tot deurgaar. Plaas res van bestanddele in groot pot, bring tot kookpunt, roer gereeld om te verseker suiker los op en brand nie vas nie. Verlaag hitte en prut vir 8 minute totdat uie gaar maar steeds krakerig is. Pak vis in keramiek of glasbak en gooi uie & sous oor. Herhaal totdat vis op is. Maak seker die laaste laag vis is bedek met sous. Laat afkoel en plaas dan in yskas. Sal tot 1 week in yskas hou. Eet en geniet.



Van:

BOLAND AMATEUR RADIO KLUB